**BIFAD Public Meeting (Hybrid)**

***Elevating Climate Change Adaptation and Mitigation in USAID's Agricultural, Nutrition, and Food System Programming to Inform Strategy Implementation: A Discussion of the BIFAD Climate Change Subcommittee Draft Commissioned Report***

**Meeting Minutes**

September 11, 2023 | 10:00 AM–12:00 PM EDT and 1:30–3:30 PM EDT
Willard InterContinental Hotel, Grand Ballroom
1401 Pennsylvania Avenue NW, Washington, DC 20004

**Board for International Food and Agricultural Development (BIFAD) Members:**

**Laurence B. Alexander**, BIFAD Chair and Chancellor of the University of Arkansas at Pine Bluff (in-person)
**Pamela K. Anderson**, Director General Emerita, International Potato Center (absent)
**Marie Boyd**, Associate Professor, University of South Carolina School of Law (online)
**Rattan Lal**, Distinguished Professor of Soil Science, The Ohio State University (in-person)
**Saweda Liverpool-Tasie**, Michigan State University (MSU) Research Foundation Professor, Department of Agricultural, Food, and Resource Economics, MSU (online)
**Henri G. Moore**, Vice President/Head of Responsible Business, Haleon (in-person)
**Kathy Spahn**, President and Chief Executive Officer (CEO), Helen Keller International (in-person)

**BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems Members:**

**Eva (Lini) Wollenberg**, BIFAD Subcommittee Co-Chair; Research Professor, Gund Institute, University of Vermont; and Associate Scientist, Alliance of Bioversity International and CIAT (in-person)
**Erin Coughlan De Perez**, BIFAD Subcommittee Co-Chair and Research Director and Dignitas Professor, Friedman School of Nutrition, Tufts University (online)
**Daniela Chiriac**, Senior Consultant, Climate Policy Initiative (absent)
**Chinenye Juliet Ejezie**, Founder and CEO, Dozliet Anim Farms Nigeria and Country Coordinator for Climate Smart Agriculture Youth Network (CSAYN) in Nigeria (online)
**Jessica Fanzo**, Professor of Climate and Director of the Food for Humanity Initiative, Columbia University (in-person)
**Mario Herrero**, Professor, Department of Global Development and Director of Food Systems & Global Change, Cornell University (in-person)
**Sophia Huyer**, Gender and Social Inclusion Lead, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), ILRI, Kenya (online)
**Andrew Muhammad**, Professor and Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee Institute of Agriculture (in-person)
**Carlijn Nouwen**, Co-founder, Climate Action Platform for Africa (CAP-A) (in-person)
**Ishmael Sunga**, CEO, Southern African Confederation of Agricultural Unions (in-person)
**Peter Wright**, Senior Technical Advisor, Climate Resilient Agriculture, CARE (online)

**Speakers and Panelists in Attendance:**

**Rob Bertram**, Chief Scientist, Bureau for Resilience and Food Security, USAID
**Kate Brauman**, Deputy Director, Global Water Security Center, University of Alabama
**Gillian Caldwell**, Chief Climate Officer, USAID

**Antony Chapoto**, Director of Research and Innovation, Indaba Agricultural Policy Institute, Zambia
**Jonathan Cook**, Senior Resilience and Climate Adaptation Adviser, Bureau for Resilience and Food Security, USAID
**Cary Fowler**, Special Envoy for Global Food Security, U.S. Department of State
**Sarah Gammage**, Director of Policy, Markets, and Finance for Latin America, The Nature Conservancy
**Chavonda Jacobs-Young**, Under Secretary for Research, Education, and Economics and Chief Scientist, U.S. Department of Agriculture
**Moffatt Ngugi**, Natural Resources Officer, USAID/Mozambique
**Bambi Semroc**, Senior Vice-President, Center for Sustainable Lands and Waters, Conservation International
**Rebecca Shaw**, Chief Scientist and Senior Vice President, Global Science, World Wildlife Fund

## Morning Session

### *A Vision for USAID Research to Advance Food Security, Nutrition, Climate, and Environment Goals*

**Welcome and Framing Remarks**
***Laurence Alexander, Board for International Food and Agricultural Development (BIFAD) Chair and Chancellor of the University of Arkansas at Pine Bluff***

Dr. Laurence Alexander, Chair of the Board for International Food and Agricultural Development (BIFAD), and Chancellor of the University of Arkansas at Pine Bluff welcomed attendees, both in-person and online, to the public meeting, *Elevating Climate Change Adaptation and Mitigation in USAID's Agricultural, Nutrition, and Food System Programming to Inform Strategy Implementation: A Discussion of the BIFAD Climate Change Subcommittee Draft Commissioned Report*, and acknowledged the participation of representatives from the Feed the Future (FTF) Innovation Labs.

Dr. Alexander said that BIFAD is a seven-member, presidentially appointed advisory committee to the U.S. Agency for International Development (USAID or the Agency), established under the Foreign Assistance Act, and its primary role is to facilitate connections between USAID and the U.S. university community to address development challenges related to agriculture, nutrition, and food security.

Dr. Alexander invited BIFAD members to introduce themselves: Rattan Lal, Distinguished Professor of Soil Science, The Ohio State University (in-person); Henri Moore, Vice President/Head of Responsible Business, Haleon (in-person); Kathy Spahn, President and Chief Executive Officer (CEO), Helen Keller International (in-person) and co-chair of the Nutrition CEO Council; Marie Boyd, Associate Professor, University of South Carolina School of Law (online); and Saweda Liverpool-Tasie, Michigan State University (MSU) Foundation Professor, Department of Agricultural, Food and Resource Economics, MSU (online). Dr. Alexander conveyed regrets from BIFAD member Pamela Anderson, Director General Emerita, International Potato Center, who was absent.

Dr. Alexander presented the purpose of the meeting, referencing the previous year when USAID Administrator Samantha Power charged BIFAD with advising the Agency on how to integrate climate change adaptation and mitigation more effectively into its agricultural and food systems programming. BIFAD responded by establishing an expert subcommittee, the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems (the Subcommittee), led by co-chairs Eva (Lini) Wollenberg, Research Professor, Gund Institute, University of Vermont, and Associate Scientist, Alliance of Bioversity International and CIAT; and Erin Coughlan de Perez, Research Director and Dignitas Professor, Friedman School of Nutrition, Tufts University. To

address USAID's request, the Subcommittee commissioned and guided a study to address the ambitious goals set forth in the USAID 2022–2030 Climate Strategy[1] and the U.S. Government's Global Food Security Strategy,[2] particularly focusing on the need for systemic change in agrifood systems. The Subcommittee was asked to also consider USAID's potential role as a major global player and the operational and organizational factors that characterize the Agency's day-to-day activities.

Dr. Alexander informed the attendees that during the afternoon session, the Subcommittee members would introduce the draft BIFAD-commissioned report, *Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems,*[3] and the audience would hear feedback from a diverse group of invited respondents. He encouraged attendees to join that session and share their feedback, either during the public meeting or through the public comment period until September 18, 2023.

Dr. Alexander outlined the objective of the morning session: to explore opportunities for USAID's research agenda to contribute to shared goals in climate change adaptation and mitigation, food security, nutrition, and livelihoods. Dr. Alexander expressed gratitude to the speakers and panelists for helping to account for climate impacts while advancing food security, nutrition, and environmental goals in research. BIFAD hoped the discussion would inform the report's recommendations related to research and provide insights on how relationships among these research investments could be strengthened.

To frame the discussion, Dr. Alexander mentioned the U.S. Government's Global Food Security Research Strategy,[4] which had been recently revised to include a stronger emphasis on climate change. He noted that the co-leads of this strategy from USAID and the U.S. Department of Agriculture (USDA), would speak at the meeting.

Dr. Alexander took a moment to recognize and honor those who had lost their lives on September 11, 2001. He also acknowledged ongoing suffering worldwide, particularly in such regions as Morocco, Ukraine, and the Horn of Africa, where USAID seeks to provide relief. He noted the significance of spending the National Day of Service and Remembrance addressing climate change—one of the world's most intractable and critical problems.

Dr. Alexander welcomed Gillian Caldwell, USAID's Chief Climate Officer, and invited her to frame the morning session.

**Opening Remarks**

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[1] U.S. Agency for International Development. (2022). *USAID Climate Strategy 2022–2030*. https://www.usaid.gov/policy/climate-strategy

[2] Feed the Future. (2022). *U.S. Government Global Food Security Strategy 2022–2026*. U.S. Agency for International Development. https://www.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food-security-strategy

[3] Carr, E.R., Diro, R., Naeve, K., Hamel, R., Beggs, M., Benson, C., Caldwell, B., Mbevi, L., Hall, T., Zook, D., Alderedge, H., Liming, K., Allognon, L., Crocker, T., & Mukupa, N. (2023). *Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems*. Tetra Tech under the USAID BIFAD Support Contract. https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023

[4] Feed the Future. (2022). *U.S. Government Global Food Security Research Strategy 2022–2026*. U.S. Agency for International Development. https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

***Gillian Caldwell, Chief Climate Officer, USAID***

Ms. Gillian Caldwell, USAID's Chief Climate Officer, greeted the attendees and recalled her previous interaction with many of them just over a year prior when the Subcommittee was launched. She reminded participants of the Subcommittee's charge: to advise on transforming both agriculture and food systems to address the interconnected crises of climate change and food security.

Ms. Caldwell stressed the profound potential impact of BIFAD's work on people's lives, including enabling families and communities to feed themselves, providing a foundation for land and water management, and helping to limit land-based greenhouse gas emissions to keep warming within 1.5 degrees Celsius to avert the most catastrophic consequences of the climate crisis.

Ms. Caldwell shared insights from her recent participation at the 2023 Africa Climate Summit in Nairobi, Kenya,[5] where the challenges addressed by the Subcommittee were prominently featured. She particularly noted the fifth consecutive year of drought in the Horn of Africa that has left over 8 million people in need of humanitarian assistance and over 4 million livestock dead. Ms. Caldwell emphasized that climate change aggravates existing inequality, causing the most harm to those least responsible for its impacts, especially women, youth, and migrants.

Ms. Caldwell discussed the unambiguous terms of reference for BIFAD's work, emphasizing the need for transformational and systemic change in the agriculture and food system, given the urgency of the climate crisis. She raised questions about the practical steps USAID needs to take as a whole agency and the need for a holistic vision and roadmap to achieve these goals, including the consideration of necessary shifts in resources. She indicated that the work of individual offices and programs in aggregate is insufficient.

Ms. Caldwell reiterated the charge of the morning session agenda: the importance of research. She indicated that research is needed to develop and refine interventions to achieve required systemic change. She indicated that, given the growing devastation we are confronting, we will need improved tools over the long term to address complex climate problems. Ms. Caldwell highlighted various research needs, including linking landscape planning, transparent supply chains, and financing. How do we design resilient farming systems that can better withstand shocks and stressors? How do we support agricultural landscapes that strive for achievements beyond production to support wellbeing? How do we design farming systems that can better withstand heat waves and prolonged droughts? How do we support agricultural landscapes that deliver multiple services beyond production that support wellbeing? How do we harness novel protein sources like insects to drive economic development and improved nutrition? How do we support equitable technologies and governance for sustainable land and water management? How do we nourish healthy populations while reducing the number of ruminant livestock on the planet? And, in the worst cases, how do we address the challenges of relocating communities when their farmland and range lands no longer support agricultural production or other viable economic opportunities?

Ms. Caldwell noted USAID's substantial investment in research through initiatives like Feed the Future, with an annual budget of $150 million for various research partners, including the Feed the Future Innovation Labs, CGIAR partners, and other private- and public-sector organizations. She encouraged attendees to think creatively about the best mix of research programs, how to maximize the impact of this investment, and what could be done with the $150 million that is not already a primary area for investment. She focused the audience's attention on what needs to be done, not just within agriculture

[5] Africa Climate Summit. (2023). *Welcome to the Africa Climate Summit 2023*. https://africaclimatesummit.org/

teams but across USAID, to prioritize research needs and allocate resources and efforts to answer important questions in order to drive meaningful impact on the interrelated crises of climate and food security.

She urged attendees to step out of their organizational mandates and to be candid, courageous, and creative in their discussions, emphasizing the importance of finding solutions together. She encouraged detailed feedback on the Subcommittee report by the September 18, 2023 deadline. Ms. Caldwell thanked Administrator Power in absentia for her challenge to BIFAD to address this issue, praised BIFAD and the Subcommittee for leading a vibrant dialogue on the changes needed, and expressed gratitude to all attendees for their dedication and perseverance in addressing pressing issues.

Dr. Alexander thanked Ms. Caldwell for her insightful remarks and introduced the next speaker, Dr. Rob Bertram, Chief Scientist in USAID's Bureau for Resilience and Food Security, to discuss opportunities for research to bridge the gap between agriculture, food security, and the environment.

***Rob Bertram, Chief Scientist, Bureau for Resilience and Food Security, USAID***

Dr. Bertram conveyed gratitude to the Subcommittee for its diligent work and to BIFAD for convening the meeting, emphasizing the importance of drawing together the best minds to provide input to Administrator Power. Dr. Bertram recognized the support from various individuals and teams, including Clara Cohen, Executive Director of BIFAD; the Tetra Tech BIFAD support team; Noel Gurwick, Senior Climate and Land Advisor, USAID; and USAID's Bureau for Development, Democracy, and Innovation (DDI) colleagues, among others. He acknowledged U.S. Department of Agriculture Under Secretary for Research, Education, and Economics and Chief Scientist Chavonda Jacobs-Young and highlighted the role of the Office of the Chief Scientist at USDA in co-leading the creation of the U.S. Government Global Food Security Research Strategy under the Global Food Security Act.

He stressed that agricultural research under the Global Food Security Act must primarily lead to innovations that reduce malnutrition and extreme poverty in the areas where Feed the Future operates. Dr. Bertram emphasized that this must be done in the context of climate change and the challenges it poses to food security, environmental goals, biodiversity, water management, and other critical development objectives. Dr. Bertram highlighted the need for research to integrate both adaptation to and mitigation of climate change. Although adaptation is in the lead in the context of Feed the Future research, Dr. Bertram underscored the importance of not ignoring the role of mitigation in driving gains in adaptation. Dr. Bertram referred to a conversation with Andy Jarvis, Director of Future of Food, Bezos Earth Fund, who observed that after years of perceiving a trade-off between adaptation and mitigation, he was never able to identify one empirically. He emphasized the importance of viewing adaptation and mitigation as integrated and complementary, even if funding flows at USAID are distinct.

The paramount goal of Feed the Future, or "North Star", as emphasized by Dr. Bertram, remained the reduction of extreme poverty and malnutrition. He challenged the audience, as had Ms. Caldwell, to consider how to achieve this goal effectively. Dr. Bertram referenced the relevant forthcoming presentation on the Vision for Adapted Crops and Soils (VACS), which addresses some of these challenges, from Dr. Cary Fowler, Special Envoy on Food Security at the U.S. Department of State. Dr. Bertram encouraged specificity in thinking about how to integrate climate change response with poverty and malnutrition outcomes. He also expressed a desire to be transparent and asked the Subcommittee to communicate any concerns or gaps in information as they continue their work.

Dr. Bertram then presented two challenges: one to the Feed the Future community and the other to the broader development community. First, Dr. Bertram discussed the potential increases in research budgets being discussed on Capitol Hill and suggested that more research could be focused on tree

crops like coffee and cocoa. These crops are essential for food security, particularly for smallholder farmers, and have the potential to provide significant environmental services, including carbon sequestration, in diverse environments, but they are highly vulnerable to climate change. Dr. Bertram emphasized the important roles of U.S. universities, Innovation Labs, the private sector, CGIAR, and National Agricultural Research Systems (NARS) to contribute to beneficial outcomes.

Dr. Bertram's second challenge was the role of agriculture as a contributor to environmental problems, particularly land conversion and associated emissions. He briefly noted the Democratic Republic of the Congo as an example of a poor country with high levels of emissions associated with land conversion. He pointed to a challenging misalignment between the geographies where Feed the Future works—densely populated, agrarian areas where hunger, malnutrition, and extreme poverty are concentrated but not generally where emissions associated with land conversion are concentrated—and the geographies where emissions from land conversion are concentrated, suggesting that agriculture must be part of the solution. He called for a more integrated approach to agricultural programming, beyond silos, that considers agriculture's role in addressing global climate change, environmental sustainability, biodiversity conservation, water management, and environmental services in addition to food security.

Dr. Bertram expressed excitement about the Subcommittee's work and called for the broader community to address these challenges collectively.

Dr. Alexander thanked Dr. Bertram and invited Dr. Jacobs-Young to provide her perspective on the importance of research in addressing climate change and USDA's experience in collaboration with other agencies and partners to integrate climate considerations into agricultural, nutrition, and food systems research.

***Chavonda Jacobs-Young, Under Secretary for Research, Education, and Economics and Chief Scientist, U.S. Department of Agriculture***

Dr. Jacobs-Young welcomed all attendees. She thanked Dr. Alexander for his introduction and recognized BIFAD Members, Dr. Fowler, Ms. Caldwell, and other distinguished guests.

Dr. Jacobs-Young highlighted the current global situation, emphasizing the need to unite behind common principles to combat hunger, poverty, and climate change while building sustainable, equitable, and resilient food systems. She underscored the importance of innovation in agriculture to enhance productivity, profitability, and environmental sustainability.

Dr. Jacobs-Young referred to the U.S. Government Global Food Security Research Strategy launched by USAID Administrator Power and USDA Secretary Tom Vilsack at the World Food Prize in 2022. Dr. Jacobs-Young highlighted the strategy's focus on improving agricultural productivity and profitability while also ensuring the sector's resilience and sustainability. Dr. Jacobs-Young highlighted the strategy's development through a whole-of-government approach, with USDA and USAID co-leading the effort on research to enable affordable, nutritious diets for a well-nourished population while meeting the challenge of climate change and advancing diversity, equity, inclusion, and accessibility. She underscored the importance of key partnerships with various stakeholders, including U.S. universities, private businesses, nonprofit sectors, international agricultural research centers, and national research and extension systems in target countries, including government and civil society.

Dr. Jacobs-Young also mentioned the launch of the Agriculture Innovation Mission (AIM) for Climate[6] in 2021, together with the United Arab Emirates, which focuses on catalyzing greater investment in and

[6] Agriculture Innovation Mission (AIM) for Climate. (2023). *About AIM for Climate*. https://aimforclimate.org/

support for climate-smart agriculture and food systems innovations. AIM for Climate has over 500 partners from around the world, including 52 countries, and is growing rapidly. Its goal is to enable agriculture to be part of the solution to the climate crisis, build resilience, and create co-benefits. She emphasized that it is time to move beyond strategy and planning toward action. She encouraged all stakeholders to join AIM for Climate, emphasizing its goal of raising global ambition in addressing the intersection of food security and climate change.

Dr. Jacobs-Young shared that the United States hosted the AIM For Climate Summit in Washington, DC, earlier in the year to bring together partners and increase investment in climate-smart agriculture and food-systems innovation. She highlighted the historic significance of the summit, which raised ambition, built collaborations, and shared knowledge on innovative solutions. She noted that AIM for Climate partners announced over $13 billion in increased investment. Dr. Jacobs-Young looked forward to further advancements and elevation of AIM for Climate leading up to the 28th Conference of the Parties[7] in Dubai, United Arab Emirates later in the year.

Dr. Jacobs-Young shared details about the recently released USDA Science and Research Strategy, 2023 to 2026: Cultivating Scientific Innovation,[8] a bold three-year vision to make agriculture more profitable, productive, and sustainable for all stakeholders. She explained that USDA's five highest-priority scientific areas are outlined within the strategy: accelerating innovative technologies and practices, driving climate-smart solutions, bolstering nutrition security and health, cultivating resilient ecosystems, and translating research into action. These priorities illustrate how USDA will meet the challenges of the moment through science, research, and data. She emphasized the need to develop a high-level, integrated vision to advance these priorities in research given the interconnected nature of climate, food production systems, and food and nutrition security. She encouraged stakeholders to propose big, audacious solutions around these priorities and to be actively involved in identifying how their own work intersects with them.

Dr. Jacobs-Young thanked meeting participants and expressed excitement about the discussions ahead. She wished everyone a successful and productive day of meetings.

Dr. Alexander thanked Dr. Jacobs-Young for her remarks, highlighting the work that USDA is leading in the research space and as a partner to USAID in the U.S. Government Global Food Security Research Strategy. He also thanked Ms. Caldwell and Dr. Bertram for framing the day. Dr. Alexander then invited Dr. Fowler and Dr. Rebecca Shaw, Chief Scientist and Senior Vice President, Global Science, World Wildlife Fund (WWF), to the stage. Dr. Alexander introduced Dr. Fowler as the Special Envoy for Global Food Security at the U.S. Department of State and Former Executive Director of the Global Crop Diversity Trust, as well as a past member of BIFAD. Dr. Alexander invited Dr. Fowler to share experiences related to ongoing Department of State work at the intersection of agricultural development and climate change research.

**Sharing a Unified Vision for a Research Agenda that Supports Linked Food Security, Nutrition, Climate, and Environment Goals**
***Cary Fowler, Special Envoy for Global Food Security, U.S. Department of State***

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[7] Conference of the Parties. (2023). *COP28 UAE*. United Nations Framework Convention on Climate Change. https://www.cop28.com/en/

[8] Research, Education, and Economics. (2023). *USDA Science and Research Strategy, 2022–2026: Cultivating Scientific Innovation*. U.S. Department of Agriculture. https://www.usda.gov/sites/default/files/documents/usda-science-research-strategy.pdf

Dr. Fowler welcomed meeting participants and emphasized the U.S. Department of State's role in collaborating with implementing agencies, as it does not conduct research and development or programs on the ground, instead contributing through diplomacy, leverage, and ideas.

Dr. Fowler highlighted the Department of State's focus on core principles, which are soils and crops, given that there is no such thing as food security without fertile soils and adapted crops. Dr. Fowler quickly highlighted several key factors guiding Department of State thinking:

- Soil erosion and depletion are outstripping replenishment, particularly in regions like Africa.
- The rate of yield increases for major crops is slowing.
- Climate change poses challenges, with record-high temperatures, warming oceans, and impending El Niño events.
- There are projected yield decreases for some major crops by 2050, falling short of needed 50 percent to 60 percent yield increases.
- Incremental yearly increases in agricultural production are likely to be insufficient to meet food demand by 2050.

Dr. Fowler stressed the urgent need for increased investment in agricultural research and development, including innovative approaches, or "moonshots." He highlighted that current public expenditures on agricultural research and development, adjusted for inflation, remain at the same levels as 50 years ago, despite greater challenges.

Dr. Fowler introduced the Department of State's Vision for Adapted Crops and Soils (VACS)[9] initiative, co-sponsored with the United Nations Food and Agriculture Organization (FAO) and the African Union. The program aims to address soil and crop challenges, particularly in Africa, focusing on:

- Soil mapping and analytics to assist governments and farmers in making informed decisions on where to plant, what to plant, and farming systems given climate considerations.

- Promoting investment in traditional and indigenous crops to diversify nutrition sources, increase resilience, and improve nutrition. Dr. Fowler referenced a common position of the African Union related to the food system: that the international community has massively under-invested in traditional and indigenous crops.

Dr. Fowler outlined three steps to achieve the work of VACS. The first is to identify crops with the greatest potential to provide additional nutritional value. He noted that the program recently identified a list of 60 best-bet traditional and indigenous crops from a larger pool of 300 candidates with high potential for nutritional value and resilience. VACS considered all categories of crops, including grains, legumes, roots and tubers, tree crops, and fruits and vegetables. These lists included both traditional crops that would be familiar to international stakeholders (e.g., finger millet, fonio, sorghum, cassava, and okra) and many that would not (African locust bean, spider plant, African eggplant, lablab, African yam bean, pigeon pea, and Bambara groundnut). The next step involves working with Cynthia Rosenzweig, 2022 World Food Prize Laureate, and Columbia University to assess the resilience of these crops in a climate-changed world. Based on the combination of nutrition potential and climate resilience, the international community will have a rational basis to determine crop breeding investments.

[9] Office of Global Food Security. (2023). *The Vision for Adapted Crops and Soils (VACS)*. U.S. Department of State. https://www.state.gov/the-vision-for-adapted-crops-and-soils/

The third step is to establish a funding mechanism for this work, which requires long-term, reliable funding. The U.S. government has allocated $100 million to this effort and is working with FAO and multilateral organizations to establish a multi-donor trust fund to support work both across these identified crops and on soils. The program is intentionally focused on the basics and acknowledges that its core work is fundamental but not sufficient or comprehensive in its approach to food systems transformation. This program has also been elevated across international platforms and fora, such as within G7 discussions under Italy's term of presidency.

In conclusion, Dr. Fowler urged a serious discussion of the difference between short-term projects that will produce incremental rather than transformational change and long-term investments in agricultural research and development. He called for a shift in the discourse, emphasizing the necessity of substantial, long-term research investments and "moonshots" that will shift our current trajectory to reach 2050 goals.

Dr. Alexander thanked Dr. Fowler for sharing the Department of State's important and ongoing work. He then invited the next speaker, Dr. Shaw, to provide a complementary perspective on research that advances climate and agrifood system goals.

***Rebecca Shaw, Chief Scientist and Senior Vice President, Global Science, World Wildlife Fund***

Dr. Shaw expressed appreciation for the opportunity to participate in the discussion. She shared her enjoyment and appreciation of the Subcommittee's report, *Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation Mitigation and Agriculture and Food Systems,* given her background in climate and its impact on ecosystems, including agricultural ecosystems. Dr. Shaw highlighted the synthetic aspects of the report and observed that it goes beyond typical discussions by providing a vision for how to achieve meaningful systemic and transformational change within an institution as large as USAID, and in a learning environment. She noted that the report reflects a substantial focus on food systems in the context of health, economic, social, environmental, and climate change goals, including both adaptation and mitigation goals.

Dr. Shaw noted that the global food system is responsible for between 30 and 37 percent of anthropogenic greenhouse gas emissions, is the main driver of deforestation and biodiversity loss, and is responsible for 70 percent of all freshwater withdrawals. She linked this consumption to global challenges in water availability and freshwater biodiversity. Regarding health and nutrition, Dr. Shaw cited the global prevalence of overweight, obesity, malnutrition, and non-communicable diseases associated with the food system and the systemic nature of these problems.

Dr. Shaw referred to the current situation as a triple challenge involving climate, food systems, and nature loss. She highlighted the need for systemic intervention, rather than siloed approaches (e.g., on production, consumption, and food loss and waste). She appreciated the report's recognition of the diversity of food systems across environmental, economic, and societal contexts and the geographic and temporal balance between trade-offs and co-benefits.

Dr. Shaw applauded the report's emphasis on systemic approaches given the opportunities presented by the food system to restore nature, limit global warming to 1.5 degrees Celsius, nourish everyone within planetary boundaries, and adapt to climate change. She appreciated the report recommendations to set targets and establish a monitoring, evaluation, and learning (MEL) system to assess and track interventions' impacts to achieve those targets. Dr. Shaw emphasized the need for learning and knowledge sharing across organizations to build a collective understanding of what works.

Dr. Shaw referred to WWF's report, *Solving the Great Food Puzzle*,[10] outlining 20 levers to scale national action. To assist stakeholders in doing so, the report defines six key variables: 1) production systems, 2) the self-sufficiency of a food system within a national context, 3) food security, 4) consumption patterns, 5) biodiversity, and 6) irrecoverable carbon. She highlighted the importance of natural resource management, including soil, but also land-use management and carbon storage, governance, education and knowledge, technology, and trade and finance.

Dr. Shaw stressed that interventions to achieve targets will vary in different contexts. She emphasized the need to take a system approach, carry out analysis in the context of a system, and share research outcomes as quickly as possible through monitoring, evaluation, and learning. She explained that when work is implemented with a rigorous research program focused on evidence for learning and within an ecosystem context, it can help all of us respond to global challenges that we face within a relevant timescale. She expressed congratulations to the Subcommittee and excitement to partner with USAID and others to contribute.

Dr. Alexander thanked Dr. Shaw for her presentation. He mentioned that all framing speakers, including Dr. Fowler and Dr. Shaw, would be available to respond to questions after the upcoming panel discussion, encouraging the audience to hold questions until then. He also invited virtual attendees to submit their questions through the Q&A function on Zoom. Dr. Alexander introduced Dr. Mario Herrero, BIFAD Subcommittee Member, Professor in the Department of Global Development, and Director of Food Systems and Global Change at Cornell University, to lead the panel conversation. He welcomed Dr. Herrero and the panelists to the stage.

**Panel Discussion: Toward a Unified Vision for Research that Supports Shared Goals**
***Moderated by: Mario Herrero, BIFAD Subcommittee Member; Professor, Department of Global Development and Director of Food Systems & Global Change, Cornell University***

- ***Kate Brauman, Deputy Director, Global Water Security Center, University of Alabama***
- ***Antony Chapoto, Director of Research and Innovation, Indaba Agricultural Policy Institute, Zambia***
- ***Jessica Fanzo, BIFAD Subcommittee Member; Professor of Climate and Director of the Food for Humanity Initiative, Columbia University***
- ***Bambi Semroc, Senior Vice President, Center for Sustainable Lands and Waters, Conservation International***

Dr. Herrero expressed eagerness for the conversation and introduced the expert panelists. Dr. Herrero acknowledged that this is not a "business-as-usual" world and emphasized the complex demands placed on land and people, including food, nutrition, jobs, incomes, and environmental protection. Dr. Herrero highlighted the need to explicitly incorporate topics like nutrition, environment, and equity into all development programs by design. He underscored the growing importance of addressing climate change in agricultural development as governments worldwide internalize climate agendas as part of the Paris Agreement and in line with Nationally Appropriate Mitigation Actions (NAMAs). He emphasized that governments need support for their national policies and targets to achieve climate goals within the agricultural sector. He explained that the goal of the conversation was to support USAID in taking on this challenge.

[10] World Wildlife Fund. (2022). *Solving the Great Food Puzzle: 20 Levers to Scale National Action*. https://greatfoodpuzzle.panda.org/#great-food-puzzle

Dr. Herrero first posed a question to Bambi Semroc, Senior Vice-President, Center for Sustainable Lands and Waters, Conservation International, asking where we should focus to improve land management. Ms. Semroc acknowledged that addressing the question of improving land management is not easy. To illustrate her points, she shared an anecdote involving a conversation with her 11-year-old son, who asked her what actions the government should take regarding agriculture. Ms. Semroc highlighted the challenge of cooling down and de-stressing cows in a warming world, noting the need for creative and practical approaches to land management including tree-shaded pastures. Ms. Semroc emphasized the need for a grander scale and a more systemic approach to addressing these challenges. She stressed that merely telling people what to do is insufficient; instead, incentives and an understanding of behavior change are essential components. She explained that this entails a systemic approach, but we need to understand our clients—the farmers—and how they make decisions for today and for tomorrow.

Ms. Semroc highlighted the role of research and modeling in anticipating the impacts of climate change on various crops. She used the example of coffee to illustrate how such research can aid understanding of where coffee can be grown now, how much land might be at risk from deforestation due to coffee production in the future, and how much land might transition away from coffee production.

She pointed to the need to ask some basic questions: What do people want to do in the future? Where does the coffee production go? What do climate impacts mean for the planet, and what do these impacts mean for people? She explained that global demand for coffee is forecast to double by 2050, which will require significantly more land for production.

Ms. Semroc acknowledged that coffee is among the most vulnerable crops to climate change, with projections suggesting that 50 percent of the land area currently used for coffee production will no longer be suitable for coffee by 2050. Mapping these changes can also help to identify lands that may become more suitable for coffee production. However, as viable production shifts to higher elevations, increased conflict over forested areas will emerge in addition to concerns about land-use change. She explained that this type of systematic analysis should extend across commodities, such as cocoa and palm oil, which currently lack comprehensive research and funding support, with the goal of getting critical analysis into the hands of key decision makers.

Ms. Semroc recognized that about 38 percent of total global lands are used for crop production or pasture but that future food demands may require 600 million additional hectares. She touched upon the importance of dietary changes and of productivity improvements to feed future populations. She emphasized the need for a whole-system approach that considers the diversity of crops grown by farmers and their positions within landscapes. For example, what can take the place of coffee in current production zones? Can they remain agroforestry systems rather than converting to pasture? She askedif there were opportunities to make degraded lands more productive by putting silvo-pastoral systems in place to generate both climate-resilient productivity as well as market improvements. She underscored the significance of policy and market incentives to drive large-scale, transformative changes in land-use practices. She repeated the need for a whole-systems approach to this analysis, rather than focusing commodity by commodity, because farmers are growing multiple crops. She emphasized the importance of a whole-farm approach that considers how farms are situated in a landscape and how policy and market decisions driven by governments and companies are changing and influencing behavior on the ground. Jurisdictional, landscape-scale initiatives to drive collaboration and change, in combination with policy and market incentives, are critical to achieving a vision, an investment strategy, and a research strategy that will effectively support producers.

Dr. Herrero thanked Ms. Semroc for her clarity and posed a question to Dr. Jessica Fanzo, BIFAD Subcommittee Member and Professor of Climate and Director of the Food for Humanity Initiative, Columbia University, about research pathways to address both nutrition and climate change through food systems and the role of research on diets in this context.

Dr. Fanzo highlighted the importance of diets and nutrition as central elements that intersect with climate, food systems, health, and nutrition. She emphasized that diets serve as the pivotal point where supply and demand converge. She acknowledged that each person interacts with the food system daily, making choices that impact their health and nutrition.

Dr. Fanzo noted that, pre-COVID-19, global nutrition was not improving quickly, and diets and health were deteriorating. She pointed out that a staggering 3.2 billion people could not afford a healthy diet. She asked why—in light of improvements in other global health indicators such as child mortality—malnutrition was worsening around the world.

Dr. Fanzo noted that—within the historical context of food security, now referred to as food systems, and all of its associated research and development work—something has gone wrong if malnutrition remains a substantial burden that every country deals with in some form. She listed various challenges associated with diets, including their inaccessibility, unsustainability, lack of safety, and nutritional deficiencies. She stressed that the international development community has a lot of work to do to ensure that people can access healthy diets.

Dr. Fanzo emphasized the existence of numerous unanswered research questions, such as understanding global dietary patterns, predicting how climate change will impact those diets, and finding ways to reduce the environmental footprint of diets while ensuring equitable access to nutritious food. She called for collaboration between the nutrition community and other fields, such as climate science, agronomy, and agroecology or regenerative agriculture, stressing the need for interdisciplinary approaches.

Dr. Fanzo acknowledged that nutritionists often blame the agricultural community for the lack of historic attention to nutrition—for example, in the Green Revolution. She shared a challenge that we do not know what people eat around the world. Data on what people eat is mostly modeled, and the drivers behind people's dietary choices remain poorly understood. Such factors as price, taste, and convenience influence food choices as do constraints, particularly in the context of migration. She highlighted the importance of research to address these questions. Dr. Fanzo pointed out that climate change will make it even more difficult to access healthy, nutritious diets, particularly in relation to livestock. She presented the need to encourage certain populations to consume fewer animal-source foods while ensuring that others increase consumption to guarantee sufficient nutrition. She acknowledged the ethical dilemmas surrounding this issue related to who must sacrifice and under what circumstances, emphasizing the need to better incorporate political economy questions into research agendas. She called for a depoliticized approach to this critical issue.

Dr. Herrero shifted the discussion toward research priorities for water management and climate adaptation and invited Dr. Kate Brauman, Deputy Director, Global Water Security Center, University of Alabama, to share insights on how USAID could engage in this area differently.

Dr. Brauman emphasized the critical role of water in the broader context of agriculture, nutrition, and climate. She noted that while water is essential, it is seldom the primary focus in food systems. Water is considered in every decision, but it is never the output of interest; rather it is a required input for food, nutrition, and livelihoods. She underscored the need to integrate water considerations into all aspects of research, ensuring that it does not become isolated as a standalone issue. She highlighted that changes

in water use often involve trade-offs, and understanding these trade-offs is essential. She described the example of expanded irrigation, which has important implications for sustainability and productive agricultural systems. Starting irrigation, or improving the efficiency of irrigation, diverts water from its original destination. Wasteful water use can, for example, drain a wetland downstream and affect people's use of the plants and animals growing in that wetland. She explained that the explicit identification and consideration of trade-offs are an essential component of water research and that those trade-offs should never come as a surprise.

In the context of changing climate patterns, Dr. Brauman emphasized the unpredictability of future impacts on rainfed agricultural systems. While rising temperatures are well forecast, the magnitude of increase is uncertain. Precipitation projections vary widely. The wide variability implies the need for flexibility. She stressed the importance of optimizing irrigation when it can make a significant difference and avoiding it when unnecessary. She also raised the importance of designing systems that can withstand some degree of shocks and crop failures without catastrophic system collapse.

Dr. Herrero thanked Dr. Brauman for her response. He acknowledged the role of technology in solving climate-related challenges and expressed concerns about the slow adoption rates of technological solutions, emphasizing the need to find ways to accelerate their uptake. He directed a question to Dr. Antony Chapoto, Director of Research and Innovation, Indaba Agricultural Policy Institute, Zambia, about what must be done to increase adoption rates of research, innovation, and technology and how USAID can incorporate relevant concepts into its programs.

Dr. Chapoto, describing his work in the policy space, acknowledged the complexity of the challenge in convincing governments to change or implement policies and programs. He acknowledged that technology adoption is very important and also challenging to address. He emphasized the importance and interconnection of policies, governance, and market systems in addressing technology adoption challenges. Dr. Chapoto identified that the issue is not a lack of technical knowledge, but rather a difficulty in adapting the technology to local contexts and failure in technology adoption by the people for whom it is designed.

Dr. Chapoto pointed to the importance of understanding the highly constrained, vulnerable environments in which these solutions are intended to be implemented and the people they intend to serve, considering that smallholder farmers often prioritize short-term financial gains over long-term economic benefits. He stressed the significance of identifying the right set of incentives, programs, and regulations that better account for mitigating short-term needs and motivating behavioral change and adoption.

Dr. Chapoto emphasized the need to co-create solutions with intended end users if we are taking adoption seriously. He presented an example involving rural farmers' use of charcoal for cooking. To deter deforestation caused by charcoal production, we must introduce alternative cooking methods alongside incentives for behavior change, including payments for ecosystems services.

Dr. Herrero thanked Dr. Chapoto for his response and posed another question to Ms. Semroc, addressing the concepts of land sparing and land sharing in low- and middle-income countries and where these two concepts fit into the USAID research agenda.

Ms. Semroc emphasized the necessity of both land-sparing and land-sharing strategies, indicating that they serve distinct purposes. To increase productivity, research is needed to understand yield levels and yield gaps and how to close those yield gaps in areas where agricultural production can continue under shifting climate conditions and even expand sustainably.

At the same time, Ms. Semroc highlighted the importance of conservation in areas where agricultural expansion is undesirable—for example, those regions with reserves of irrecoverable carbon that must be preserved to reach Paris Agreement targets. She stressed the need for incentives to prevent agricultural encroachment into such regions and to encourage such practices as forest preservation and water resource protection. Ms. Semroc said that payment for environmental services, Reducing Emissions from Deforestation and Forest Degradation (REDD+), and similar mechanisms are crucial and need to be scaled to achieve land-sparing objectives.

Ms. Semroc also called attention to the need for improved mapping of global crop production, as existing maps are inadequate. Understanding which crops drive land-use change is essential for providing the right information to land users, enabling them to make informed decisions that align with sustainable land-management practices.

Dr. Herrero directed another question to Dr. Fanzo regarding the consumption of livestock products in low- and middle-income countries. He sought insights into the changing patterns of livestock product consumption and the impacts of shifting consumption patterns on mitigation efforts.

Dr. Fanzo noted that traditionally, livestock products have been expensive, and there have been significant challenges related to food-supply-chain infrastructure in some regions, particularly in deeply rural areas of sub-Saharan Africa and Southeast Asia. However, she explained that the demand for animal-source foods is changing as people have more disposable income. There is increasing demand for such animal products as chicken, pork, beef, and, where available, goat.

Dr. Fanzo also described variations in consumption by region, as animal-source foods remain a luxury in some areas. She shared her experiences working in Timor-Leste, where these foods are primarily consumed during weddings and funerals. Economic growth in certain countries and regions, such as China and East Africa, has led to increased consumption of animal-source foods, and the livestock sector in, for example, Ethiopia has grown substantially. There are questions about the environmental sustainability of livestock product consumption, but consumption of livestock products in small amounts can be beneficial for human health because of their high nutrient density.

Additionally, Dr. Fanzo highlighted the growing alternative protein space and shifts in consumer acceptance of these foods. She also noted a larger concern in the nutrition community about highly or "ultra-processed" foods and their presence in deeply rural areas, flagging a growing evidence base that such products can be detrimental to human health. She emphasized the importance of considering the entire spectrum of foods available to people when addressing nutrition and public health concerns. Ultra-processed foods are highly traded, stable, and affordable, and they appeal to consumers' taste preferences. The environmental footprint of processed foods is a topic of concern but remains largely unanswered. She concluded that the livestock question is important, but we need to consider a whole range of foods when considering a healthy and environmentally sustainable diet.

Dr. Herrero thanked Dr. Fanzo and directed a question to Dr. Brauman about the balance of research between water and soil management and how priority setting can ensure that one area of research does not overshadow the other.

Dr. Brauman emphasized the complementary nature of research on water and soil management. She highlighted the importance of soil health as part of the plant water cycle. Healthier soils retain more water, which enhances resilience during dry periods. Dr. Brauman emphasized that these two aspects should not be considered in isolation; it does not matter how healthy soils are when water is scarce. Soil health and water management should go hand in hand, particularly when considering irrigation or crops' differential tolerance to extended dry periods.

Dr. Herrero thanked Dr. Brauman and directed the last question to Dr. Chapoto, focusing on ways to strengthen the collaborative work between USAID and national partners and striking a balance in the roles and the kind of work that is done within these partnerships.

Dr. Chapoto stressed the importance of local knowledge in achieving sustainable change. He recommended collaborating with credible local institutions that possess in-depth knowledge of their respective landscapes and effective stakeholder engagement skills which are critical to further access to local knowledge. Supporting these local institutions with capacity building and backstopping support is essential for effective work.

Moreover, Dr. Chapoto highlighted the significance of long-term partnerships, as short-term support is often insufficient to bring about meaningful and sustainable change, especially in the policy and governance space. He underscored a commitment to long-term partnerships as essential for achieving the changes that we need to see.

Dr. Herrero concluded the panel's discussion, thanked the panelists, and expressed interest in hearing from the online and in-person audience.

**Q&A and Discussion with BIFAD and the Public**
***Moderated by: Andrew Muhammad, BIFAD Subcommittee Member; Professor and Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee Institute of Agriculture***

Dr. Herrero introduced Dr. Andrew Muhammad, BIFAD Subcommittee Member and Professor and Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee Institute of Agriculture, as the moderator for this segment. Dr. Muhammad opened the session with instructions for participants. He asked attendees to fully introduce themselves, mention their affiliation, and specify the panelist(s) they wanted to address, acknowledging that these questions would be a part of the public record. Dr. Muhammad first turned to BIFAD members for their initial reactions and questions, starting with BIFAD Chair Dr. Alexander.

Dr. Alexander posed a broad question about the challenges and barriers to achieving integration, collaboration, and de-siloing in research and work related to food systems, agriculture, and nutrition. He acknowledged that while there may be consensus on the importance of these goals, practical implementation can be challenging. Dr. Alexander asked the panelists to share their perspectives on barriers to de-siloing, integration, and collaboration in research and how to overcome them.

Dr. Fanzo provided insights into the challenges and time-intensity of working across disciplines, emphasizing the difficulty of coordination due to differences in common language and methodologies. She stressed that experts should bring their specialty to the table and not attempt to become an expert in every field. Dr. Fanzo underscored the importance of recognizing the systemic nature of the problem and the need to incorporate different elements into solutions. She highlighted the significant effort and social skills required to curate and shepherd collaborative efforts.

Dr. Herrero acknowledged the systemic nature of agrifood system challenges and mentioned the difficulty of a systemic approach in low- and middle-income countries, where departments and ministries within government are very siloed. He mentioned that tackling these systemic issues requires significant effort to coordinate across key public sector stakeholders but also that initiatives like Feed the Future have made progress in circumventing some of these constraints. Systemic approaches are slowly becoming more common.

Dr. Muhammad thanked the panelists for their responses and turned to BIFAD member Dr. Liverpool-Tasie for the next question.

Dr. Liverpool-Tasie thanked the panelists for the excellent discussion. She directed a two-part question to Dr. Chapoto, focusing on the role of USAID's localization agenda and regional networks like the African Network for Agricultural Policy Research Institutes (ANAPRI) to strengthen relationships across environmental, agricultural, nutrition, and food systems research in sub-Saharan Africa. Dr. Liverpool-Tasie also asked how donor agencies and U.S. universities could support regional networks like ANAPRI.

Dr. Chapoto, who is also the technical chair of ANAPRI, explained that because member countries often face similar challenges, regional networks have a valuable role in sharing knowledge and research findings that result in learning exchanges. He emphasized that regional networks could facilitate the sharing of ideas and solutions that may be relevant in, for example, Zambia, Zimbabwe, Malawi, or Nigeria. Dr. Chapoto provided an example of USAID's support for ANAPRI in implementing the Comprehensive Action for Climate Change Initiative (CACCI). ANAPRI's work on CACCI focuses on pilots in Zambia and Ghana. Meanwhile, AKADEMIYA2063, a Pan-African think tank based in Rwanda, is implementing CACCI in Rwanda and Senegal, where it has a comparative advantage. These organizations have relationships with the respective governments and are well positioned to engage them effectively, unlocking solutions that can change the landscape.

Dr. Muhammad thanked Dr. Chapoto, next turning to Ms. Spahn, who did not have a question. He then turned to Ms. Moore, who, representing a corporate sector perspective, raised concern that corporate investments were too small and fragmented to achieve impact and synergy. Private-sector organizations should partner more with USAID and align with what USAID is doing.

Ms. Semroc said that in the coffee sector, the Sustainable Coffee Challenge has been created as a platform for sharing knowledge and experiences. Ms. Semroc also reflected on Conservation International's learning networks in sub-Saharan Africa, which bring together herders from diverse projects, promoting insights on rangeland management, range restoration, and improved herd-management practices. She emphasized the importance of creating vehicles to facilitate knowledge sharing and uptake and building knowledge sharing mechanisms into funding.

Dr. Muhammad thanked Ms. Semroc and turned to Ms. Boyd, who asked about food safety in the context of climate change and particular areas where research is needed.

Dr. Fanzo addressed the question, noting that the nutrition and food safety communities have not traditionally collaborated as closely as they should. She said that FAO has recently merged its food system division with its food safety division, which signals the importance of the food–water–food safety interface.

Dr. Fanzo noted substantial uncertainty regarding the types of pathogens and food- and water-borne illnesses that could result from climate variability and extreme weather events. While research is underway, many questions remain unaddressed. Extreme weather events, forecasting challenges, sub-seasonal fluctuations, and increased climate variability present unknown and immediate threats to food and water safety. She noted that these challenges jeopardize access to safe food and water sources. Consideration of water impacts, closely related to food and water safety, are also pertinent.

Dr. Brauman added to Dr. Fanzo's response, emphasizing the intersection of food systems and water safety and hygiene (WASH) and importance of water for personal hygiene and food safety, considering that freshwater usage is overwhelmingly driven by agricultural applications at global and local levels. She discussed the potential for productively reusing water from hygiene applications, depending on

specific usage, in agriculture. Dr. Brauman explained that, generally, we need to think more about upstream and downstream water applications for appropriate reuse practices.

Dr. Muhammad thanked both panelists and turned to Dr. Lal, who indicated that he was pleased that the report referenced how drought stress is exacerbated by climate change and raised a question about increasing drought resistance through modern irrigation methods. He explained that, in the 1970s and 1980s, Asia increased irrigation to reach 37 percent of its croplands. In contrast, today, just 6 percent of sub-Saharan African croplands are irrigated. Dr. Lal asked how panelists recommend that the sub-Saharan African region reach 25 percent irrigation on croplands in the near future.

Dr. Brauman responded that there is no right answer to this question and that increasing irrigation on sub-Saharan African cropland will require multiple approaches. She said it is clear that increased levels of irrigation are needed in sub-Saharan Africa and other regions to both increase and stabilize productivity, but irrigation is usually developed as a permanent infrastructure solution, often leading to excessive water utilization. She advocated for physical and policy approaches to ensure that irrigation and agriculture are more flexible. For example, there are strong incentives to farmers to overuse irrigation during the dry season to harvest an entire second crop, but policy interventions should encourage irrigation only as a supplementary measure rather than to support a full second cropping season in periods of no rainfall.

Dr. Brauman also highlighted Africa's substantial fossil groundwater resources. Trade-offs in terms of who is using fossil groundwater are less of a concern, but fossil groundwater can only be used once. She underscored the importance of making judicious decisions about water utilization, recognizing that such choices entail value-based considerations. She stressed the pivotal role of policy dialogues in shaping equitable and just approaches to expanding irrigation and securing agricultural stability within the region.

Dr. Muhammad invited questions from the audience. He asked participants to provide their names and affiliations and to specify the panelists they wished to address.

Dr. David Hughes, Director of the Emerging Threats to Crops Innovation Lab, raised concerns about the climate crisis and the urgency of addressing it. He noted that we have recently endured the hottest summer in 120,000 years, and that will be the coldest summer for the rest of our lives. He asked how we can focus on identifying immediate solutions to the climate crisis given that it is such a large and difficult problem.

Dr. Chapoto emphasized the need for policy solutions to address climate challenges promptly. He stressed the importance of "greening" policies, including national budgets, investment strategies, programs, and regulations, to respond more effectively to climate challenges, and the need to enact policies more quickly.

Dr. Sarah Gammage, Director of Policy, Markets, and Finance for Latin America, The Nature Conservancy (TNC), inquired about more explicit inclusion of governance in the discussion of trade-offs. Governance is a particularly important aspect of trade-offs relating to water. She asked how we explicitly account for water rights and governance in research in a way that emphasizes that trade-offs aren't neutral.

Dr. Brauman acknowledged the significance of considering non-biophysical constraints in research related to trade-offs and the bias of technical experts toward technical models and solutions that do not account for political considerations and how people make decisions. She mentioned the challenges of integrating governance considerations into hydrological models. Drawing from her experience in Latin America working with stakeholders who were putting water and land conservation plans in place, she

said that the extent of interest in hydrological models (e.g, the Soil and Water Assessment Tool, or SWAT) was only in the directionality of an intervention—whether or not something was a good idea—and perhaps secondarily in the magnitude of potential impacts. Stakeholders' primary concern was a universe of other constraints—water rights and other kinds of customary rights and responsibilities—that put great limitations on the way information can be used. She suggested that if models cannot account for non-biophysical constraints and how people make decisions, they will be of limited utility.

Dr. Muhammad then took a question from the online audience. Ms. Mara Russell, from CARE USA, posed a question to Dr. Fowler about the potential to use local indigenous foods to support improved nutrition. She asked how we can move beyond identifying the crops to ensuring the adoption, production, and income generation potential of these crops and understanding their dietary benefits.Dr. Fowler explained that many of these indigenous crops have been grown and consumed in Africa for ten thousand years. In a few cases, the nutritional value of indigenous crops is not well understood, but their nutritional value is overall fairly well understood, and they provide an important supplement to foods that are already being consumed. Indigenous crops, many of which are generally cultivated by women, also contribute to improving the nutritional wellbeing of women and children—particularly important given the problem of stunting and wasting in Africa. A challenge for indigenous crops is historic underinvestment in improvement of yields and other key attributes that would make them a more viable commercial option for farmers who may currently produce crops with a less-secure climate outlook. A key to adoption and use of indigenous crops is therefore to improve their productivity.

Dr. Dave Tschirley, Director of MSU's Innovation Lab for Food Security Policy Research Capacity and Influence (PRCI) commended the Subcommittee's report for its focus on longer-term programming beyond five-year program cycles, which he considered a fundamental change to make USAID's existing focus on design and implementation more realistic and feasible. He also commented, linking to David Hughes' question, that institutional capacity strengthening and system capacity strengthening were missing from the report. On one hand, he noted, there is an absolute imperative to get policies, regulations, and investments in place quickly to address climate change. On the other hand, the only way policies will be taken up and implemented is through local buy-in and if policies and programs are in fact implementable in the policy systems in which we work. He asked how these aspects should be considered.

Dr. Herrero acknowledged the point and agreed that institutional and governance aspects could be addressed more explicitly in the report recommendations to complement technical solutions. He highlighted the need to identify actors responsible for implementing the recommendations and agreements on how to proceed. He noted that we also need to do a better job bringing prospective partners into these conversations earlier to better understand their potential roles and contributions.

The final question came from Dr. John Medendorp of MSU's Legume Systems Research Innovation Lab. Dr. Medendorp said that in addition to capacity development, urbanization is also missing from the report. Dr. Medendorp considered urbanization to be one of the most significant crises to be faced in the next decades. He called for acknowledging urbanization's potential impact in the report and preparing for addressing challenges related to insufficient infrastructure.

Dr. Muhammad thanked the audience and the panel and turned the stage back to Dr. Alexander.

Dr. Alexander thanked the panelists, speakers, moderators, and audience for their active participation in the conversation.

**Reflections and Implications for the BIFAD Climate Change Study**

***Lini Wollenberg, BIFAD Subcommittee Co-Chair; Research Professor, Gund Institute, University of Vermont; and Associate Scientist, Alliance of Bioversity International and CIAT***

Dr. Alexander introduced Dr. Wollenberg to share key takeaways from the morning's conversation to keep in mind for the afternoon's report presentation.

Dr. Wollenberg acknowledged the challenging task of synthesizing the morning's discussions, which aimed to establish a unified vision for addressing climate change and other objectives in agrifood systems research. She reflected on Ms. Caldwell's challenge to identify the most important question and suggested that the real problem is that there is no single-most important question. We cannot say that everything is the most important question because we cannot do it all. We also cannot say that understanding trade-offs is the most important question. Although trade offs are important, the most important question is more than just trade-offs. The central challenge lies in balancing various objectives in this place, at this time, and with particular stakeholders—an enormously complex task. She posited that we have failed because the context specificity of that requirement is very challenging and because multiple interests continually compete with one another. Referring to Dr. Bertram's "North Star" mentioned earlier, Dr. Wollenberg emphasized that there is no single "North Star" but rather multiple priorities that programs must navigate. Congressional mandates and indicators will be needed to address these multiple indicators and objectives.

Dr. Wollenberg summarized a few key themes and takeaways from the morning session:

- There is a need to move from a focus on technology and productivity toward systems thinking, behavior change, incentives, consumer-centered approaches, and food systems.
- Land use, water, nutrition, and policy should not be considered secondary themes within agricultural research but should rather be seen as integral components of the broader agricultural and food systems context.
- There is a call for transformational approaches, challenging the comfort zones of traditional, incremental thinking and pushing for innovation and moonshot initiatives. These approaches must be owned by everyone.

Dr. Wollenberg then outlined the main recommendations presented in the report:

1. Consider how agriculture can be more compatible with long-term climate change, including more research on the impacts of long-term climate change.
2. Maximize co-benefits across agrifood system objectives (i.e., how to maximize the benefits of all the things we care about across these systems).
3. Foster social and behavioral change as foundational to long-term, climate-compatible agriculture.
4. Strengthen partnerships, including country local and national partners.
5. Promote locally driven research for adaptation.

Dr. Wollenberg unidentified the following two general areas missing from the recommendations for author and subcommitte consideration:

1. Research itself should contribute to systems change, support transformational change, and contribute to achieving—and be driven by—targets for adaptation and mitigation. Institutional change and incentives should be better specified. Social science research should be elevated to ensure that it plays a more prominent role in achieving concrete outcomes and is rewarded.
2. Research should be supported to improve the governance of the trade-offs—or balance—of objectives we are trying to achieve.

**Closing Remarks**
***Laurence Alexander, BIFAD Chair and Chancellor of the University of Arkansas at Pine Bluff***

Dr. Alexander thanked Dr. Wollenberg for her synthesis of the morning's discussions. He encouraged the audience to review the summary handout of the report's targets and recommendations, which was available for in-person attendees. He directed the online audience to the executive summary of the report posted on the BIFAD website. Dr. Alexander invited the audience to reconvene at 1:30 PM EDT to discuss the Subcommittee's new draft report on operationalizing the USAID Climate Strategy in agrifood systems programming.

## Afternoon Session
## *A Deliberation of Draft Report Recommendations from the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems*

**Welcome and Introduction**
***Laurence Alexander, BIFAD Chair and Chancellor of the University of Arkansas at Pine Bluff***
Dr. Laurence Alexander welcomed the audience, both in-person and online, back to the event. He thanked all participants for engaging in a productive morning session on research priorities. Dr. Alexander introduced himself again as Chair of BIFAD and Chancellor of the University of Arkansas at Pine Bluff.

Dr. Alexander set the context for the afternoon's agenda. He explained that the primary purpose of the meeting was to present and discuss a draft of a new BIFAD-commissioned report examining pathways to operationalize USAID's Climate Strategy within agrifood systems, policies, and programming, in alignment with the Agency's ambitious Strategy targets. The report was guided by the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agricultural Nutrition and Food Systems, with research and implementation support from a mechanism implemented by Tetra Tech.

Dr. Alexander outlined the objective of the afternoon's program to discuss the preliminary findings and recommendations from the report and implications for USAID and its implementing partners. He said that after presentations by Subcommittee members, the meeting would transition to engage stakeholders for feedback and public comments, which would ultimately contribute to shaping the Subcommittee's final recommendations to BIFAD. He emphasized the importance of audience engagement, encouraging participants to jot down their questions and comments during the report presentation and ensuing panel discussion in anticipation of the dedicated public comment period.

Dr. Alexander welcomed Ms. Gillian Caldwell, USAID's Chief Climate Officer, back to the stage to provide framing remarks for the discussion.

**Framing Remarks**
***Gillian Caldwell, Chief Climate Officer, USAID***
Ms. Caldwell welcomed everyone back from the lunch break; she noted that she engaged in fruitful discussion during her own break. She extended a warm welcome to those joining for the afternoon session and expressed appreciation to those who had participated in the morning session.

Ms. Caldwell reiterated the importance of the challenge issued by Administrator Power to BIFAD, emphasizing the need to develop a comprehensive whole-of-Agency strategy to address the intertwined issues of food security and the climate security crisis. Ms. Caldwell expressed gratitude to BIFAD and the

Subcommittee for their active participation in what she hoped would be a dynamic and ongoing dialogue.

Ms. Caldwell specifically acknowledged Dr. Lini Wollenberg, BIFAD Subcommittee Co-Chair and Research Professor, Gund Institute, University of Vermont; and Associate Scientist, Alliance of Bioversity International and CIAT; and Dr. Erin Coughlan de Perez, Research Director and Dignitas Professor, Friedman School of Nutrition, Tufts University, for their leadership of the Subcommittee, recognizing the substantial amount of work that had gone into the nearly hundred-page report.

She made three key observations that she believed should underpin the report. First, she stressed the need for ambitious action, pointing out that ambitious resourcing was equally critical to deliver ambitious action. She shared that the combined climate budget of the Department of State and USAID accounted for only 1 percent of their total budget, to give a sense of the current prioritization. She explained that when she was appointed at the Agency in August 2021, the Climate Strategy, a highly participatory process, was being finalized, but she urged colleagues to be more ambitious in target setting, giving them permission to fail. She explained that targets are now more ambitious but achievable given the Agency's reach.

Second, Ms. Caldwell emphasized the importance of transformational change, stressing that the climate crisis demands a fundamental reinvention of how we live our lives every day in the global economy. She observed that while the prospects of not taking action are grim, transformational change could create a brighter future and could address many inequities embedded in the existing economy.

Third, she highlighted the need for systemic change to address current and future challenges. She referenced the Climate Strategy's inclusion of a series of direct-action targets and an entire category of systems-change interventions to get the right signals to the economy and the right policies and regulations in place to catalyze deep and rapid action.

Ms. Caldwell then delved into specific points from the executive summary of the report that had resonated with her. Further reinforcing the Administrator's call to action to BIFAD, she observed, as the report highlights, that the Agency is not moving far enough or fast enough in these areas. She highlighted a statement in the report that "operating units at USAID often treat climate change primarily as a risk to programming rather than an imperative for action". She emphasized that climate change also presents an opportunity for action, particularly when viewed through an equity lens. She also highlighted the Subcommittee's finding that USAID-supported research has not generated the necessary systemic evidence, approaches, and products to address climate impacts on agriculture and food security effectively. She interpreted the finding as a call to action to improve research that USAID is underwriting. That research is already helping the lives of millions but could do more to help tackle the climate crisis. Ms. Caldwell highlighted some of the report's key recommendations, including how much USAID's agrifood work should contribute to USAID Climate Strategy targets. Noting the USAID Climate Strategy's goal to reduce carbon emissions by 6 billion metric tons by 2030, Ms. Caldwell said the report suggested reducing $CO_2$-equivalent emissions from agrifood systems by 1.2 gigatons per year by 2030. She suggested that this emissions mitigation target should be the "North Star" for the Agency's interventions in agrifood systems but noted that the report does not provide a baseline. She also highlighted the $36 billion finance target for agrifood systems as a share of the Agency's $150 billion climate finance target and the adaptation target to reach 180 million people through agrifood system interventions of the Climate Strategy's 500-million-person adaptation and resilience target. The report's recommendation for significant organizational change within USAID's agrifood system portfolio resonated with Ms. Caldwell. This included setting ambitious targets for adaptation, mitigation, and finance; integrating climate change goals into Country Development Cooperation Strategies, geographic

priorities, projects, activities, and monitoring systems; and prioritizing climate change in research investments, funding decisions, staffing, and capacity building. Ms. Caldwell underscored what she interpreted as a strong message in the report that USAID Missions should place climate action at the heart of decisions related to resource allocation, including resources for agricultural programs, going well beyond the climate change annex required in each Country Development and Cooperation Strategy (CDCS).[11] These annexes tend to be viewed as a subsidiary consideration—not unimportant but also not central—in guiding resourcing, most of which flows through Missions at USAID. She offered that the report tells the Agency to keep climate front and center when designing agricultural programs and that climate should inform country-specific strategies developed by USAID Missions.

Ms. Caldwell posed several critical questions for the upcoming discussion. She addressed sustainability concerns related to the production of agricultural goods like cotton and palm oil for both food and non-food products. She raised the complex issue of livestock, balancing its importance as a source of nutrition, pastoralist livelihoods, and cultural meaning with its significant greenhouse gas emissions associated with both methane production by livestock and deforestation to generate more pasture. She asked how to ensure the provision of ecosystem services by land and watersheds that surround families and communities who produce, cook, and consume food and about the impact of food loss and waste as an important driver of methane emissions. Ms. Caldwell highlighted the need to discuss dietary choices, recognizing the cultural sensitivity surrounding this topic. She noted that dietary decisions have substantial implications for both the global carbon footprint and for nutrition and health. She stressed the importance of analyzing policies that create or limit growers' access to land, water, finance, technical assistance and markets, highlighting the gender dimension of such interventions and the disproportionate and often negative impacts policies can have on women in marginalized communities. It is important, she said, to ensure that the institutions and norms that determine who can access lands, markets, seeds, and water keep equity front and center.

Ms. Caldwell addressed the critical issue of climate finance. She highlighted the need for private sector engagement to bridge the substantial 600 percent gap in finance. She observed that we need $3 trillion to $5 trillion per year for combined mitigation and adaptation needs by 2030. The Paris Agreement $100 billion commitment by developed economies is just a fraction of the total need. She cited President Biden's PREPARE initiative[12] and the AIM for Climate initiative with the United Arab Emirates as examples of important efforts to catalyze critical private sector investments in agrifood systems to bridge the finance gap.

Ms. Caldwell issued a call to action for the participants to be brave and candid in their discussions, emphasizing the importance of open-mindedness and gratitude for the Subcommittee's work and the opportunity to improve the report through public input. She committed to making implementation of the recommendations a priority within the newly reorganized Bureau for Resilience, Environment, and Food Security.

Dr. Alexander thanked Ms. Caldwell for remarks and for her insights and leadership in the Climate Strategy's development. He then introduced Dr. Rob Bertram, Chief Scientist for the Bureau for Resilience and Food Security at USAID, for some additional points.

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[11] See Climate Change in USAID Country/Regional Strategies: A Mandatory Reference for Automated Directive System 201. https://www.usaid.gov/sites/default/files/2022-05/201mat.pdf. Also see: https://www.climatelinks.org/climate-risk-management.

[12] The White House. (2021). *President's Emergency Plan for Adaptation and Resilience (PREPARE)*. https://www.whitehouse.gov/wp-content/uploads/2021/10/Full-PREPARE-Plan.pdf

***Rob Bertram, Chief Scientist, Bureau for Resilience and Food Security, USAID***

Dr. Bertram expressed his appreciation for the stimulating morning session and looked forward to the discussions in the afternoon regarding the Subcommittee's work. He touched upon several themes from the morning session, emphasizing the significance of water and irrigation, which had been highlighted by Dr. Kate Brauman, Deputy Director, Global Water Security Center at the University of Alabama. Dr. Bertram provided context by referencing the Feed the Future Small-Scale Irrigation Innovation Lab, which USAID had supported for over a decade. The lab had focused on various aspects of irrigation, including gender equity, finance, policy, governance, tariffs on pumps, and environmental sustainability of groundwater through modeling. Dr. Bertram mentioned the institutions involved in this effort, including the International Water Management Institute, Texas A&M University, the International Food Policy Research Institute (IFPRI), and Delaware State University, and highlighted USAID's pride in the project's accomplishments.

Dr. Bertram shared news from Dr. Tom Reardon, a professor at Michigan State University, who reported that in the last decade, 200,000 farm families in Zambia had transitioned to commercial vegetable production for consumption in Zambian cities, towns, and rural areas and cross-border trade, driving down poverty and improving food security. He noted that Dr. Reardon's data show that 400,000 additional households in Zambia have also transitioned to horticultural production at pre-commercial levels. Evidence also indicates increased vegetable consumption in neighboring Tanzania. This transformation was facilitated by farmer-led investments in small-scale irrigation. Dr. Bertram noted Zambia's plentiful water supply as a factor in this success and highlighted how this development is benefiting nutrition, African food systems, and potentially climate resilience due to the water intensity of horticultural crops. The drivers—growing incomes in cities and towns—are "lifting all boats", including in areas where poverty and malnutrition are most concentrated.

Dr. Bertram also mentioned that USAID is a full partner in the VACS initiative, which Dr. Cary Fowler, Special Envoy on Food Security at the U.S. Department of State, mentioned in the morning session. Dr. Bertram mentioned that Secretary of State Blinken had announced $100 million in funding for VACS the previous month, with $90 million implemented through Feed the Future at USAID. Dr. Bertram noted that USAID is working hand in hand with the Department of State and with other partners, with much of the work for soil health and for crop-related initiatives. Dr. Bertram emphasized Administrator Power's commitment to the soil health agenda.

Dr. Bertram returned to the issue of water, particularly its relevance to rainfed agricultural systems, which account for 95 percent of food production in sub-Saharan Africa. He stressed the importance of on-farm water management in rainfed systems and its integral role in optimizing soil health investments, highlighting USAID's collaboration with the Stockholm International Water Institute.[13] Dr. Bertram pointed out that water management is essential not only for food security goals but also for climate goals, as it can enhance carbon conservation and sequestration in the soil. Noting Dr. Brauman's earlier comments on the challenges of irrigation infrastructure, there is much to be gained from improved small-scale water management, including better tillage methods that reduce water runoff and the integration of legumes and perennials.

In closing, Dr. Bertram expressed USAID's keenness to work collaboratively on water management and its commitment to addressing climate goals in this regard. He thanked the attendees for their attention.

[13] Stockholm International Water Institute. (2023). *Working towards better water decisions*. https://siwi.org/

Dr. Alexander acknowledged Dr. Bertram's contributions and insights, setting the stage for Dr. Coughlan de Perez.

**Introducing the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food System**
***Erin Coughlan De Perez, BIFAD Subcommittee Co-Chair and Research Director and Dignitas Professor, Friedman School of Nutrition, Tufts University***

Dr. Coughlan de Perez joined the meeting virtually and said she was pleased to participate in the event. She thanked the participants for joining and conveyed the Subcommittee's eagerness to share their draft report, including its targets and recommendations, and to engage in a substantive conversation.

Dr. Coughlan de Perez introduced the six Subcommittee members who were present in-person at the meeting: Dr. Lini Wollenberg, BIFAD Subcommittee Co-Chair; Research Professor, Gund Institute, University of Vermont; and Associate Scientist, Alliance of Bioversity International and CIAT; Dr. Jessica Fanzo, Professor of Climate and Director of Food for Humanity Initiative, Columbia University; Dr. Mario Herrero, Professor, Department of Global Development and Director of Food Systems and Global Change, Cornell University; Dr. Andrew Muhammad, Professor and Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee Institute of Agriculture; Ms. Carlijn Nouwen, Co-founder, Climate Action Platform for Africa (CAP-A); and Mr. Ishmael Sunga, CEO, Southern African Confederation of Agricultural Unions (SACAU). She also mentioned the other Subcommittee members who were not in the room but present online: Ms. Daniela Chiriac, Senior Consultant, Climate Policy Initiative; Ms. Chinenye Juliet Ejezie, Founder and CEO, Dozliet Anim Farms, Nigeria and Country Coordinator, Climate Smart Agriculture Youth Network (CSAYN), Nigeria; Dr. Sophia Huyer, Gender and Social Inclusion Lead, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), ILRI, Kenya; and Mr. Peter Wright, Senior Technical Advisor, Climate Resilient Agriculture, CARE USA.

Dr. Coughlan de Perez provided context for the establishment of the BIFAD Subcommittee in June 2022 in response to a request from USAID for advice on addressing the climate crisis within agricultural, nutrition, and food systems. Dr. Coughlan de Perez emphasized the urgency of the global climate situation, citing a recent report from the UNFCCC[14] indicating that global emissions were not aligned with the goals set under the Paris Agreement. She stressed the need for systems transformation across all sectors and contexts to meet these climate goals within a rapidly narrowing window to raise our ambitions.

Dr. Coughlan de Perez highlighted the challenges posed by fragmented, incremental, sector-specific, and unevenly distributed adaptation efforts globally despite that increased level of ambition. Considering these challenges and the pressing need for climate mitigation and adaptation, the Subcommittee's report aimed to provide valuable insights and recommendations.

She noted that the report had been a year in the making, involving technical analysis of adaptation and mitigation in agrifood systems and the identification of high-potential leverage points. Dr. Coughlan de Perez also referred to the extensive peer review process and the author team's consultations with USAID to understand opportunities for change within the Agency to enable the technical transformations.

[14] United Nations Framework Convention on Climate Change. (2023). *Technical Dialogue of the First Global Stocktake: Synthesis Report by the Co-Facilitators on the Technical Dialogue*. https://unfccc.int/documents/631600

Dr. Coughlan de Perez invited co-chair Dr. Lini Wollenberg to present an overview of the report and its objectives. She encouraged attendees to provide feedback and comments, either during the meeting or through the online public comment form, which would remain open until the following Monday, September 18. She was especially keen for ideas and feedback on strengthening the "so what" for USAID. The final report was scheduled for publication in early October. The meeting proceeded with Dr. Wollenberg presenting the report's objectives and findings.

## Presentation of Key Findings and Subcommittee Recommendations to BIFAD

**Presentation of the Study's Objectives, Methodology, Draft Findings, and Targets**
***Lini Wollenberg, BIFAD Subcommittee Co-Chair; Research Professor, Gund Institute, University of Vermont; and Associate Scientist, Alliance of Bioversity International and CIAT***
Dr. Wollenberg took the podium and greeted the audience. She acknowledged the presence of her fellow Subcommittee members and invited those in person to join her on the stage. She highlighted that the report was written by a broader author team including Ed Carr, Professor and Department Chair, International Development, Community, and Environment, Clark University, with significant support from Tetra Tech. The Subcommittee provided guidance on the report and is formally making recommendations to BIFAD.

Dr. Wollenberg shared the report's objectives, methods, and target recommendations. The overarching objective of the report was to provide recommendations that would advance both adaptation and mitigation efforts in agriculture, food security, and nutrition.

The methods employed to produce the report included a comprehensive literature review, the examination of USAID documents, expert input from the Subcommittee, interviews with 66 key informants (within and outside USAID), and public engagement sessions conducted over the last two years.[15]

Dr. Wollenberg said the report was structured in three sections representing areas for leveraging change within the agency: setting targets, identifying high-impact leverage points relevant to the specific context of agrifood system programs, and recommending organizational changes within USAID.

She outlined the report's targets, emphasizing their alignment with USAID's Climate Strategy:

1. **Adaptation**: Achieving improved climate resilience for at least 180 million people by 2030, at least half of whom are women, and exploring the addition of outcome-based indicators that better reflect individuals' lived experiences.
2. **Mitigation**: Reducing 1.2 gigatons (1.2 billion tons) of $CO_2$ equivalent emissions by 2030 from the agricultural sector and achieving no net land-use change for agriculture within high-carbon landscapes such as grasslands, peatlands, and forests.
3. **Finance**: Mobilizing $36 billion in finance, with one-third allocated to gender and social inclusion purposes.

Dr. Wollenberg then invited Dr. Fanzo to share the report's findings and recommendations.

**Presentation of Recommendations 1 and 2**
**Jessica Fanzo, BIFAD Subcommittee Member and Professor of Climate and Director of Food for**

[15] This refers to the period June 2022–September 2023.

**Humanity Initiative, Columbia University**
Dr. Fanzo shared five critical recommendations related to institutional change within USAID. She conveyed that she would specifically address facets related to 1) strategy, design, and implementation; and 2) measurement and reporting, noting that her colleagues from the Subcommittee would elaborate on institutional change recommendations related to research, resource allocation, and human resources.

Recommendation 1: Strategy, Design, and Implementation in the Program Cycle
Dr. Fanzo said USAID should require the use of all climate-related data comprehensively within USAID processes and across the program cycle. That could include a wide spectrum of climate data, spanning sub-seasonal and seasonal forecasting data to decadal and even long-term projections. She explained that data on how agrifood systems are impacted by climate change and pathways to reach targets through interventions should be embedded in the design of strategy, projects and activities. Lastly, Dr. Fanzo highlighted the importance of incorporating climate indicators through monitoring and evaluation (M&E) as critical. Dr. Fanzo pointed to the need to incorporate a spectrum of climate data—including climate risk data, climate variability projections, and impact data—within monitoring, evaluation, and learning plans to inform adaptation and pivots to programs and strategies when necessary.

Recommendation 2: Measurement and Reporting
Transitioning to the second recommendation, Dr. Fanzo underscored the significance of measurement and reporting, which are compelling to researchers who want to see USAID measure and report on impact and demonstrate how its projects and programs are meeting Climate Strategy targets.

She explained that USAID should increase the speed of, and accountability for, operating units (Missions and Bureaus) to contribute to Climate Strategy targets by:

- Requiring operating units to set and own defined agrifood system contributions to the Agency's Climate Strategy adaptation, mitigation, and finance targets.
- Finalizing standardized agrifood system-specific Climate Strategy indicators.
- Developing a transparent tracking and reporting system for operating unit-specific progress toward Agency targets across all agrifood system activities.
- Introducing accountability measures, such as budgetary and performance review incentives, to ensure consistent and comprehensive operating unit-level reporting.

Dr. Fanzo underscored that recommendations one and two should be applicable not only to climate-specific projects but to all projects relevant to agrifood systems. She emphasized the critical importance of integrating climate considerations into all aspects of USAID's work.

Dr. Fanzo passed the presentation to Dr. Muhammad, who shared Recommendations 3, 4, and 5.

**Presentation of Recommendations 3, 4, and 5**
***Andrew Muhammad, BIFAD Subcommittee Member; Professor and Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee Institute of Agriculture***
Following Dr. Fanzo's presentation, Dr. Muhammad took the podium to discuss three additional recommendations from the Subcommittee, noting that he would highlight the feedback received on the research recommendation from the morning panel:

Recommendation 3: Research

Dr. Muhammad highlighted Recommendation 3's emphasis on increasing investment in climate-focused research. An important area of future research should be on the co-benefits and trade offs of agrifood

system interventions. Linking to a point by Dr. Chapoto in the morning session, Dr. Muhammad underscored that research to understand co-benefits (e.g., improved biodiversity) and trade-offs can support the development of incentive structures to affect behavioral change. Research on how to incentivize and motivate actors and producers to adopt specific practices at scale will ultimately affect the economics of their production systems and can inform programmatic implementation. Dr. Muhammad also emphasized the importance of a food systems approach and a long-term view in research investments, and he acknowledged David Tschirley's point from the morning session about the importance of institutions and governance in the implementation of findings.

Recommendation 4: Resource Allocation

Dr. Muhammad presented Recommendation 4's emphasis on the critical need for resource allocation in line with climate change adaptation and mitigation programming priorities. He referenced Under Secretary for Research, Education, and Economics and Chief Scientist, U.S. Department of Agriculture Dr. Chavonda Jacobs-Young's remarks during lunch, underscoring the idea that substantial financial investment is essential to drive a return and meaningful action.

Recommendation 5: Human Resources

Dr. Muhammad described Recommendation 5's emphasis on the importance of human resources. He said that dedicated personnel were vital for the successful execution of climate change adaptation and mitigation activities. He stressed that without an adequate workforce, none of the proposed strategies and interventions could be realistically implemented.

Dr. Muhammad then turned the presentation over to Mr. Sunga.

**Presentation of Recommendation 6**

***Ishmael Sunga, BIFAD Subcommittee Member and CEO, Southern African Confederation of Agricultural Unions (SACAU)***

***Mario Herrero, BIFAD Subcommittee Member; Professor, Department of Global Development and Director of Food Systems & Global Change, Cornell University***

Mr. Sunga briefly outlined the report's eight technical leverage points to address climate change within agrifood systems, explaining that he would present the first four. He presented the first leverage point: empowering youth, women, and other underrepresented groups. Mr. Sunga emphasized that target populations reside in rural areas and primarily comprise youth and women. He stressed that addressing these groups equitably was fundamental to achieving impact at scale. Mr. Sunga underscored that empowering youth, women, and other underrepresented groups was a key precondition for the uptake of other technical interventions, including the other leverage points. It is important to ensure agency among those who don't have a voice to speak on their own behalf and for whom research is often designed. Efforts should focus on those who lack resources, lack capacity to talk and to implement, or lack finances to take action required for change. He identified incorporating local knowledge and tailoring interventions to specific circumstances as crucial strategies.

The second leverage point presented by Mr. Sunga was local research and innovation systems, which had been brought up earlier in the day. Mr. Sunga underscored the significance of co-creation in research agendas, starting from research agenda setting at the local level and continuing that approach throughout the research value chain, including co-creation in the monitoring and evaluation of the impact of research.

Inclusive climate finance was the third leverage point, which Mr. Sunga characterized as an elusive yet essential aspect. He emphasized the need for diverse sources and types of finance to address the immense challenges posed by climate change. He highlighted that the inclusive climate finance leverage

point speaks to the need for public-private partnerships, capacity building within national institutions, including farmers' organizations, to prepare bankable projects, and the creation of facilities for underprivileged groups, including youth.

Mr. Sunga presented a fourth leverage point on integrated soil and water management. Mr. Sunga stressed the complementarity of soil and water management and the importance of blending external technical expertise with local knowledge. He emphasized the need to ensure that those with local knowledge had a voice in the decision-making process and that there was a balanced mix of external and internal input.

Dr. Herrero presented the remaining four leverage points. The fifth leverage point focused on integrated forest and agricultural land management, and Dr. Herrero acknowledged that this leverage point accounts for much of the "heavy lift" on mitigation efforts in no net land conversion under the report's proposed annual target to reduce $CO_2$-equivalent emissions by 1.2 gigatons per year. He explained that reduction or cessation of land-use conversion for agricultural purposes, sustainable intensification practices that allow for constant productivity on less land, and strengthened land-use governance were critical components. Additionally, Dr. Herrero emphasized the importance of improved information on land-use change and the effect of agricultural supply chains on land use alongside the implementation of technical measures such as tree planting.

The sixth leverage point pertained to food loss and waste reduction, particularly in geographies where the majority of food is marketed through informal systems and food loss and waste can be very high. Dr. Herrero highlighted the importance of considering the direct impacts of climate change on food loss and waste, including increased temperatures, product spoilage, highly perishable products like animal-source foods, integration of cold chain and new processing techniques to reduce food loss and waste, and stakeholder capacity to implement technical solutions. He also called for investments in circular practices, which are highly available at the farm level and can be implemented at low cost.

The seventh leverage point emphasized the importance of low-emission animal production to address climate change effectively. Dr. Herrero stressed the importance of enhancing livestock efficiency to increase production while reducing overall animal numbers and methane emissions. He observed that methane reduction should be an explicit primary target for reduction rather than a co-benefit, and one that is linked to country national plans and commitments. In regions with significant cattle numbers at the forest–agriculture interface, he pointed to the importance of preventing cattle-driven deforestation.

Dr. Herrero presented the eighth leverage point on the use of weather and climate services. Dr. Herrero underscored the need to invest in public and private climate services that prioritize user needs, including support to agricultural management practices such as planting dates. He emphasized the importance of equipping agricultural stakeholders and end users with the knowledge to act on the basis of climate services and utilize time-sensitive information to improve agricultural productivity and resilience.

Dr. Alexander extended his appreciation to the Subcommittee members for delivering a clear and digestible overview of the content-rich report. He acknowledged the breadth of topics covered during the presentation and expressed eagerness for the forthcoming public discussion. Dr. Alexander encouraged audience members to take note of any questions they had regarding the presented material, as there would be a question-and-answer session later in the meeting.

Dr. Alexander extended gratitude to Dr. Wollenberg, Dr. Fanzo, Dr. Muhammad, Mr. Sunga, and Dr. Herrero for their valuable contributions to the discussion and invited them to return to their seats at the Subcommittee table.

## USAID and Stakeholder Perspectives: Reactions and Feedback to the Subcommittee's Draft Recommendations to the Board

**Panel Discussion: USAID and Implementing Partner Perspectives**
***Moderated by: Carlijn Nouwen, BIFAD Subcommittee Member and Co-founder, CAP-A***

- ***Antony Chapoto, Director of Research and Innovation, Indaba Agricultural Policy Institute, Zambia***
- ***Jonathan Cook, Senior Resilience and Climate Adaptation Adviser, Bureau for Resilience and Food Security, USAID***
- ***Sarah Gammage, Director of Policy, Markets, and Finance for Latin America, TNC***
- ***Moffatt Ngugi, Natural Resources Officer, USAID/Mozambique***

Dr. Alexander next introduced the expert panel of USAID staff and partners who would provide reactions to the report and engage in discussions about the implications of the Subcommittee's preliminary recommendations. He introduced Ms. Nouwen as the panel's moderator.

Ms. Nouwen expressed her gratitude to the panelists and framed the conversation. She highlighted how the day's discussions had reinforced the need for integration, systemic approaches, and transformative change. Many more themes need to be considered, including diets and water. She underscored the highly contextual nature of interventions and also the scale of populations—hundreds of millions of rural households—that will be affected and will need to be involved and incentivized to change their behaviors. She also highlighted the need for messages to be clear for busy USAID staff and partners. As someone not affiliated with academia, she presented herself as an apt moderator for a discussion focused on making the recommendations real: improving people's lives, strengthening their resilience, and creating a world with fairer and more equitable prosperity. She invited each panelist to provide brief opening remarks, encouraging them to share their frank views both on how the report might be improved for actionability and how to translate its findings into tangible impact.

Mr. Jonathan Cook, Senior Resilience and Climate Adaptation Adviser with USAID's Bureau for Resilience and Food Security, commended the dedication and hard work of the Subcommittee and the report team. Having closely observed the report's development, he acknowledged the complexity of the issues addressed in the report and the substantial efforts undertaken. Mr. Cook mentioned that earlier drafts of the report focused on technical leverage points as areas for investment, attention, and opportunity, but what is new in the most recent version, and critically important, are the operational recommendations that describe how USAID makes this happen in an institutional context. He welcomed the report's balanced approach between the technical and programmatic and the operational aspects.

Mr. Cook highlighted three areas where he believed the report could be further strengthened and the ambition expanded.

First, he emphasized the pressing urgency of climate change and its implications for agrifood system programming. Drawing from his role on the adaptation team at USAID, he highlighted the alarming pace at which climate impacts are intensifying. Although USAID's agriculture and food work has done much to take climate on board over the past few years, it is not enough. He stressed the importance of taking a long-term view about the changes to come and the pathways needed to prepare for those changes. He asked how USAID should set up programming and a research agenda to focus on the future and how the future is likely to look—working both incrementally and transformationally. He asked how USAID should continue its high-quality work related to breeding, seeds, soil, and water while also looking at what

climate projections are telling us about future agricultural geographies and how the suitability and viability for agriculture will be changing.

Second, Mr. Cook asked how to remain cognizant of the requirements and constraints of USAID funding yet still find ways to integrate programming to achieve multiple "North Stars". He asked how USAID should recognize multi-functional and multi-objective needs in its work and break down silos. While there are examples of success on the margins, this is difficult, and USAID has not yet mainstreamed them. USAID hasn't yet made multi-functional, integrated ways of doing agriculture, environment, water, and climate programming "stick". Mr. Cook noted the importance of finding ways to embed agriculture in the larger landscape and breaking down artificial boundaries between production units, farms, fields and the surrounding watersheds, cities, and natural resources on which agriculture depends. Again, he underscored that USAID understands this conceptually, but the question is how to operationalize it in programming. Drawing from examples discussed in the morning session, such as tree crops, he urged the mainstreaming of integrated approaches within agriculture, environment, climate, and water programs.

Lastly, Mr. Cook discussed the mainstreaming aspect of climate action within USAID, recognizing that the climate budget is controlled by Congress. He said that the Climate Strategy directs USAID to work extensively on climate regardless of direct funding levels because of its focus on mainstreaming. He emphasized that the onus is on all program areas and all sectors to be part of the solution and for climate to be part of everyone's job. He said that we need to closely examine how our non-climate-funded programs also deliver climate-related results and what more can be done in this regard. Mr. Cook reiterated his appreciation for the Subcommittee's efforts and his eagerness to engage in the panel discussion.

Dr. Moffatt Ngugi, Natural Resources Officer, USAID/Mozambique, shared that he found the report comprehensive and useful in guiding the implementation of food security programs by both USAID staff and their partners. He praised the report's accessibility for policy audiences and policymakers, acknowledging that it avoided an overly academic tone. The report's structure and recommendations were effective. Dr. Ngugi emphasized the term "operational" as a key theme of the report. He believed that teams working on project design and planning could effectively utilize the report's recommendations to influence decision-making processes. He noted that the report provided a good contextual understanding of the challenges and framed recommendations, including leverage points, based on the agency's Climate Strategy.

He commended the report for its bold call to action, recognizing past and current efforts while urging for more proactive measures in the future. He reinforced Mr. Cook's point about non-climate-funded programs delivering climate-related results with more intentionality going into the future. Dr. Ngugi highlighted the report's emphasis on valorizing localization, Indigenous knowledge, cultural context, and the integration of traditional and modern science as particularly strong points. Alluding to Dr. Chapoto's earlier remarks, he saw great opportunity in USAID's localization efforts to implement climate resilience and enhance the adoption of adaptation and mitigation innovations.

Dr. Ngugi identified room for improvement in Recommendation One, emphasizing the need for serious investment in capacity expansion to incorporate climate data in the program cycle. He stressed the importance of building expertise within USAID staff and their partners to understand climate data and scenarios, particularly for those who might struggle to see the connection between climate and their programs.

He suggested aligning Recommendation One with Recommendation Five, which focused on human resources, to address the capacity and expertise needed to interpret climate data effectively. Recommendation One should reflect the implications for human resources and capacity of USAID staff and partners. Dr. Ngugi agreed with Recommendations Three and Four, emphasizing the need to extend beyond two- or five-year program investments. He highlighted the uniqueness of the Climate Strategy's eight-year cycle. He also advocated for incorporating a spatial lens as well, so that we are not only thinking about the intensification of agronomic practices at a farm or ranch scale but also thinking about basin-, system-, and landscape-level factors for both mitigation and adaptation efforts.

Dr. Ngugi spoke of USAID's Feed the Future Innovation Labs, which carry out complementary research on crops and genomic resources as well as soil and water. He emphasized the need for more research at the landscape level, including the current Sustainable Intensification Innovation Lab and the historic Sustainable Agriculture and Natural Resources Management Collaborative Research Support Program (SANREM CRSP).

Regarding Recommendation Six on the high-potential leverage points, Dr. Ngugi suggested that when addressing prevention of cattle-driven deforestation and livestock management, we need to be specific about the kinds of landscapes where improvements in livestock management are necessary and needed. For example, livestock production in dryland systems should be emphasized and encouraged because it is essential for food security, nutrition, income, welfare, and culture.

Ms. Nouwen thanked Dr. Ngugi for his remarks, acknowledging his ability to provide a detailed and comprehensive perspective on the report's strengths and areas for improvement. , and turned the conversation over to Dr. Antony Chapoto, Director of Research and Innovation, Indaba Agricultural Policy Institute, Zambia. She asked Dr. Chapoto to expand on the points that Dr. Ngugi had introduced about the need for intentionally valorizing local insights, knowledge, and local capacity enhancement.

Dr. Chapoto stated that it had been a privilege to serve as a peer reviewer for the report and noted that he had read it multiple times to thoroughly understand its content. He described the first reading as challenging due to its USAID-specific focus. However, his excitement grew when he reached the recommendations and leverage points, recognizing their significance.

Dr. Chapoto emphasized the importance of a long-term perspective when addressing climate change issues. He stressed that short-term perspectives were inadequate to effectively deal with climate change issues. He also highlighted the critical role of local knowledge and emphasized the need to consider the role of local institutions to achieve sustainability, aligning with a point Dr. David Tschirley made earlier in the day.

Dr. Chapoto pointed out USAID's competitive advantage in the development space but acknowledged that there were other actors in the field. He posed a question about how to harness USAID's competitive advantage to attract broader, complementary investments required for long-term transformations. He shared an example of the need for communications infrastructure to disseminate digital climate services in rural communities, including investments in communication towers and road infrastructure for markets to function efficiently. If USAID's investments fell short in these areas, he proposed using USAID's influence to crowd in investments from other cooperating partners in critical complementary infrastructure, such as feeder roads and communication facilities. The power to attract such additional investments is a key ingredient for USAID interventions and investments to be transformative.

Dr. Chapoto encouraged the use of USAID resources to catalyze sustainability in different geographic contexts. He emphasized that the report was not a panacea for every country and highlighted the role of local Missions in domesticating it. He stressed the importance of stakeholder engagement at the local

level in designing programs, policies, regulations, and investments. Dr. Chapoto concluded and expressed excitement about the climate strategy and proposed strategies for operationalization, viewing them as steps in the right direction.

Ms. Nouwen thanked Dr. Chapoto, appreciating his outside perspective on how USAID can leverage and bring in other players. She invited Dr. Sarah Gammage, Director of Policy, Markets, and Finance for Latin America, The Nature Conservancy (TNC) to share her opening statement.

Dr. Gammage expressed enthusiasm for the report, describing it as content rich and very thoughtful. She mentioned that she had spent most of her weekend rereading it multiple times. She highlighted several aspects of the report to celebrate. Dr. Gammage praised the geographic prioritization of adaptation and mitigation efforts and their integration, emphasizing their relevance to the work of TNC in Latin America and globally. She cautioned that the taxonomy used to identify geographical priorities would be dynamic and subject to rapid shifts over time and thus suggested that it be revisited regularly, especially in regions highly vulnerable to climate change.

Dr. Gammage emphasized the importance of layering our strategies, laying mitigation, adaptation, and financing, and having a differentiated approach for smallholders. She emphasized important considerations of value chains, value chains with high levels of monopsony in them, high transition costs, and transaction costs for transitioning. None of this is independent of the political economy of production, and Dr. Gammage said she would like to see greater consideration of the political economy of production in the report's analysis.

She stressed that layering of strategies would be very important for crops that have highly correlated production shocks, especially at the landscape level. Therefore, she appealed to deeper thinking about this issue with regard to operationalization.

Dr. Gammage applauded the report's recommendations on data collection but also called for increased data sharing and making data more public and available to inform implementing partner strategies, donor strategies, and donor coordination.

She highlighted the necessity of capacity building across Missions and agencies, and also among implementers, for consonant, convergent, and meaningful statistics. Furthermore, she advocated for a balanced emphasis of both qualitative and quantitative research methods. Mixed methods are particularly important to understand behavioral change, farmer-centered approaches, and farming practices.

Dr. Gammage expressed some concerns about the report's relative lack of emphasis on policy. She called for a stronger focus on policy engagement with host country governments and harmonization of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs).

She noted surprise at the absence of analysis of social protection platforms and green social protection, suggesting that research investments can demonstrate how social protection de-risks and can encourage greener and more regenerative practices, going beyond payment for ecosystem services.

Dr. Gammage also called for a thoughtful discussion of reversing harmful subsidies in the report as a big piece of the strategy to remove critical distortions and generate fiscal space for more integrated programming around climate and agriculture. She pointed specifically to World Bank analysis that highlights the extent to which harmful subsidies are massively distorting, increasing pressure on forests, and precipitating massive biodiversity loss.

Ms. Nouwen thanked Dr. Gammage for her insightful remarks and asked if there was anything else missing from the report or needing strengthening.

Dr. Gammage said it is critical to think about harmonizing efforts with country governments and their Sustainable Development Goal (SDG) agendas. That was notably absent from the report. Additionally, she stressed the importance of national research and extension systems and the need to invest in them. She characterized those who work in the research and extension system as the frontline and that investing in these cadres could help to overcome political cycles.

Reiterating the importance of green social protection programs, Dr. Gammage cited examples like Bolsa Verde and Agência Brasileira de Cooperação (ABC) in Brazil. She called for a comprehensive analysis of these programs to understand how to enhance their effectiveness, reinforce the value of this type of support, and learn how to build systems to withstand political cycles.

Dr. Gammage expressed disappointment at the limited number of references to NDCs (7) and NAPs (5) in the discussion. She felt that these crucial elements should have featured more prominently in the conversation.

Dr. Gammage raised concerns about fiscal space, emphasizing the importance of understanding the context in which climate-resilience efforts operate. She pointed out that many governments faced impoverishment in the context of high debt. To address this issue, she suggested exploring debt conversion strategies and examining broader macroeconomic aspects.

Dr. Gammage also stressed the need to pay greater attention to the political economy along value chains and to monopsony in value chains. She noted that discussions often focused on highly traded products rather than home consumption, but home production and consumption are critical considerations if nutrition is an objective. She advocated for a gendered perspective, emphasizing the opportunity cost of time, people's time budgets, and time poverty. Dr. Gammage urged a thoughtful approach to women's economic empowerment programming that addresses care burdens and time poverty. She cautioned against investments that could increase time burdens and time poverty. Ms. Nouwen acknowledged the extensive recommendations presented in the report and addressed Dr. Ngugi, asking him about the necessary steps and support required for a USAID Mission to implement the suggested changes and the asks of the report from local partners. She asked what Missions need to make the recommendations happen.

Dr. Ngugi shared his perspective on what is needed to make progress. He emphasized the importance of training and building Mission capacity, particularly in understanding the tools for climate resilience. He commended previous investments and efforts made in climate risk management five or six years prior and advocated for reinvesting in making climate resilience—both adaptation and mitigation dimensions—relevant to program designers.

Dr. Ngugi pointed out that within USAID's career corps, across agricultural and other backstops, historically, climate-related work was primarily associated with the Mission Environmental Officers. He argued that it should now become a shared responsibility across all Foreign Service backstops, not just in agriculture. He highlighted the importance of incorporating the Climate Strategy into various Mission documents, including the Country Development Cooperation Strategy (CDCS), and mid-course correction plans. He emphasized the need for these strategies to resonate with officials across technical offices, program offices, finance departments, and Mission leadership.

Dr. Ngugi recognized the complexity, and time and effort required, to address climate impacts in program planning in an integrated way. He highlighted the significance of signaling a commitment to addressing climate issues from the Agency's most senior leadership and throughout the administration. Furthermore, Dr. Ngugi noted that host countries often recognize the urgency of climate-related challenges and do not require much convincing. For example, Ministries of Agriculture are more

amenable to addressing issues in adaptation, mitigation, and resilience. He suggested that USAID, in collaboration with partners, donors, investors, the private sector, and academia, should focus on building the necessary capacity to design and implement climate-resilient activities.

Ms. Nouwen apologized for not having enough time for follow-up questions for Mr. Cook and Dr. Chapoto. She mentioned that there would be a segment for the audience to ask questions and make comments, ensuring that the discussion remains inclusive. She passed the session to Mr. Sunga, concluding with a round of applause for the panelists.

**BIFAD and Participant Questions and Public Comment Period**
***Moderated by: Ishmael Sunga, BIFAD Subcommittee Member and CEO, Southern African Confederation of Agricultural Unions (SACAU)***

Mr. Sunga expressed appreciation for the ongoing conversation and curiosity to hear what resonated with the audience. He invited BIFAD members to share questions and reactions, followed by input from the in-person and online audience.

Ms. Kathy Spahn, BIFAD Member and CEO of Helen Keller International, said she was struck by both the level of ambition and the magnitude of the recommendations. Alluding to the need to layer strategies and break down silos and the suggestions about what was missing from the report, she commented that implementing these recommendations in totality would be very process heavy. She asked how USAID could maintain agility while implementing the many recommendations. Mr. Sunga directed her question to USAID colleagues.

Mr. Cook emphasized the need for agility and flexibility in responding to rapidly evolving situations. He mentioned the USAID program cycles involved in planning and evaluating projects and proposed setting aside resources, both financially and otherwise, to respond more rapidly to emerging research and program opportunities and needs. Mr. Cook highlighted that flexibility is already built into the program cycle to make changes through adaptive management, but the Agency should look for more opportunities to pivot when necessary.

Dr. Ngugi suggested that USAID can learn about agility from the humanitarian community. He cited the example of the Morocco earthquake, after which USAID's Disaster Assistance Response Team (DART) mobilized quickly to provide life-saving assistance. Dr. Ngugi emphasized the need for coordination between the development and humanitarian sides of USAID. He acknowledged that development programming is process heavy, and it takes a long time to make and start implementing an award. He recommended adopting the sense of urgency seen in humanitarian assistance efforts. Mr. Sunga expressed his agreement with the panelists' responses and invited additional questions or comments from BIFAD members.

Dr. Rattan Lal, BIFAD Member and Distinguished Professor of Soil Science, The Ohio State University, asked what could be done to make carbon farming a commodity crop for 500 million small landholders in the future. Mr. Sunga highlighted his belief in a new generation of farmers, particularly young farmers, and their potential to advance the carbon farming movement, provided there is a fair and reasonable price incentive. He said that ambitious young people see it as an entrepreneurial opportunity. "Quite often," said Mr. Sunga, "we're selling problems and not selling opportunities that climate change…brings."

Ms. Nouwen fully agreed with Mr. Sunga, adding that the devil is in the details. She said one urgent message for USAID and others is that for carbon farming to really work equitably, there is a need for fair and equitable market access. She drew attention to the current state of the voluntary carbon market, where prices can be $10 per ton or lower, making it financially unsustainable to design and implement

effective carbon farming programs that benefit all stakeholders while maintaining quality, integrity, and the required monitoring, reporting, and verification processes. At low prices, quality and integrity suffer, and the communities get the least in terms of benefits. Ms. Nouwen underscored that to unlock carbon revenue for communities, it is critical to support governments in preparing to trade in compliance markets, support them to be Article 6-ready,[16] and ensure that Africa has equitable access to markets.

Dr. Chapoto stated that a knowledge gap in carbon markets needed to be closed at the national, sub-national, and community levels to ensure equitable carbon markets.

Mr. Sunga acknowledged Dr. Chapoto's point, referring to it as "climate literacy." He stressed the need to invest in climate literacy to ensure that rural communities, including farmers, understand climate change and the opportunities it presents, as climate change may not be directly observable but rather seen as an outcome of certain agricultural practices.

Mr. Sunga confirmed that BIFAD members had no additional questions and opened the floor to the in-person audience, acknowledging three audience members with questions.

Erin McGuire, Director of the Feed the Future Innovation Lab for Horticulture, expressed appreciation for the discussions, panel, and report. She emphasized her belief in long-term research solutions and systems-based approaches, highlighting the importance of localization, long-term partnerships, and M&E. Dr. McGuire posed a question related to M&E, focusing on the challenges of evaluating long-term research and institutional capacity building and the potential misalignment between measurable units and longer-term, systems-based solutions. She sought insights on incentivizing, measuring, and ensuring progress toward such longer-term goals.

Jon Anderson (no affiliation) raised three observations and questions. First, alluding to Dr. Ngugi's comments, he emphasized the need to address humanitarian concerns, recognizing that adaptation and mitigation alone will not directly help the many people who will suffer as a result of climate change. Second, reinforcing Dr. Gammage's point to consider political economic factors, Mr. Anderson said that markets, through monopsonies and other phenomena, do not work for the poor. He said that market-based approaches can exacerbate poverty. He also emphasized the importance of rights to and ownership of resources, information, decision-making, and recourse. Technology alone is not a path out of the climate crisis.

Dr. Geoffrey Dahl, Director of the Livestock Systems Innovation Lab at the University of Florida, had a question about the report's use of the phrase "low-emissions livestock." He preferred the term "low-emissions intensity livestock production", considering the implications for nutrient availability and human nutrition.

Mr. Sunga asked the speakers to respond to the questions.

Dr. Gammage, responding to Dr. McGuire's question about M&E, offered insights as an implementer who has grappled with monitoring, reporting, and verification challenges. She highlighted the valuable guidance provided by USAID and the Department of State on complex evaluations. She noted that agility is crucial, and we can often get stuck with immovable log frames and results change. She asked how to pivot when a sudden, exogenous event throws carefully tracked data off course. She also asked how we solve attribution gaps when causality is complex, difficult to identify, or when, at best, we observe only

[16] Article 6 of the Paris Agreement, a provision that allows countries to cooperate with each other to achieve emissions reductions.

correlations of certain variables. Dr. Gammage called for more circular and fluid results chains and log frames, which will enable more flexibility and will enable us to capture highly context-specific details that may not be well reflected in traditional indicators.

Dr. Ngugi addressed the M&E question, acknowledging the difficulty of conducting long-term monitoring and impact assessments. He referred to a previous BIFAD analysis[17] that examined the returns on research investments and suggested that innovation in how to measure long-term impact is needed. Dr. Ngugi pointed out that current monitoring often operates on a year-by-year basis and that efforts are ongoing to align Feed the Future and climate indicators. He expressed the need for innovation in capturing long-term impacts, even suggesting the possibility of establishing an innovation lab dedicated to this challenge.

Dr. Ngugi underscored the importance of Mr. Anderson's concerns about rights and tenure. He mentioned the ownership of and rights to carbon payments, the question of benefit sharing, and how that relates to the types of regimes in different countries. He mentioned a specific activity in Mozambique related to voluntary carbon markets, where benefit sharing is a salient and complex matter. Dr. Ngugi stressed the importance of considering nature, wealth, and power (NWP) dynamics, especially in the context of the historic opportunity now to recapitalize tropical regions to combat climate change. He regarded these considerations as essential policy-level discussions.

Mr. Cook, in response to Dr. McGuire's question about M&E, stressed the importance of having both long-term data and evaluations and shorter-term measures to understand how well quick-pivot actions are working. He said it is important to do things quickly, fail early if necessary, and move on. He highlighted that in the adaptation context, we can't afford to wait for the results of rigorous impact evaluations. While we do need to invest in these longer-term evaluations, we also need rapid assessments for more urgent timeframes, such as in humanitarian contexts. He concurred with Mr. Anderson and said he would also like to see more in the report on political economy. Mr. Cook said that from the adaptation perspective, the Agency is making a big push now on locally led approaches and on equity, which provides openings for important conversations, much as benefit sharing does in the mitigation context.

Mr. Cook also touched upon some of the other ideas mentioned by speakers that are happening at USAID but are not always connected. USAID does good work on social protection within Missions and in the Center for Resilience, within the Bureau for Resilience and Food Security. The Center for Agriculture-Led Growth in the Bureau for Resilience and Food Security supports agricultural extension networks in many of the countries in which USAID works. Finally, USAID is doing good work with countries on their NAPS and NDCs through the Comprehensive Action for Climate Change Initiative (CACCI) program. He highlighted the challenge in integrating these disparate pieces of work—which sit in different parts of the agency and are funded in different ways—and articulating the ways in which they contribute to a shared set of objectives.

Dr. Chapoto, adding insights into the issue of political economy, said that we work in a space where there are many reasons for resisting change because of special interests, for example, resistance to

[17]Kraybill, D., Mercier, S., and Glauber, J. 2019. *How the United States benefits from agricultural and food security investments in developing countries*. Board for International Food and Agricultural Development (BIFAD); International Food Policy Research Institute (IFPRI); and Association of Public and Land-Grant Universities (APLU). Washington, DC: International Food Policy Research Institute (IFPRI).https://www.usaid.gov/bifad/document/bifad-report-how-united-states-benefits-agricultural-development-and-food-security-investments-developing-countries

eliminating fertilizer subsidies in Southern Africa. Fertilizer subsidies will be there whether we like them or not, said Dr. Chapoto, so we should refocus our strategy to make subsidies more effective. Dr. Chapoto emphasized the importance of aligning Agency efforts with national frameworks, specifically NDCs and NAPs. He stressed the need to break down silos to address multidimensional and multisectoral problems and to put effort and resources into national processes.

Mr. Sunga invited Ms. Nouwen to share insights on political economy and the livestock question. Ms. Nouwen acknowledged that the livestock question remained unanswered and suggested that Dr. Wollenberg could address the question.

Dr. Wollenberg said the subcommittee made an explicit decision to use the term "low emissions" rather than "low-emissions intensity" in the context of livestock because addressing climate change necessitates an actual reduction in emissions. Emissions intensity, which does address the food security problem, does not address the absolute emissions necessary to achieve climate policy targets. She said that options to reduce emissions exist by changing livestock types and other technical aspects including herd composition, feed additives, and genetics. She stated that addressing emissions intensity alone would sidestep the question of mitigation to address climate change.

Dr. Dahl interjected, offering an alternative perspective. He noted that "low-emissions livestock" could imply a dramatic reduction or elimination of livestock, which could affect the availability of essential nutrients for hungry children in certain countries. In contrast, "low-emissions intensity" would imply a focus on reducing emissions while maintaining the availability of essential nutrients. Dr. Wollenberg acknowledged the complexity of the issue and the need to explore alternative solutions to achieve both mitigation targets and nutrition goals. She cited an example of a company, Marfrig Global Foods, committing to a net-zero emissions pathway, highlighting the potential for addressing emissions reduction even in diverse agricultural contexts.

Mr. Sunga, recognizing the limited time remaining, announced that he would take one online question before addressing the audience for final questions or comments. The first online question was from a participant in Pakistan who inquired about how the Subcommittee's recommendations were relevant for countries with poor governance—where governments struggle to provide basic public services.

Mr. Sunga invited a question from Ladd, a representative from USAID's Bureau for Humanitarian Assistance (BHA). Ladd raised concerns, from the perspective of implementation, that disaggregates from USAID's current project indicators might not give enough information to determine whether or not a high-level goal was achieved. For example, in her work on food systems, one indicator measures metric tons of seed distributed in emergencies, but it is not disaggregated by type of seed, so we lack information on the nutrient quality of those seeds. She recommended a closer look at indicators and said that implementers usually do activities around the indicators that they have.

Mr. Sunga invited panelists to share any reactions or comments on the questions raised or any suggestions to consider when finalizing the report. Additionally, Mr. Sunga presented a question from a Board member regarding the Subcommittee's hopes for follow-on from the report. He expressed his hope for "one whole USAID", noting that as an outsider to USAID, he perceived different elements working, but not necessarily in unison. For the challenge to be confronted head on, the parts need to come together purposefully and deliberately to achieve synergy. He also encouraged using USAID's strength of influence to leverage and crowd in other players to do what USAID can't do directly.

Subcommittee member Dr. Muhammad emphasized the importance of addressing climate issues while at the same time still thinking about the issues of agricultural productivity, profitability, and well being in developing countries. He differentiated these appropriate climate actions in developing countries from

strategies involving greater sacrifice in the United States. He indicated that the report focuses appropriately on co-benefits and win-win strategies.

Subcommittee member Mr. Peter Wright, representing CARE USA, drew attention to a crucial component of the report: the empowerment of women and youth in the context of climate-resilient agriculture. He stressed that this element is pivotal because many proposed solutions may not effectively translate into action within local communities if these communities lack active engagement, necessary skills, or a sense of ownership.

Mr. Wright emphasized that building the capacity and empowerment of women and youth should be an incremental process. He underscored that certain developments take time to evolve. He argued that once local communities are empowered, complex questions, such as rights to resources, can be unraveled. Mr. Wright explained that when women are empowered, they have the agency to approach local community governments and advocate for essential resources such as land and water. The large numbers of women advocating for these resources carries weight. Mr. Wright said he has observed a similar phenomenon with youth. He has seen empowered groups setting up social support systems and bringing in management skills where none previously existed, for example, for collectively managed equipment. Transformational change, including on rights, starts from community empowerment.

He asserted that rights that exist in policies and constitutions won't be implemented until local communities are empowered. Mr. Sunga summarized Mr. Wright's remarks, emphasizing the need for those affected by climate change to initiate change. He recommended a bottom-up approach to complement a top-down approach, where those affected by climate change take the lead in speaking for themselves, explaining how they feel, and offering solutions relevant to their unique circumstances. He concluded the session, thanking all participants for their insights and calling Dr. Alexander back to the stage.

## BIFAD Member Deliberation of the Preliminary Recommendations

***Moderated by: Rattan Lal, BIFAD Member and Distinguished University Professor of Soil Science and Director of the CFAES Rattan Lal Center for Carbon Management and Sequestration, The Ohio State University***

Dr. Alexander thanked the expert panelists for sharing perspectives on the draft report. He appreciated hearing how the preliminary recommendations and their implications had resonated with different stakeholders. Dr. Alexander thanked the in-person and online audience members for their contributions to the dialogue.

Dr. Alexander invited BIFAD members to discuss and deliberate what they heard and specifically the report recommendations. He introduced Dr. Lal to lead this conversation, noting Dr. Lal's long standing support for this work stream. Dr. Lal invited BIFAD members to share reflections and questions for the Subcommittee.

Ms. Spahn said that throughout the day, they had heard in the operational recommendations about the need for more financial and human resources but also that no new funding for climate was available. This makes it even more important for non-climate-funded programs to do more. She asked how non-climate-funded programs could be incentivized to align with the Subcommittee's ambitious recommendations. Using nutrition as an analogy for climate, she said people agree nutrition is important as long as their budgets are not touched.

Dr. Lal directed the question to Dr. Fanzo, who reflected on how to convince the nutrition community to care about climate, acknowledged the complexity of the issue, and expressed her struggle to

comprehend a world where the immediacy of climate was not considered. She underlined that climate change had become so visceral and urgent that it was naïve to think it could be ignored in programming. She stressed that climate was inherently central to all nutrition interventions, through diet pathways or through infectious disease pathways. Dr. Fanzo highlighted the importance of adopting a systems approach and engaging different sectors to understand trade-offs and synergies in their work.

Dr. Fanzo emphasized the need for consistent exposure to climate-related topics to help experts with adjacent backgrounds find entry points where they can contribute. She highlighted the importance of translating climate data and projections for various sectors outside of meteorology and climate science, including, for example, the implications of a potential flood for public health experts and nutritionists. Better translation of data would enable professionals in different fields to take relevant actions based on climate information.

Dr. Lal appreciated Dr. Fanzo's comprehensive response and invited other Subcommittee members to provide their perspectives on the same question. Dr. Wollenberg added that many of the climate-focused targets and indicators also apply to non-climate programs, redirecting what is aimed to achieve within those programs. At the same time, because budgets can be zero-sum, she suggested reallocating some of the existing budget and not being locked into past programs. Dr. Muhammad noted that, typically, when organizations are faced with this issue, changes in priorities come from top leadership. If we cannot change the budgets, we have to change priorities, and this must come from the top.

Ms. Henri Moore, BIFAD Member and Vice President/Head of Responsible Business, Haleon, expressed concerns that the global geopolitical situation was likely to get worse. She noted that when discussing climate change with farmers, as she did while working with Corteva, there is often a sense of hesitation or skepticism. She emphasized the importance of how we communicate about climate change. Ms. Moore also said that empowering women and youth is important, but communities also need financing. She spoke about a recent trip to India in March, where she observed that women and youth had a strong interest to engage in smallholder farming but were constrained in finance.

Dr. Lal then turned to the panelists for their responses. Mr. Sunga emphasized the need to recognize the differentiated needs of youth. He said some youth may not require finance at all, others need finance for growth capital or other purposes, and others require social grants to achieve environmental outcomes. The diverse finance needs of youth cannot be met through a single financing instrument. Mr. Sunga indicated that many youth, at least in South Africa, are already involved in agricultural activities. The key constraint may not be finance but rather information to help them do what they are doing better. For those who require finance, there is a need to think broadly and to consider different types of capital—from philanthropy to public development financing. Philanthropic finance can support training in non-competitive sectors, in quantifying volume of production (e.g., carbon farming), or in establishing investment profiles to leverage financing elsewhere.

Dr. Alexander expressed his appreciation for the valuable recommendations presented during the session and shared his thoughts as a university representative. He noted the extensive collaboration suggested in the report, which emphasizes partnerships with diverse stakeholders including, government, communities, local organizations, and corporations, and others. Dr. Alexander highlighted the importance of emphasizing inclusion, particularly regarding Minority-Serving Institutions (MSIs). In his role as the leader of an MSI, Dr. Alexander raised a question about ensuring the prominent inclusion of MSIs in research, collaborations, and partnerships. He emphasized that MSIs, like his own, have established relationships with partner countries and can play a critical role.

Dr. Liverpool-Tasie expressed appreciation for the Subcommittee's report and especially the recommendations on research. She highlighted two areas that resonated with her, given her affiliation with a research university. First, she addressed the need to collaborate more with private sector partners to crowd in investments, solicit complementary expertise, and identify scalable interventions. She shared recent evidence that micro-, small-, and medium-scale enterprises in developing regions, particularly in the midstream and downstream of input and output supply chains, are sources of innovation. However, more research is needed to understand the nature and transformative potential of these innovations, and she was happy to see suggestions in the report for additional research in these areas. Many private sector-led initiatives are sustainable and led by individuals who understand the local context. Private-sector-led initiatives are not waiting for the government to take action.

Second, Dr. Liverpool-Tasie discussed the importance of community-scale collective action in building resilience to changing climate conditions. She stressed the lack of knowledge about how collective action occurs in developing regions, particularly in sub-Saharan Africa, and how it can be scaled up and supported.

Dr. Liverpool-Tasie then posed a question to the Subcommittee members regarding their recommendation to extend the timescale of climate analysis, programming, and expected investment outcomes beyond the typical activity implementation period. She asked whose responsibility it would be to extend the timescale, what role Missions would play, and whether capacity building would be necessary, given that most projects have relatively short lifespans of around five years.

Dr. Lal thanked the Subcommittee and turned the podium to Dr. Alexander.

**Concluding Remarks, Note of Appreciation to Subcommittee, and Adjournment**
***Laurence Alexander, BIFAD Chair and Chancellor of the University of Arkansas at Pine Bluff***
Dr. Alexander expressed gratitude to the Subcommittee members for their dedicated service over the last year. He emphasized the importance of having a team of global experts with diverse viewpoints and deep experience to advise the Board on this critical work. Dr. Alexander highlighted the Subcommittee's tremendous expertise, time, and energy dedicated to the project.

Dr. Alexander presented certificates of appreciation to each Subcommittee member and invited Dr. Wollenberg, Mr. Sunga, Dr. Muhammad, and Dr. Fanzo to receive their certificates. Dr. Alexander specifically acknowledged Dr. Wollenberg for her role in guiding the team, facilitating knowledge sharing, and fostering consensus among the Subcommittee members. He also recognized Dr. Muhammad, Dr. Fanzo, and Mr. Sunga for their valuable contributions to the Subcommittee's work. He acknowledged the virtual participation of co-chair Dr. Coughlin de Perez and the inputs of Ms. Nouwen and Dr. Herrero, who needed to depart early.

Dr. Alexander extended his gratitude to the Subcommittee members who had contributed significantly to the project but could not be present at the meeting, including Ms. Chiriac, Ms. Ejezie, Dr. Huyer, and Mr. Wright. Past Subcommittee members included Mr. Mauricio Benitez of responsAbility Investments, Mr. Juan Echanove of CARE USA, and Dr. Angelino Viceisza of Spelman College.

Dr. Alexander also thanked the author team for its expertise, professionalism, and adaptability, with special mention of Dr. Ed Carr, of Clark University, and Ms. Rahel Diro, of Tetra Tech. He reminded everyone that the written public comment period for the report and preliminary recommendations would be open until Monday, September 18 and explained that the Subcommittee and author team would work together to finalize the report after the public comment period, with the aim of submitting formal recommendations to BIFAD in October. Dr. Alexander noted that BIFAD would review these

recommendations and share final recommendations with the agency in time for USAID's engagements at the 28th Conference of Parties in November.

Dr. Alexander announced that BIFAD was accepting member nominations for the proposed subcommittee on MSIs. This subcommittee would inform recommendations to strengthen USAID's partnerships with MSIs in agricultural, food security, and nutrition policies and programming. It would identify opportunities for engagement with the higher education community to develop a diverse pipeline of future professionals in global food security, nutrition, and agriculture development.

Dr. Alexander thanked the individuals who had contributed to the success of the program, including Clara Cohen, BIFAD Executive Director at USAID; USAID colleagues; Reid Hamel, Rachel Helbig, Tommy Crocker, Katie Naeve, Megan Knight, and Carmen Benson of Tetra Tech; and all participants, both in person and online, for their valuable perspectives and contributions. Dr. Alexander adjourned the meeting.

**Certification of Minutes**

We hereby certify that the foregoing minutes are an accurate and complete summary of the matters discussed and conclusions reached at the meeting held on September 11, 2023.

Laurence Alexander, BIFAD Chair and Chancellor, University of Arkansas at Pine Bluff

Clara K. Cohen, Executive Director, BIFAD, Bureau for Resilience and Food Security, USAID

December 1, 2023

**ANNEX 1: BRIEFER**

**BIFAD Public Meeting**

**Elevating Climate Change Adaptation and Mitigation in USAID's Agricultural, Nutrition, and Food System Programming to Inform Strategy Implementation: A Discussion of the BIFAD Climate Change Subcommittee Draft Commissioned Report**

**Recommended Pre-Reads for BIFAD Members**

Monday, September 11, 2023 | 10:00am-12:00pm EDT and 1:30-3:30pm EDT

**Carr, E.R., Diro R., Naeve, K., Hamel, R., Beggs, M., Benson, C., Caldwell, B., Mbevi, L., Hall, T., Zook, D., Alderedge, H., Liming, K., Allognon, L., Crocker, T., & Mukupa, N. (2023).** ***Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems*****. Tetra Tech under the USAID BIFAD Support Contract. https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023.**

The goal of this report is to identify and recommend actions that accelerate progress in climate change adaptation and mitigation related to USAID's agricultural and food security programming. As the most recent Intergovernmental Panel on Climate Change (IPCC) Assessment noted, pathways to a climate-resilient future require transformational changes to the systems in which we live. Transformational changes are those that alter the fundamental attributes of systems in response to actual or expected

climate conditions and their effects on people, often at a scale and ambition greater than incremental activities. Transforming key systems to reduce emissions, improve climate resilience, and achieve development goals challenges conventional approaches to development.

The report presents achievable 2030 targets for USAID and a set of recommendations to drive transformative change encompassing both Agency operations and social and technical leverage points that merit additional investment.

**Priority Materials to Inform the Morning Session:**

***A Vision for USAID Research to Advance Food Security, Nutrition, Climate, and Environment Goals***

**Feed the Future. (2022). *U.S. Government Global Food Security Research Strategy, Fiscal Year 2022-2026*. U.S. Agency for International Development. https://cg-281711fb-71ea-422c-b02c-ef79f539e9d2.s3.us-gov-west-1.amazonaws.com/uploads/2022/10/U.S.-Government-Global-Food-Security-Research-Strategy-508c.pdf.**

Global food security is beset by myriad challenges, including the climate crisis, the ongoing COVID-19 pandemic, conflicts, and a lack of equity and inclusion. While this research strategy was being developed in response to the updated U.S. Global Food Security Strategy (GFSS), global food, fuel and fertilizer prices were increasing rapidly, posing major challenges to many low-income, food-insecure countries already experiencing high rates of malnutrition. At the time of the GFSS completion, Russia's war on Ukraine was further exacerbating the food security and nutrition challenges facing the world's poorest people, and global food security was once again front-page news in the world press. Thus, as the U.S. Government's Global Food Security Research Strategy comes into effect, the food security, nutrition, and resilience goals it is meant to help advance are gaining even greater urgency.

The Feed the Future initiative, with the generous support of Congress, guides a whole-of-government response to food-security challenges. The GFSS focuses on three major objectives: 1) inclusive and sustainable, agriculture-led economic growth; 2) strengthened resilience among people, communities, countries, and systems; and 3) a well-nourished population, especially among women and children. The strategy gives attention to several cross-cutting issues, including climate change adaptation and mitigation to include co-benefits, increased equity and inclusion, and improved affordability of nutritious diets.

**U.S. Agency for International Development. (2023). *USAID Climate Strategy 2022–2030*. https://www.usaid.gov/policy/climate-strategy.**

Building on USAID's previous 2012–2018 Climate Change and Development Strategy, which focused on specific climate change mitigation and adaptation measures, this new strategy takes an unprecedented "whole-of-Agency" approach that calls on all corners of USAID to play a part in a response. USAID will work on the ground with partner governments and local actors to set the global trajectory toward a vision of a resilient, prosperous, and equitable world with net-zero greenhouse gas (GHG) emissions.

Addressing the climate crisis requires a holistic approach to development. Every USAID sector and Mission has a role to play as the Agency helps transform global systems like agriculture, energy, governance, infrastructure, and health. This strategy includes six ambitious, high-level targets that reflect how a whole-of-Agency approach can dramatically increase USAID's impact. USAID will update these 2030 targets and supplement them with interim targets throughout the strategy's lifetime as the budget and experience with delivery evolves. The six, high-level targets include:

- Mitigation: USAID will partner with countries to support activities that reduce, avoid, or sequester six billion metric tons of CO2 equivalent emissions.
- Natural and Managed Ecosystems: USAID will support the conservation, restoration, or management of 100 million hectares with a climate change mitigation benefit.
- Adaptation: USAID will enable the improved climate resilience of 500 million people.
- Finance: USAID will mobilize $150 billion in public and private finance for climate.
- Country Support: USAID will align its development portfolios with countries' climate change mitigation and adaptation commitments in at least 80 countries by 2024 and will support its partners to achieve systemic changes toward meeting those commitments in at least 40 countries.
- Critical Populations: USAID will support its partners to achieve systemic changes that increase meaningful participation and active leadership in climate action of Indigenous peoples, local communities, women, youth, and other marginalized and/or underrepresented groups in at least 40 partner countries.

**U.S. Agency for International Development. (2023).** ***Technical Note: Low Emissions Agriculture and Food Systems Development: Opportunities in Support of Food Security and Climate Action*****. https://www.climatelinks.org/resources/low-emissions-agriculture-and-food-systems-development-opportunities-support-food.**

Low Emissions Agriculture and Food Systems (LEAFS) substantially reduce GHG emissions compared to business-as-usual scenarios and/or emissions per unit of agricultural output. Globally, agriculture and food systems contribute roughly 30 percent of all GHG emissions, yet where these emissions come from and how they are produced varies dramatically. In some countries or regions, and in some markets, the potential to reduce GHG emissions is low. In these cases, USAID staff and development partners might choose to prioritize adaptation and reducing future emissions intensity. In other geographies and value chains, targeted mitigation actions are critical. Within a country, activity design and implementation often present opportunities to address broad climate-smart agriculture and food systems goals that include both mitigation and adaptation, whether via in-field practices or systemic policy or market interventions. Although this short note focuses on terrestrial systems, fisheries/aquatic systems also provide low-carbon food sources.

**Agriculture Innovation Mission (AIM) for Climate. (2021).** ***AIM for Climate: Working to Enable Solutions at the Intersection of Agriculture and Climate*****. https://www.aimforclimate.org/.**

The Agriculture Innovation Mission (AIM) for Climate is a joint initiative by the United States and the United Arab Emirates. AIM for Climate seeks to address climate change and global hunger by uniting participants to significantly increase investment in, and other support for, climate-smart agriculture and food systems innovation over five years (2021–2025).

AIM for Climate will work to:

- Demonstrate collective commitment to significantly increase investment in agricultural innovation for climate-smart agriculture and food systems over five years (2021–2025).
- Support frameworks and structures to enable technical discussions and the promotion of expertise, knowledge, and priorities across international and national levels of innovation to amplify the impact of participants' investments.
- Establish appropriate structures for exchanges between Ministers and chief scientists, and other appropriate stakeholders, as key focal points and champions for cooperation on climate-related

agricultural innovation, to engender greater co-creation and cooperation on shared research priorities between countries.

Two AIM for Climate-related blogs:

- Investing in Women's Empowerment in Agriculture and Food Systems: Advancing Gender-Focused Agricultural Innovation Mission for Climate Innovation Sprints
- Unlock Innovative Solutions to Food Loss and Waste: Propose AIM for Climate Innovation Sprints!

**Research, Education, and Economics. (2023). *USDA Science and Research Strategy, 2023-2026: Cultivating Scientific Innovation*. U.S. Department of Agriculture. https://www.usda.gov/sites/default/files/documents/usda-science-research-strategy.pdf.**

The U.S. Department of Agriculture (USDA) is putting forth five key science priority areas to address societal challenges and to capture opportunities to make significant advances in food, agriculture, and natural resource sectors. The five priority areas are:

1. Accelerating Innovative Technologies & Practices;
2. Driving Climate-Smart Solutions;
3. Bolstering Nutrition Security & Health;
4. Cultivating Resilient Ecosystems; and
5. Translating Research Into Action.

This *USDA Science and Research Strategy, 2023-2026* reflects the challenges and opportunities we face and outlines how USDA Science plans to meet this moment. The objectives include innovative and forward-looking goals while also identifying foundational needs for these and future priorities. The priority areas are not meant to be exclusive; just as societal needs are multifaceted and complex, there are cross-cutting themes that emerge. Accelerating Innovative Technologies & Practices sets the stage by looking far into the future at the science needed to support what might emerge. The next three priority areas—Driving Climate-Smart Solutions, Bolstering Nutrition Security & Health, and Cultivating Resilient Ecosystems—take a deeper dive into significant areas of societal need. The final priority area—Translating Research Into Action—focuses on policy and foundational needs to translate science into realized action and outcomes.

**Tenkouano, A., Isah, A., Panchbhai, A., Bilaro, A., Karanja, D., Nampanzira, D., Phekani, G., Keti, H., Shimelis, H., Rubyogo, J. C., Bekunda, M., Diop, M., Sibomana, M., Odeke, M., Samaké, O. B., & Negra, C. (2023). *Empower Climate-resilient Smallholder Agriculture by Investing in African Research and Innovation: Three Recommendations by African Researchers and Innovators. United Nations Foundation*. United Nations Foundation https://unfoundation.org/what-we-do/issues/climate-and-energy/empower-climate-resilient-smallholder-agriculture-by-investing-in-african-research-and-innovation/.**

In the face of climate extremes and economic shocks, resilience-oriented innovation is essential to sustain and increase productivity and to ensure food security in small-scale agrifood systems. With investments in agricultural research and adaptation well below estimated needs, Africa is at a disadvantage in the fight against climate challenges.

Drawing on the collective insights of 15 African researchers and innovators, this brief recommends three strategies for more effectively investing in smallholder-centered research and innovation that advance climate-resilient and sustainable agriculture.

1. Capacity First: Without robust, local capacity for context-specific research, climate-resilient production, and commercialization, African agrifood systems will not be able to take advantage of new technologies generated by international scientific programs. Substantive contributions by in-region researchers, producers, extension advisors, agri-entrepreneurs, public officials, and local financial institutions are critical to adaptation on farms and in agricultural value chains.
2. Collaborate in Context: Resilience materializes when in-region institutions and local agrifood system stakeholders have access to relevant knowledge, technologies, and resources. Better connectivity across upstream and downstream research, between public and private sectors, and among research and policy communities can encourage context-specific co-investments that align with national priorities and foster regional-level coordination on a shared agricultural resilience agenda.
3. Continuity Across Investments: Coping with climate change requires continuous support for a diverse research and development (R&D) portfolio and smoother transitions across different stages of innovation and funding sources. With de-risking by donors and better collaboration across the public-private divide, existing financial flows and new forms of patient capital can be steered toward climate-resilient innovation in Africa's smallholder agricultural systems.

**Innovation Commission for Climate Change, Food Security and Agriculture. (2023). *Innovation Commission for Climate Change, Food Security and Agriculture*. Development Innovation Lab at the University of Chicago. https://bfi.uchicago.edu/project/the-commission-on-innovation-for-climate-change-and-food-security/.**

The Innovation Commission encourages innovation development and scaling at the intersection of climate change, food security, and agriculture. The commission identifies high return investments in innovation for climate mitigation and adaptation in agriculture and food security. In many cases, even once innovations have been developed, market or government failures prevent them from reaching an efficient scale. The commission identifies such barriers and proposes institutional mechanisms to efficiently stimulate innovation and take the most effective ones to scale. It also examines the role of meta-innovations: mechanisms for encouraging innovation development and scaling, such as open, tiered, evidence-based social innovation funds, and Advance Market Commitments for climate change, food security, and agriculture.

**U.S. Department of Agriculture. (n.d.). *Climate Hubs*. https://www.climatehubs.usda.gov/**

USDA's Climate Hubs are a unique collaboration across the department's agencies. They are led and hosted by the Agricultural Research Service and Forest Service located at 10 regional locations, with contributions from many agencies including the Natural Resources Conservation Service, Farm Service Agency, and Risk Management Agency. The Climate Hubs link USDA research and program agencies in their regional delivery of timely and authoritative tools and information to agricultural producers and professionals.

The mission of the Climate Hubs is to develop and deliver science-based, region-specific information and technologies, with USDA agencies and partners, to agricultural and natural resource managers that enable climate-informed decision-making, and to provide access to assistance to implement those decisions. This is in alignment with the USDA mission to provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management.

- 2014 Hub: [Link]
- 2015 Hub: Vulnerability Assessment [Link]

- 2023 Hub: International Climate Hub [Link]
- 2023 Hub: International Collaboration Hub [Link]

**Loring, P., Loken, B., Meyer, M., Polack, S., Paolini, A., Nyiawung, R., & Dhar, M. (2023). *Solving the Great Food Puzzle: Right Innovation, Right Impact, Right Place*. World Wildlife Fund. https://wwfint.awsassets.panda.org/downloads/solving-the-great-food-puzzle-right-innovation--right-impact--right-place.pdf.**

In this study, the authors provide guidance for all stakeholders working on innovation. The Right Innovation, Right Impact, Right Place framework will help anyone designing or supporting innovations in food systems to build an innovation toolkit to maximize impact and achieve national-level health and environmental goals. The framework helps in choosing innovations that will best amplify the impact of 20 transformation levers that transcend boundaries and hold much promise for transforming food systems (Section 1); anticipating the kind of change and impact any proposed innovation might have and using systems thinking to identify and treat root causes of the problems we want to reverse (Section 2); and understanding the social and ecological context in which the innovation is to be implemented (Section 3). This helps anticipate unintended consequences that can arise when innovations are not critically reviewed (Section 4).

**Office of Global Food Security. (2023). *The Vision for Adapted Crops and Soils (VACS)*. U.S. Department of State. https://www.state.gov/the-vision-for-adapted-crops-and-soils/#:~:text=The%20Vision%20for%20Adapted%20Crops%20and%20Soils%20(VACS)%20aims%20to,varieties%20and%20building%20healthy%20soils.**

VACS is part of Feed the Future, the U.S. government's global hunger and food security initiative, and supports the implementation of the GFSS (2022–2026). It contributes to the President's Emergency Plan for Adaptation and Resilience (PREPARE) and advances the commitments made in the U.S.-African Union (AU) Joint Statement on Food Security at the 2023 U.S.-Africa Leaders Summit.

VACS promotes an integrated approach, with self-sustaining investments that have increasing returns year after year. Interventions will be organized around a cohesive, interdependent framework that recognizes the complexity of land use—with a particular focus on what farmers should plant and where. Interventions will empower farmers, policymakers, extension workers, and suppliers with *options* and *information* tailored for their own local conditions and preferences. They will also prioritize *nutrition* as the endpoint for resilient food systems.

**CSIS Global Food Security Program. (2023). *The Vision for Adapted Crops and Soils (VACS): Keynote Address and Armchair Discussion with Dr. Cary Fowler with Special Remarks from Ambassador Cindy McCain*. Center for Strategic & International Studies. https://www.csis.org/events/vision-adapted-crops-and-soils-vacs-keynote-address-and-armchair-discussion-dr-cary-fowler.**

African countries are suffering the worst effects of the global food security and global climate crises. Prolonged flooding and droughts diminish agriculture and restrict access to nutritious food across sub-Saharan Africa, home to millions suffering from food insecurity and malnutrition.

In partnership with the UN Food and Agriculture Organization (FAO) and AU, the U.S. State Department's Office of the Special Envoy for Global Food Security is launching VACS. The VACS initiative will seek to support African farmers, civil society organizations, and governments in their preparation for the continent's food systems challenges posed by climate change. The multiphase VACS initiative will identify the most nutritious crops in each of AU's five subregions, assess the challenges climate change

is expected to pose to these crops, and seek to boost public and private investments in these crops to prepare them for the anticipated effects of climate change.

This presentation addresses the questions: How will The Vision for Adapted Crops and Soils contribute to improving food security, nutrition, and soil health systems in Africa, and to addressing the larger global food crisis? What are the steps necessary for VACS to achieve these goals? What are the roles of the AU and FAO, and others, in achieving them? What long-term impact could VACS have on reducing food insecurity and malnutrition—and addressing climate change—across Africa?

The commission brings together an independent, diverse, and high-level group. This includes former heads of state and cabinet ministers and leaders in international organizations and the private sector. The commission is chaired by Michael Kremer, the co-recipient of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2019. His work on Advance Market Commitments was instrumental in the adoption of this approach as a tool for promoting private sector participation in the development of health innovations for low- and middle-income countries, and he helped establish USAID's Development Innovation Ventures.

The Commission Secretariat draws on published knowledge as well as consultations with experts from academia, government, the private sector, international organizations, and civil society. Over the next three years, the commission will generate concrete proposals to develop and scale innovations, based on a careful assessment of available scientific and economic evidence, and engage with a range of stakeholders to disseminate and amplify this work.

**Brauman, K. A., Siebert, S., & Foley, J. A. (2013).** ***Improvements in Crop Water Productivity Increase Water Sustainability and Food Security—A Global Analysis.*** **Environmental Research Letters. https://iopscience.iop.org/article/10.1088/1748-9326/8/2/024030/pdf.**

Abstract: Irrigation consumes more water than any other human activity, and thus the challenges of water sustainability and food security are closely linked. To evaluate how water resources are used for food production, we examined global patterns of water productivity—food produced (kcal) per unit of water (l) consumed. We document considerable variability in crop water productivity globally, not only across different climatic zones but also within climatic zones. The least water productive systems are disproportionate freshwater consumers. On precipitation-limited croplands, we found that [approximately] 40 [percent] of water consumption goes to production of just 20 [percent] of food calories. Because in many cases crop water productivity is well below optimal levels, in many cases farmers have substantial opportunities to improve water productivity. To demonstrate the potential impact of management interventions, we calculated that raising crop water productivity in precipitation-limited regions to the 20th percentile of productivity would increase annual production on rainfed cropland by enough to provide food for an estimated 110 million people, and water consumption on irrigated cropland would be reduced enough to meet the annual domestic water demands of nearly 1.4 billion people.

**Brauman, K. A., Goodkind, A. L., Kim, T., Pelton, R. E., Schmitt, J., & Smith, T. M. (2020).** ***Unique Water Scarcity Footprints and Water Risks in US Meat and Ethanol Supply Chains Identified via Subnational Commodity Flows.*** **Environmental Research Letters. https://iopscience.iop.org/article/10.1088/1748-9326/ab9a6a/pdf.**

Abstract: Within the US, supply chains aggregate agricultural production and associated environmental impacts in specific downstream products and companies. This is particularly important for meat and ethanol, which consume nearly half of global crop production as feed and feedstocks. However, lack of data has thus far limited the ability to trace inputs and impacts of commodity crops through domestic

supply chains. For the first time, we use a commodity-flow model to link spatially distributed water resource impacts of corn and soy to individual meat and ethanol processing facilities. This creates transparency in the supply chains, illuminating substantial variation in embedded irrigation water and water scarcity footprints among meat and ethanol processed at different facilities. By calculating unique blue water scarcity footprints for end-products, we show that beef processed in Iowa or Illinois, for example, has fewer water impacts than chicken processed in California and pork processed in Oklahoma. We find that over 75 [percent] of irrigated feed embedded in meat is consolidated in six companies and 39 [percent] of irrigated feedstock for ethanol is consolidated in five companies, with potentially negative impacts to supply costs and risk management. This subnational variation and consolidation of impacts in key supply chains creates opportunities for producers and consumers of agriculture-based products to make management, investment, and sustainability decisions about those products.

**Brown, M. E., Antle, J. M. Backlund, P., Carr, E. R., Easterling, W. E., Walsh, M. K., Ammann, C., Attavanich, W., Barrett, C. B., Bellemare, M. F., Dancheck, V., Funk, C., Grace, K., Ingram, J. S. I., Jiang, H., Maletta, H., Mata, T., Murray, A., Ngugi, M., Ojima, D., O'Neill, B., & Tebaldi, C. (2015).** ***Climate Change, Global Food Security, and the U.S. Food System*****. U.S. Department of Agriculture; the University Corporation for Atmospheric Research; and the National Center for Atmospheric Research. https://www.usda.gov/sites/default/files/documents/FullAssessment.pdf.**

Food security—the ability to obtain and use sufficient amounts of safe and nutritious food—is a fundamental human need. Achieving food security for all people everywhere is a widely agreed-upon international objective, most recently codified in the United Nations Sustainable Development Goals for 2030. This report describes the potential effects of climate change on global food security and examines the implications of these effects for the United States.

Food-security challenges are widely distributed, afflicting urban and rural populations in wealthy and poor nations alike. Food-security challenges are particularly acute for the very young, because early-life undernutrition results in measurably detrimental and lifelong health and economic consequences. Food insecurity affects people through both under- and over-consumption. Much of the scientific literature to date addresses the former issue, though the latter is now receiving more attention. For an individual, food insecurity may manifest as a reduced capacity to perform physically, diminished mental health and development, and an increased risk of chronic disease. Collectively, food insecurity diminishes global economic productivity by 2–3 percent annually ($1.4–2.1 trillion), with individual country costs estimated at up to 10 percent of country gross domestic product (GDP).

The last several decades have seen significant progress in overcoming the obstacles of population growth, food waste, inefficient distribution, and ineffective social-safety nets to improve global food security. There are currently about 805 million people, or 11 percent of the global population, who are undernourished according to the UN FAO, down from about 1.01 billion, or 19 percent, in 1990–1992. At least 2 billion people currently receive insufficient nutrition. The fundamental issue addressed by the *Climate Change, Global Food Security, and the U.S. Food System* assessment is whether progress can be maintained in the face of a changing climate.

## Priority Materials to Inform the Afternoon Session:

### *A Deliberation of Draft Report Recommendations from the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems*

**U.S. Agency for International Development. (2022). *USAID Climate Strategy, 2022–2030*. USAID. https://www.usda.gov/sites/default/files/documents/FullAssessment.pdf.**

See above reference in the *Priority Materials to Inform the Morning Session*.

**Bossio, D., Obersteiner, M., Wironen, M., Jung, M., Wood, S., Folberth, C., Boucher, T., Alleway, H., Simons, R., Bucien, K., Dowell, L., Cleary, D., & Jones, R. (2021). *Foodscapes: Toward Food System Transition*. The Nature Conservancy, International Institute for Applied Systems Analysis, and SYSTEMIQ. https://www.nature.org/en-us/what-we-do/our-insights/perspectives/foodscapes-regenerative-food-systems-nature-people/.**

This report introduces foodscapes. Foodscapes are the geographical components of the global food system, a combination of production system and place that represents the world food system spatially. Mapping and analyzing foodscapes reveal the transitions needed on the ground to meet this century's most pressing challenge: the threats posed by climate change, biodiversity loss, and increased demand on the integrity of the global food system.

Foodscapes help all those involved in organizing and reforming the world food system—policymakers, producers, community leaders, researchers, journalists, and decision makers in the private and public sectors in general—to take the vital first step of moving from a global analysis to a more definitive analysis of what must happen where and how. That first step revolves around nature-based solutions, or ways of managing food production systems that restore and rebuild natural systems, rather than exhaust them.

The report maps the world's foodscapes and assesses their current condition. It looks at the threats they face and the opportunities that exist through nature-based solutions to transition to a food system able to meet demand while conserving biodiversity, rebuilding ecosystem services, mitigating climate change, and increasing the resilience necessary to weather climate change impacts. The report includes examination of what the transition could look like in 10 specific foodscapes (see section entitled "Foodscapes in Focus").

It also locates and quantifies the global benefits, especially climate change mitigation, associated with a food system transition to nature-based solutions.

**Resilient Central America (ResCA). (2015). *Resilient Central America.* The Nature Conservancy and ResCA. https://www.resilientcentralamerica.org/en/.**

To improve the livelihoods of subsistence producers, while considering their vulnerabilities, Resilient Central America (ResCA) seeks to face two main challenges: food security and resilience to climate change.

Through pilot projects that test innovative solutions while working at multiple scales, ResCA implements Healthy Productive Ecosystems to build resilience to climate change, conserve natural habitats, and strengthen local economies, a win-win-win model.

In partnership with the private and public sectors, ResCA promotes systemic change and generates scalable success experiences in the agriculture and fisheries sector.

Ultimately, ResCA seeks to open access to financial resources in order to develop replicable models to solve climate change challenges and ensure food security for the population suffering from poverty and malnutrition.

**Carter, R., Choularton, R., Ferdinand, T., Ding, H., Ginoya, N., & Preethan, P. (2021). *Food Systems at Risk: Transformative Adaptation for Long-term Food Security*. World Resources Institute. https://www.wri.org/research/food-systems-risk.**

The Transforming Agriculture for Climate Resilience (TACR) project, funded by the Bill & Melinda Gates Foundation, aims to increase investments in agricultural adaptation and strengthen our collective understanding of and support for transformative approaches to adaptation where and when they are needed. This report is based on three years of research to delineate the following: what transformative adaptation is and how it applies to agriculture, why it is needed and what benefits it can offer, and how it can be better integrated into research, policy, planning, and funding processes to build the long-term resilience of farmers, herders, and others involved in agricultural value chains.

**Thornton, P. K., Loboguerrero Rodriguez, A. M., Campbell, B. M., Mercado, L., Shackleton, S., & Kavikumar, K. S. (2019). *Rural Livelihoods, Food Security and Rural Transformation Under Climate Change*. CGIAR. https://files.wri.org/s3fs-public/uploads/RuralLivelihoodsFoodSecurityRuralTransformation_-_Global_Commission_on_Adaptation.pdf.**

Despite decades of attention to agricultural development, food security, and rural poverty, poverty and food insecurity remain, especially among rural dwellers in Asia, Africa, and Central America. With climate change, the challenges only increase and will further intensify as extreme events and variable weather patterns make small-scale production even more difficult.

For any list of recommendations, leverage points, or action points, a common criticism can easily be that we have heard it all before. There are no "silver bullets," and some actions and strategies can have mixed outcomes, though nascent and yet-to-be-developed technologies could shift rural livelihoods, agriculture, and the broader food systems in unexpected ways in the coming decade—both positively and negatively.

The paper's thesis is that transformational change in rural livelihoods is needed for climate change adaptation, that this change needs to embrace the broader food system, and that these actions can have benefits in multiple dimensions beyond climate change adaptation: poverty, nutrition, employment, and the environment. If transformational change is to be achieved, several elements will be needed in synergy, with varied emphasis on some elements depending on context and considering household heterogeneity.

**De Pinto, A., Bryan, E., Ringler, C., & Cenacchi, N. (2019). *Adapting the Global Food System to New Climate Realities: Guiding Principles and Priorities*. International Food Policy Research Institute (IFPRI). https://files.wri.org/s3fs-public/uploads/Adapting_Global_Food_System_to_Climate_Realities_Paper_-_Global_Commission_on_Adaptation.pdf.**

The effects of climate change are increasingly felt among vulnerable populations in many developing countries, particularly those relying on agriculture for their livelihoods, but also the urban poor. Adverse impacts include lower crop yields and crop nutritional values, and ripple effects will be felt throughout the entire food value chain unless significant adaptation actions are taken. This paper takes a broad food system perspective and connects the roles and actions of international organizations, national governments, local communities, and farmers. After an extensive review of the likely effects of climate change and the available adaptation responses, the paper identifies a series of guiding principles to be considered by decision makers as they plan adaptation actions. These principles, which are expected to increase the uptake and the efficiency of climate change adaptation in agriculture, include:

1. Publicly funded agricultural research is the underlying engine of all adaptation actions and requires increased investments. Particular emphasis should be given to the growing risks faced by vulnerable people;
2. Climate change generates multidimensional challenges, and adaptation actions should be evaluated accounting for their economic, environmental, and social costs and benefits. Trade-offs across alternative objectives should be made explicit;
3. Coordination across international, regional, national, and local actors is not only necessary but essential to maximize the outcomes of adaptation actions. Sufficient resources should be dedicated to these efforts;
4. Risk management is an inherent component of climate change adaptation. Increased efforts are necessary to improve our understanding of how to deal with risk and uncertainty and to educate decision-makers on how to manage risks;
5. Adaptation actions should be deployed along the entire food system as actions in the areas of post-harvest, transportation, retail, and food consumption work synergistically with efforts on the production side;
6. Institutional capacity enables change and transformation in the agriculture sector. Insufficient investments in institutional capacity slow down the pace of adaptation and reduce the efficiency of adaptation actions;
7. New digital technologies have the potential to transform the agriculture sector. Investments in these technologies and in building the capacity to use them must be facilitated. Particular attention should be given to preserving access to these technologies by poorer producers and consumers;
8. Climate change-induced temporary and permanent migrations have the potential to significantly disrupt the normal functioning even of established economies. Planning, coordination, and adequate support are necessary to avoid catastrophic consequences; and
9. The adoption of certain adaptation measures could be significantly constrained because of the growing need to abate GHGs. Adaptation measures should also be evaluated according to their potential effects on GHG emissions.

**Garnett, T., Godde, C., Muller, A., Röös, E., Smith, P., De Boer, I. J. M., Herrero, M., van Middelaar, C., Schader, C., & van Zanten, H. H. E. (2017).** ***Grazed and Confused? Ruminating on Cattle, Grazing Systems, Methane, Nitrous Oxide, the Soil Carbon Sequestration Question – and What it all Means for Greenhouse Gas Emissions*****. Food Climate Research Network (FCRN).**
**https://www.oxfordmartin.ox.ac.uk/downloads/reports/fcrn_gnc_report.pdf.**

Preface: This report is the collaborative effort of individuals at the Universities of Oxford, Aberdeen and Cambridge in the UK; Wageningen University in the Netherlands; the Centre for Organic Food and Farming (EPOK) at the Swedish University of Agricultural Sciences (SLU); the Research Institute of Organic Agriculture (FiBL) in Switzerland; and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia. All the participating organizations contributed intellectual and financial support to the project. The project was led by the Food Climate Research Network at the University of Oxford.

The work is motivated by the desire to provide clarity to the often highly polarized debate around livestock production and consumption, and the merits or otherwise of different production systems. At its most extreme, there is an opposition between those who view grazing ruminants as cause of (most of) our planetary woes, and those who believe the exact opposite, arguing that 'grass fed' cattle offer a route to environmental – including climatic – salvation. Of course most people do not hold these extreme views but many, including those with influence, are also somewhat confused. Should we eat

meat and other animal products? Or should we not? If we do, is beef bad and chicken better? Or is it the other way round? Is grass fed good for the planet or bad? Ultimately in the context of planetary boundaries on the one hand and the need for human development (in its widest sense), the 'big question' that needs answering is whether farmed animals fit in a sustainable food system and if so, which systems and species are to be preferred. This report does not address this enormous and difficult question, particularly if sustainability is defined in its proper and widest sense. But by exploring a smaller one – the role of grazing ruminants in contributing to, or mitigating climate change – the report hopes to contribute some of the sub-structural knowledge we need if the big question is, ultimately, to be answered.

**ANNEX 2: ZOOM CHAT TRANSCRIPT**

From SAID ZAROUALI to Everyone:

Good day, M. ZAROUALI SAID FROM THE KINGDOM OF MOROCCO.

From SAID ZAROUALI to Everyone:

There is no sound

From SAID ZAROUALI to Everyone:

tst

From Arun KC to Everyone:

Is this started? there is not sound.

From Ghada Albandak to Everyone:

Greetings from Jordan. this is Dr. Ghada Albandak. there is no sound. thanks

From Ganesh Bora to Everyone:

There is still no sound!

From Kaganga John to Everyone:

Sure,same to. me

From Patrick Webb to Everyone:

Commiserations on the tragic earthquake, Mr. Said. This is Patrick Webb from Tufts University in Boston.

From Ghada Albandak to Everyone:

It is fine now thanks

From Carmen Benson to Everyone:

Welcome! Thank you for joining. The meeting will begin in a few moments.

From Alexis Halbert to Everyone:

Thank you!

From Mary Beggs to Everyone:

Good day everyone! This is Mary Beggs, from Tetra Tech. I am looking forward to the discussion.

From Carmen Benson to Everyone:

My name is Carmen Benson, from the BIFAD Support Team at Tetra Tech. Megan Knight and I will be your online hosts today.

From Megan Knight to Everyone:

Hello all, and welcome!

From Zanna Abubakar to Everyone:

From Megan Knight to Everyone:

Welcome to all, please feel free to introduce yourself in the chat.

From Zakari Hassane to Everyone:

Hello all, My name is Hassane Zakari, from Niger.

From NDAH Teddy to Everyone:

Greetings to all.

From Kaganga John to Everyone:

Am Kaganga John from Uganda, Professional food security fellow,a farmer, climate change activist specialized Ecosystem Restoration and  a practitioner in Nature based Solutions; [contact information removed]

From Katie Naeve to Everyone:

Good morning, everyone. This is Katie Naeve from Tetra Tech.

From Megan Knight to Everyone:

Today's meeting is being recorded, and all comments and Q/A will be posted publicly following the event.

From Megan Knight to Everyone:

Please note that closed captioning is available in ZOOM.

From Jannette Bartlett to Everyone:

Good morning all.

From Betty Adjei to Everyone:

hello everyone my name is Betty Adjei  from Ghana

From NDAH Teddy to Everyone:

I'm called NDAH TEDDY a community Health Nutritionist from Cameroon CM

From Megan Knight to Everyone:

Today's agenda and speaker bios are available here: https://www.usaid.gov/bifad/document/meeting-minutes-bifad-finds-conclusions-recommendations-september-11-2023

From Kaganga John to Everyone:

working is a local NGO: Kikandwa Environmental Association

From Megan Knight to Everyone:

Learn more about the Board for International Food and Agricultural Development (BIFAD) here: https://www.usaid.gov/bifad/board-members

From Patrick Webb to Everyone:

Very hard to hear Rattan...

From Michael Ogunbiyi to Everyone:

Hi everyone, I am Michael Ogunbiyi, an international trade and Agribusiness consultant. Joining from Nigeria it's my pleasure to join the webinar.

From Keith Ochola to Everyone:

Hello everyone , Keith from Kenya working with TerryAgricentre : food security and nutrition

From Carmen Benson to Everyone:

Thanks, Patrick. I think the microphones are on now.

From Tiberious Etyang to Everyone:

Hello everyone, Tiberious Etyang with Salvation Farming Solutions

From Megan Knight to Everyone:

Learn more about the USAID 2022-2030 Climate Strategy here: https://www.usaid.gov/policy/climate-strategy

From Abdikarim Aburo to Everyone:

I am Abdikarim Mohamed Aburo an environmentalist from Kenya

From Megan Knight to Everyone:

Learn more about the U.S. Government Global Food Security Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Megan Knight to Everyone:

View or download the Draft BIFAD-Commissioned Report, Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems here: https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023. You will find a link to provide feedback on the same page.

From Melkamu Sigaye to Everyone:

Greetings of the day all, my name is Melkamu Sigaye from Ethiopia ET

From Paul Alberghine to Everyone:

I am Paul Alberghine. I work on USDA's McGovern-Dole school feeding project and serve as FAS' Feed the Future coordinator.

From Megan Knight to Everyone:

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From Kien Nguyen Van to Everyone:

S

From Carmen Benson to Everyone:

Welcome, Paul. Thank you for joining. Please feel free to share comments or questions during the meeting, and our team will help to share these in the room for discussion.

From Kien Nguyen Van to Everyone:

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From Kien Nguyen Van to Everyone:

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From Kien Nguyen Van to Everyone:

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From Kien Nguyen Van to Everyone:

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From Kien Nguyen Van to Everyone:

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From Megan Knight to Everyone:

Learn more about the U.S. Government Global Food Security Research Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Kien Nguyen Van to Everyone:

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From Kien Nguyen Van to Everyone:

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From Megan Knight to Everyone:

Hello Kien, your messages are coming through in the chat to everyone, please let me know if you need support in using the chat function

From Kien Nguyen Van to Everyone:

thanks

From Jennifer Nielsen to Everyone:

Jennifer Nielsen, Senior Nutrition Advisor with Helen Keller International in New York

From Megan Knight to Everyone:

Welcome to those who are just joining us! Please feel free to introduce yourself in the chat.

From Anthony Esilaba to Everyone:

Anthony O. Esilaba in Nairobi Kenya

From Megan Knight to Everyone:

Today's meeting is being recorded, and all comments and Q/A will be posted publicly following the event.

Please note that closed captioning is available in ZOOM.

From Kien Nguyen Van to Everyone:

greeting everyone  I am kien nguyen van, prìncipal investigator of Việt Nam National PLANT Genebank

From Jannette Bartlett to Everyone:

Jannette R. Bartlett, Research Associate Professor, Tuskegee University, Tuskegee, Alabama

From Megan Knight to Everyone:

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From Malini Tolat to Everyone:

Malini Tolat, Lead FSL Advisor Save the Children

From Nkole Mwamba to Everyone:

Thanks for this powerful session. Global Ambassador, Nkole Mwamba, US Diplomacy councils Member, Executive Director Savañnah ZAMBIA. [contact information removed]

From Dick Tinsley to Everyone:

How much of the agriculture research is based on demonstrating the physical potential, but does not get into Operational Fieasibility in term of labor and access to mechanization so smallholder farmers can be taught but cannot take advantage? Who in the agriculture development effort is responseable to determining not only the labor required but also the availability of that labor across the community.

From Ricardo Makuil to Everyone:

Hello Everyone, I'm Ricardo Makuil joining in from South Sudan

From Cathy Vaughan to Everyone:

Cathy Vaughan, Director of Learning, Innovation & Research, USAID's Climate Adaptation Support Activity (CASA)

From Zanna Abubakar to Everyone:

Zanna Abdulsalam, Research Scientist, National Biotechnology Development Agency, Nigeria [contact information removed]

From Mara Russell to Everyone:

Mara Russell, Senior Director Food Security and Resilience, CARE. Based in Washington, DC.

From Molly Hellmuth to Everyone:

Molly Hellmuth, Sr. Technical Director of Climate, Winrock International

From Carl Wahl to Everyone:

Carl Wahl, Senior Ag. Advisor, USAID/BHA

From Karol Boudreaux to Everyone:

Karol Boudreaux, Sr. Land & Resource Governance Advisor, USAID

From Carmen Benson to Everyone:

Thank you, Dr. Tinsley- We have noted your question for the Q/A session a bit later in the meeting this morning.

From Dick Tinsley to Everyone:

One problem is the dietary energy balance in which a full day of agronomic field work requires takes 4000 kcal/day when most smallholder farmers are lucky to have access to only 2500 kcal/day. This limits the diligent labor input to only 2-3 hours per day, extend crop establishment to an unacceptable 8+ weeks with potential yield declining until no longer able to meet family food security needs

From Allan Hruska to Everyone:

Allan Hruska, Director, Global IDEAS, Michigan State University.

From Stanley Okenwa to Everyone:

Okenw Stanley Nwojo. President A Little Drop that Counts (ALDC), University of Nigeria, Nsukka Nigeria

From Francois Stepman to Everyone:

Is there a reason why USAID's Ag-Climate strategy is not referring to African centre of Excellence (ACE programme funded by the World Bank)? Today there are 69 RCoEs in 20 countries. EC will soon fund and start a Technical support to the coordination of the 'Scientific and technological support to the Regional centres of Excellence related to Green Transition'. FUNDING DETAILS: World Bank ACE I/2014-2020/ USD 290.8 million. World Bank ACE II/2018-On going/ USD 70 million.

From Kara Casy to Everyone:

Dr. Kara Casy, Agronomy Department, University of Florida/IFAS

From Dick Tinsley to Everyone:

Please take some time to review the article linked: https://agsci.colostate.edu/smallholderagriculture/wp-content/uploads/sites/77/2023/03/Reflections.pdf

From Lynne Ausman to Everyone:

Lynne Ausman, USAID Food Safety Innovation Lab, Boston

From Carmen Benson to Everyone:

Welcome. For those just joining now, today's agenda and speaker bios are available here: https://www.usaid.gov/bifad/document/meeting-minutes-bifad-finds-conclusions-recommendations-september-11-2023

From Ricardo Makuil to Everyone:

thank you so much

From Megan Knight to Everyone:

Thank you for your questions already, the Q&A Session will take place later this morning. Questions can be asked using the Q&A Function in Zoom, please find that next to the chat feature on your Zoom toolbar.

From Megan Knight to Everyone:

Learn more about the U.S. Government Global Food Security Research Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Afia Agyekum to Everyone:

Afia Agyekum, Ag&L Advisor, ADRA Interntional

From Vincent Ogalo to Everyone:

Good evening fronm Uganda. Vincent Ogalo following live from Eastern Ugandan City of Soroti.

From Christy Owen to Everyone:

Christy Owen, former COP for USAID Green Invest Asia, now with DAI based in the US.

From Carmen Benson to Everyone:

Absolutely!

From Carmen Benson to Everyone:

Thank you, Dr. Tinsley. We have noted this resource and will it share with the subcommittee, BIFAD, and author team.

From Amani Elsheikh to Everyone:

Salam to all . Amani Elsheikh ,Sudan Meteorological Authority,Sudan

From MOHAMMED AL-OTHMANI :

Greeting from Yemen, Mohammed ALSharabi, Make Hope Foundation.

From Megan Knight to Everyone:

Learn more about the U.S. Government Global Food Security Research Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Megan Knight to Everyone:

Learn more about the U.S. Government Global Food Security Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Gary Alex to Everyone:

Greeting. Gary Alex Alabama, USA

From Megan Knight to Everyone:

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From Megan Knight to Everyone:

We hope you will join the discussion by sharing your ideas and resources in the chat and sending questions to panelists using the Q/A window. Please let us know to whom your question is addressed.

From Kien Nguyen Van to Everyone:

https://www.researchgate.net/profile/Nguyen-Van-Kien

From Nina Lyon Bennett to Everyone:

Greetings from the School of Agriculture, Fisheries and Human Sciences at the University of Arkansas at Pine Bluff in Pine Bluff, Arkansas, USA  Thank you for the remarks thus far that helps to frame the challenges of global food insecurity, nutrition, climate change and other environmental challenges.

From Carmen Benson to Everyone:

Welcome, Nina. That you for joining today.

From Dr Mary Okpala to Everyone:

I'm  Dr Mary Okpala from Federal Polytechnic Oko Anambra State Nigeria.

From Megan Knight to Everyone:

We hope you will join the discussion by sharing your ideas and resources in the chat and sending questions to panelists using the Q/A window. Please let us know to whom your question is addressed.

From Arouna SADJI BOUKARI to Everyone:

Mr Arouna SADJI BOUKARI from Bénin

From Megan Knight to Everyone:

View or download the Draft BIFAD-Commissioned Report, Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems here: https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023. You will find a link to provide feedback on the same page.

From Dr Mary Okpala to Everyone:

Please does USAID have any research in Africa on value addition of insect based foods or snacks. Dr Mary Okpala from Federal Polytechnic Oko Anambra State Nigeria.

From Mara Russell to Everyone:

Cary Fowler just shared some very interesting information regarding the potential to use local indigenous foods that support nutrition.  Will there be additional investment with respect to these crops to enable scale up in production, marketing and resource enhancement to support

this? Will that be included in the funding for R&D, or will that need to be additional? Identifying these crops is great, but how do we ensure that they are adopted, produced, ensure producers earn income, and ensure that people adopt these foods and understand their use in their diets and feed to their children (as most are now consuming staples such as maize, rice and wheat)? Can Cary Fowler please comment?

From Carmen Benson to Everyone:

Thank you, Mara for your question. We have noted it for the moderator's consideration during the Q&A session a bit later this morning.

From Megan Knight to Everyone:

Thank you for your questions already, the Q&A Session will take place later this morning. Questions can be asked using the Q&A Function in Zoom, please find that next to the chat feature on your Zoom toolbar.

From Aroma Patrick to Everyone:

Live from Uganda @AROMA PATRICK-Executive Director-CAMKWOKI Grassroot Initiative For Development Limited [contact information removed]

From Megan Knight to Everyone:

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From Gary Alex to Everyone:

Cary's argument for focus seems more compelling and practical than the argument to attempt a very broad array of investments to address multiple aspects of the broad systems. That said, the non-traditional crops initiative would be only one piece of what must be a broader effort. BIFAD should weigh in with recommendations on key investment opportunities with potential to impact the climate crisis.

From Carmen Benson to Everyone:

Hi Mara- Thank you for your question. Please remind me of your affiliation (organization)?

From Carl Wahl to Everyone:

Chicken and chips!

From Carl Wahl to Everyone:

Issues with perceptions of modernity.

From Anupa Deshpande to Everyone:

When we talk about access to safe and nutritious foods, diets, productivity, profitability and systemic change, how are we thinking about Affordability of foods?

From Carmen Benson to Everyone:

Thank you Anupa. Please remind me of your affiliation (organization)?

From Dick Tinsley to Everyone:

https://agsci.colostate.edu/smallholderagriculture/affordability-of-improved-nutrition-while-optimizing-economic-opportunities/

From Ricardo Makuil to Everyone:

most of the people in Africa especially South Sudan, have no access to nutritious food nor safe drinking water. even the utilization of available food that lead to affordability.

From Mike Nsuka to Everyone:

How can we ensure access to safe nutritous and sufficient for all and eliminating all forms of malnutrition also contribute to achievement of other goals of the 2030 agenda ?

From Dick Tinsley to Everyone:

AD, I appreciate your comment please look at the article just posted to see how balancing economic opportunity and desired nutrition results in some really serious tough questions, including providing a egg a day per child, vs energy for a couple more hours of diligent field work

From Mike Nsuka to Everyone:

sorry my phone doesn't permit to use Q&A.

From Betty Adjei to Everyone:

I agree with Anthony  small farmers require immediate solutions so adopting long term adaptation measures remains a challenge

From David Ellis to Everyone:

A missing component in the program is to ask where the diversity is going to come from to build the vision of sustainable, healthy, nutritious, climate-resilient and productive agricultural systems.  Climate change is causing havoc on existing genetic diversity collections in virtually all crops  (including underutilized crops, coffee and cocoa) – how will we protect these building blocks (global invaluable genetic diversity) for development of this innovative crop vision?

From Megan Knight to Everyone:

We hope you will join the discussion by sharing your ideas and resources in the chat and sending questions to panelists using the Q/A window. Please let us know to whom your question is addressed.

From Francois Stepman to Everyone:

If you understand French or German:  documentary on Europe's agricultural development dilemmas GERMAN https://youtu.be/Or5FWexP2AI?si=5KWTTDWxF2f3O-w_ FRENCH : https://youtu.be/V6qTGQe39qA?si=PJ5VcLdYKeVms63Z

From Kaganga John to Everyone:

Agroecology is recognized and embarrassed by FAO and many institutions as a very powerful method of sustainable farming in climate change adaptation and soil health but whenever it come to funding,it is not given priority,what would be the problem: From Kaganga John a  professional food security fellow and a farmer from Uganda; [contact information removed]

From Lia Kelinsky-Jones to Everyone:

@Kangana John - could you put your question into the Q&A section? I'd like to see it answered. Thank you.

From Carmen Benson to Everyone:

Apologies, Kangana John. I hoped to share your question next but it seems we are short on time. We will share your question and all questions or comments with the Subcommittee and BIFAD.

From Amani Elsheikh to Everyone:

An indigenous knowledge it more important for the  climate change researchs

From Paul Alberghine to Everyone:

Thanks for an informative session and for all of your work on FTF.

From Zanna Abubakar to Everyone:

From Amani Elsheikh to Everyone:

Thank you for an informative session

From Vincent Ogalo to Everyone:

From Megan Knight to Everyone:

View or download the Draft BIFAD-Commissioned Report, Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems here: https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023. You will find a link to provide feedback on the same page.

From Megan Knight to Everyone:

Please take the time to complete the BIFAD Event Participant Feedback Survey here: https://forms.office.com/Pages/ResponsePage.aspx?id=uuQPpMer_kiHkrQ4iZNkAOPBZTxYdINPpaKX-AEjzyBUQkNYVFoxR1dLSVhHUEZTSzJPSzRYS1BYOCQlQCN0PWcu

From Carmen Benson to Everyone:

Thank you, everyone. I hope you will reconnect for the second session.

From Megan Knight to Everyone:

Thank you for participating! We will reconvene again at 1:30 PM Eastern Time for the afternoon session, A Deliberation of Draft Report Recommendations from the BIFAD Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Agriculture, Nutrition, and Food Systems.

For more information about upcoming BIFAD public meetings, please monitor https://www.usaid.gov/bifad

From Carmen Benson to Everyone:

Welcome! We will begin in a few moments.

From Dick Tinsley to Everyone:

Hello, are we back on line

From Megan Knight to Everyone:

Welcome Back, or Welcome if you're joining us for the first time! Please feel free to introduce yourself in the chat.

Today's meeting is being recorded, and all comments and Q/A will be posted publicly following the event.

Please note that closed captioning is available in ZOOM.

From Megan Knight to Everyone:

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From Megan Knight to Everyone:

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From Megan Knight to Everyone:

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From Megan Knight to Everyone:

Learn more about the USAID 2022-2030 Climate Strategy here: https://www.usaid.gov/policy/climate-strategy

Learn more about the U.S. Government Global Food Security Strategy, 2022-2026: https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

From Nicole Lefore to Everyone:

The IL for Small Scale Irrigation would like to recognize North Carolina A & T and Prairie View A & M in our work.

From Megan Knight to Everyone:

Learn more about the BIFAD Climate Change Subcommittee Members here: https://www.usaid.gov/bifad/climatechange/subcommittee

From Megan Knight to Everyone:

View or download the Draft BIFAD-Commissioned Report here: https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023. You will find a link to provide feedback on the same page.

From Karol Boudreaux to Everyone:

Also noting there are additional targets - including a target to strengthen and support partnerships with critical populations (including women, youth, Indigenous Peoples and local communities) to achieve systemic change - with a goal of strengthening 40 partnerships.

From Megan Knight to Everyone:

We hope you will join the discussion by sharing your ideas and resources in the chat and send questions to panelists using the Q/A window. Please let us know to whom your question is addressed.

From Megan Knight to Everyone:

Speaker bios are available here: https://www.usaid.gov/bifad/document/meeting-minutes-bifad-finds-conclusions-recommendations-september-11-2023

From Geoffrey Blate to Everyone:

On budgets, I would appreciate it if the panelists could opine on the potential operational benefit of allocating a portion (e.g., 10%) of the total direct climate budget for mainstreaming. Jonathan is correct that onus is on operating units regardless of sector to contribute to the Climate Strategy's targets, but would a small amount of direct climate funding help accelerate this mainstreaming?

From Carl Wahl to Everyone:

+1 Speaker

From Megan Knight to Everyone:

Please feel free to join the discussion by sharing your ideas and resources in the chat and sending questions to panelists using the Q/A window. As a reminder, all questions and comments will be posted in the public record and available to inform BIFAD's work.

From Megan Knight to Everyone:

Hello Geoffrey, I have recorded your question, there is no need to move it over to the Q&A, thank you!

From Solomon Oyeniran to Everyone:

Major Constraints and Benefits from Implementation of FSMS Standards for Small and Medium Sized Enterprises around the World: Case Studies from different countries

https://m.facebook.com/story.php?story_fbid=pfbid0zyMuv21d1kqC9qmPDExAo1eA1SwfcK91An7Jk7qpC2wwF8yZ9two5PpNYYLxjmP5l&id=100055389703953&sfnsn=scwspmo&mibextid=RUbZ1f

https://www.linkedin.com/posts/solomon-oyeniran-a179363b_case-studies-of-small-medium-food-enterprises-activity-7103376877188243456-WEIa?utm_source=share&utm_medium=member_android

From Willy Mulimbi to Everyone:

Markets do not work for the poor if they're not involved!

From Dick Tinsley to Everyone:

Thank you for an interesting day

From Vincent Ogalo to Everyone:

From Geoffrey Blate to Everyone:

Many thanks to BIFAD, the sub-committee, the organizers, and all of the panelists. I really appreciate the thoughtful discussion and questions today.

From Nicole Lefore to Everyone:

Thanks for an excellent event today

From Vincent Ogalo to Everyone:

From Megan Knight to Everyone:

Learn more about each of the BIFAD Climate Change Subcommittee Members here: https://www.usaid.gov/bifad/climatechange/subcommittee

From Vincent Ogalo to Everyone:

Many thanks for organizing this insightful event

From Carmen Benson to Everyone:

Thank you to all subcommittee members for your service, leadership, and partnership over the past year!

From Carl Wahl to Everyone:

It will be interesting to see how these strategic recommendations are converted into tactical approaches. Good luck.

From Megan Knight to Everyone:

View or download the Draft BIFAD-Commissioned Report here: https://www.usaid.gov/bifad/draft-bifad-commissioned-report-sep-2023. You will find a link to provide feedback on the same page.

From Harriett Paul to Everyone:

Thank you to all for an excellent informative session!! Looking forward to receiving the link to the recorded session.

From Megan Knight to Everyone:

BIFAD is accepting member nominations for the proposed Subcommittee on Minority Serving Institution Engagement and Leadership in USAID's Agricultural, Food Security, and Nutrition Policies and Programming. For more information, please review the Public Call for Member Nominations here: https://www.usaid.gov/bifad/proposed-msi-subcommittee. You will find a link to submit nominations on the same page.

From Carmen Benson to Everyone:

Please nominate potential members for the MSI Subcommittee by September 15th.

From Megan Knight to Everyone:

Thank you for participating in today's meeting. The meeting recording and minutes will be posted publicly and shared with participants by email after the meeting. For more information about upcoming BIFAD public meetings, please monitor https://www.usaid.gov/bifad.

Please take the time to complete the BIFAD Event Participant Feedback Survey here:

https://forms.office.com/Pages/ResponsePage.aspx?id=uuQPpMer_kiHkrQ4iZNkAOPBZTxYdINPpaKX-AEjzyBUQkNYVFoxR1dLSVhHUEZTSzJPSzRYS1BYOCQlQCN0PWcu

From Esther Eborka to Everyone:

Thank you all for a very insightful session

From Mary Beggs to Everyone:

Thank you for the excellent discussion today!

From Marie Boyd to Everyone:

Thanks to all the participants and the subcommittee members.

**ANNEX 3: ZOOM QUESTION AND ANSWER TRANSCRIPT**

1. ***Mara Russell:*** Cary Fowler just shared some very interesting information regarding the potential to use local indigenous foods that support nutrition. Will there be additional investment with respect to these crops to enable scale up in production, marketing and resource enhancement to support this? Will that be included in the funding for R&D, or will that need to be additional? Identifying these crops is great, but how do we ensure that they are adopted, produced, ensure producers earn income, and ensure that people adopt these foods and understand their use in their diets and feed to their children (as most are now consuming staples such as maize, rice and wheat)? Can Cary Fowler please comment?

2. ***Dick Tinsley:*** How much of the agriculture research is based on demonstrating the physical potential, but does not get into Operational [Feasibility] in term of labor and access to mechanization so smallholder farmers can be taught but cannot take advantage? Who in the agriculture development effort is [responsible] to determining not only the labor required but also the availability of that labor across the community

3. ***Dick Tinsley:*** One problem is the dietary energy balance in which a full day of agronomic field work requires takes 4000 kcal/day when most smallholder farmers are lucky to have access to only 2500 kcal/day. This limits the diligent labor input to only 2-3 hours per day, extend crop establishment to an unacceptable 8+ weeks with potential yield declining until no longer able to meet family food security needs

4. ***Dick Tinsley:*** You have mentioned coffee several times, and I enjoyed a good cup of Viet Nam coffee this morning, but I wonder if the nutritional value of coffee justified the concern given the degree of malnutrition and under nutrition we are confronted with.

5. ***Andrew Kirabira:*** How do we address the issue of accurate data collection in communities where record keeping is still poor due to high [illiteracy] level? Yet the level of [accommodating] [Indigenous] knowledge in climate [change] based research is still low!? From Andrew Kirabira, Agribusiness Lecturer, Uganda Martrys University

6. ***Dr Mary Okpala:*** please is there any research in Africa by USAID on insect as food. insect-based food or snacks could help improve food and nutrition security.

7. ***Kenneth MacClune:*** People's diets are changing as some people's income improves. We heard earlier that traditional and indigenous foods were important to meet future needs. But in many

contexts such foods are seen as “less modern” and thus less desirable. What thinking has been done to help bridge this gap between demand-side desire and supply-side ambition?

8. ***Mubashar Ali:*** I am Mubashar Ali from Pakistan, the worst effected country from the climate change. Crops in certain areas are becoming extinct. How can we solve [catastrophes] especially in 3rd World Countries where governments can hardly bear their necessary items?
9. ***Ousmane Coulibaly:*** Ousmane Coulibaly, Senior Agricultural Economist. This was very fruitful. Thanks!
10. ***Arouna SADJI BOUKARI:*** Je n'ai plus le son
11. ***Dick Tinsley:*** Following up on my morning [comment] on Dietary Energy Balance, [we] have [considered] for decades that smallholder farmers were poor and [hungry], why have we not quantified this and recognized how diet would impede implementation of innovation particularly those that required additional labor? If we did would our programs result in enhance appreciation of the need for access to [mechanization]? Should this be a research priority?
12. ***Dick Tinsley:*** Does this mean that access to mechanization is not only desirable but absolute essential if we are ever going to obtain any poverty alleviation for smallholder producers?
13. ***Dick Tinsley:*** My final question which was recently posted to various groups on LinkedIn is how can we arrange financial packages to allow individual in smallholder communities to drift out of farming to concentrate on [becoming] mechanization service priority? Do we need to avoid any form of communal ownership of [mechanization] as this [has] been a total failure for decades? Just cannot keep up with [maintenance] and equipment is surveyed off-line with less than have the designed operational time. Can we expect smallholder to address the main issues of this meeting without first addressing this issue. Thank you
14. ***Regan Smurthwaite:*** Why did the [Subcommittee] decide not to include targets related to the other three Climate Strategy Targets around the climate strategy around hectares managed with a mitigation benefit, achieving systemic change around climate mitigation and adaptation commitments, and achieving systemic changes that increase participation and leadership in climate action of critical populations?
15. ***Andrew Kirabira:*** How about information sharing in at least the [Indigenous] languages so that the recommendations can reach a wider audience- to incorporate with [Indigenous knowledge].
16. ***Richard Kohl:*** there us a heavy emphasis on Transformational vs. Incremental. How do we distinguish between when existing Incremental is relevant vs simply old wine in New bottles from inertia, vested interests and legacy projects?

**ANNEX 4: PARTICIPANT LIST**
**Number of Attendees: 347**

| # | First Name | Last Name | Organization |
|---|---|---|---|
| **BIFAD Members (In-Person)** | | | |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 1 | Laurence | Alexander | BIFAD; University of Arkansas at Pine Bluff |
| 2 | Rattan | Lal | BIFAD; The Ohio State University |
| 3 | Henri | Moore | BIFAD; Haleon |
| 4 | Kathy | Spahn | BIFAD; Helen Keller International |
| **BIFAD Members (Virtual)** | | | |
| 5 | Marie | Boyd | BIFAD; University of South Carolina School of Law |
| 6 | Saweda | Liverpool-Tasie | BIFAD; Michigan State University |
| **Subcommittee Members (In-Person)** | | | |
| 7 | Jessica | Fanzo | BIFAD Subcommittee; Columbia University |
| 8 | Mario | Herrero | BIFAD Subcommittee; Cornell University |
| 9 | Andrew | Muhammad | BIFAD Subcommittee; University of Tennessee Institute of Agriculture |
| 10 | Carlijn | Nouwen | BIFAD Subcommittee; Climate Action Platform for Africa (CAP-A) |
| 11 | Ishmael | Sunga | BIFAD Subcommittee; Southern African Confederation of Agricultural Unions |
| 12 | Eva (Lini) | Wollenberg | BIFAD Subcommittee; University of Vermont |
| **Subcommittee Members (Virtual)** | | | |
| 13 | Erin | Coughlan De Perez | BIFAD Subcommittee; Tufts University |
| 14 | Chinenye Juliet | Ejezie | BIFAD Subcommittee; Climate Smart Agriculture Youth Network, Nigeria |
| 15 | Sophia | Huyer | BIFAD Subcommittee; Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), Kenya |
| 16 | Peter | Wright | BIFAD Subcommittee; CARE USA |
| **Speakers and Panelists (In-Person)** | | | |
| 17 | Rob | Bertram | USAID |
| 18 | Kate | Brauman | University of Alabama |
| 19 | Gillian | Caldwell | USAID |
| 20 | Antony | Chapoto | Indaba Agricultural Policy Institute, Zambia |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 21 | Jonathan | Cook | USAID |
| 22 | Cary | Fowler | U.S. Department of State |
| 23 | Sarah | Gammage | The Nature Conservancy |
| 24 | Chavonda | Jacobs-Young | U.S. Department of Agriculture |
| 25 | Moffatt | Ngugi | USAID/Mozambique |
| 26 | Bambi | Semroc | Conservation International |
| 27 | Rebecca | Shaw | World Wildlife Fund |
| **Attendees (In-Person)** | | | |
| 28 | Jon | Anderson | Clark University |
| 29 | Maria | Andrawis | Salvation Army World Support Office |
| 30 | Meghan | Anson | USAID |
| 31 | Laurie | Ashley | USAID |
| 32 | Jacob | Auer | USAID |
| 33 | Kristen | Becker | Feed the Future Innovation Lab for Horticulture |
| 34 | Andrew | Bisson | USAID |
| 35 | Geoffrey | Blate | USAID |
| 36 | Andrea | Bohn | University of Florida |
| 37 | Emma | Bratton | USAID |
| 38 | Ashleigh | Burgess | Chemonics International |
| 39 | Dana | Butler | USAID |
| 40 | Michael | Carter | University of California, Davis |
| 41 | Michael | Colby | USAID/Africa Bureau |
| 42 | Aly | Cooper | USAID |
| 43 | Caitlin | Corner-Dolloff | USAID |
| 44 | Michelle | da Fonseca Santos | Soybean Innovation Lab |
| 45 | Geoffrey | Dahl | University of Florida |
| 46 | Tara | Dean | Piestar, Inc. |
| 47 | Karen Coble | Edwards | ASA/WISHH and Global Fund for Widows |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 48 | Jan | Fierro | Michigan State University |
| 49 | Kristin | Franklin | World Coffee Research |
| 50 | Jim | Gaffney | USAID |
| 51 | Jerry | Glover | USAID |
| 52 | Doreen | Gordon | Michigan State University |
| 53 | Noel | Gurwick | USAID |
| 54 | Julie | Hancock | Purdue University |
| 55 | Brendan | Harrison | LixCap |
| 56 | Heather | Hayashi | Feed the Future Innovation Lab for Horticulture |
| 57 | Matt | Hayes | Feed the Future Innovation Lab for Crop Improvement |
| 58 | Mark | Henderson | USAID |
| 59 | Saskia | Hendrickx | University of Florida – Innovation Lab for Livestock Systems |
| 60 | David | Hughes | Feed the Future Innovation Lab for Current and Emerging Threats to Crops |
| 61 | Archie | Jarman | Horticulture Innovation Lab |
| 62 | Ahmed | Kablan | USAID |
| 63 | Michel | Kabirigi | UC Davis, Innovation Lab for Horticulture |
| 64 | Samba | Kawa | USAID |
| 65 | Aditya | Khanal | Tennessee State University |
| 66 | Alexandra | Klass | USAID |
| 67 | Matthew | Krause | Heifer International |
| 68 | NFN | Ladd | USAID |
| 69 | John | Leslie | Office of Global Food Security |
| 70 | Ellen | Levinson | Levinson & Associates |
| 71 | Dani | Lopez | PlantVillage |
| 72 | Kenneth | MacClune | United States Agency for International Development (USAID) |
| 73 | Lydiah | Maranga | UC Davis |
| 74 | Mike | McGahuey | No Response |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 75 | Erin | McGuire | UC Davis |
| 76 | John | Medendorp | Michigan State University/Purdue |
| 77 | Susanna | Meyer | The Palladium Group |
| 78 | Neeha | Mian | No Response |
| 79 | Jan | Middendorf | Kansas State University - Feed the Future Innovation Lab for Sustainable Intensification (SIIL) |
| 80 | Josphat | Muema | Washington State University |
| 81 | Thumbi | Mwangi | Washington State University |
| 82 | David | Nielson | North American Agricultural Advisory Network |
| 83 | Bryan | Norrington | USDA |
| 84 | Tashiana | Osborne | No Response |
| 85 | Rimnoma | Ouedraogo | CETCIL/Penn State |
| 86 | Katie | Paguaga | Palladium |
| 87 | Harriett | Paul | Florida A&M University |
| 88 | Barry | Pittendrigh | Michigan State University/Purdue |
| 89 | P.V. Vara | Prasad | Kansas State University |
| 90 | Roee | Raz | LixCap |
| 91 | Lori | Rowley | LGR Strategies, LLC |
| 92 | Deborah | Rubin | Cultural Practice LLC |
| 93 | Diane | Russell | No Response |
| 94 | Ashish | Saxena | USAID |
| 95 | Dan | Silverstein | Heuristic Management |
| 96 | Anne | Spahr | Climate Finance for Development Accelerator |
| 97 | Kristi | Tabaj | USAID/BHA |
| 98 | Jennifer | Tikka | USAID |
| 99 | Lauren | Trondsen | Purdue University, Feed the Future Innovation Lab for Food Safety |
| 100 | David | Tschirley | Michigan State University |
| 101 | Nicole | Van Abel | USAID/BHA |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 102 | Larisa | Warhol | USAID |
| 103 | Emily | Weeks | USAID |
| 104 | Hailu | Wordofa | USAID |
| **Attendees (Virtual)** | | | |
| 105 | Zanna | Abubakar | National Biotechnology Development Agency |
| 106 | Abdikarim | Aburo | Mandera County Government |
| 107 | Jaime | Adams | USDA |
| 108 | Soji | Adelaja | Michigan State University |
| 109 | Saidi | Adisa | NAFDAC Nigeria |
| 110 | Betty | Adjei | AAMUSTED |
| 111 | Afia | Agyekum | ADRA International |
| 112 | Ghada | Albandak | American University of Madaba |
| 113 | Paul | Alberghine | USDA FAS McGovern-Dole |
| 114 | Kyle | Alden | No Response |
| 115 | Gary | Alex | NCFAP |
| 116 | Sarah | Alexander | USAID |
| 117 | Mubashar | Ali | No Response |
| 118 | Mohammed | Al-Othmani | Make Hope Foundation |
| 119 | Ramya | Ambikapathi | Cornell University |
| 120 | Vanessa | Andersen | Ferrara |
| 121 | Kris | Anderson | No Response |
| 122 | Alex | Apotsos | USAID |
| 123 | Eduardo | Arias | Alcaldía de Pereira |
| 124 | Tom | Arnold | GAIN |
| 125 | James | Ash | BIFAD |
| 126 | Laurie | Ashley | USAID |
| 127 | Lynne | Ausman | Tufts University |
| 128 | Rose | Barbuto | Farm Journal Foundation |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 129 | Jannette | Bartlett | Tuskegee University |
| 130 | Mary | Beggs | Tetra Tech |
| 131 | Jennifer | Billings | Corteva Agriscience |
| 132 | Trent | Blare | International Potato Center |
| 133 | Geoffrey | Blate | USAID |
| 134 | Vera | Bohannon | University of Arkansas at Pine Bluff |
| 135 | Conrad | Bonsi | Tuskegee University |
| 136 | Ganesh | Bora | Fayetteville State University |
| 137 | Karol | Boudreaux | USAID |
| 138 | Julia | Bradley-Cook | USAID |
| 139 | Jaclyn | Brennan-McLean | USAID |
| 140 | Bathsheba | Bryant-Tarpeh | USAID |
| 141 | Ashleigh | Burgess | Chemonics |
| 142 | Matthew | Burton | USAID Senegal |
| 143 | Benjamin | Caldwell | Tetra Tech |
| 144 | Sorely | Calixto | Consultancy |
| 145 | Tia | Carr | World Food Program USA |
| 146 | Kara | Casy | University of Florida |
| 147 | Rebecca | Chacko | USAID |
| 148 | Tamara | Chirambo | Malawi Government |
| 149 | Tara | Chiu | UC Davis |
| 150 | Binta | Cisse | Save the Children |
| 151 | Kathleen | Clements | No Response |
| 152 | Kristy | Cook | USAID |
| 153 | Allison | Cooper | USAID |
| 154 | Kelley | Cormiet | USAID |
| 155 | Caitlin | Corner-Dolloff | USAID |
| 156 | Ousmane | Coulibaly | Self Employed |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 157 | Cindy | Cox | USAID |
| 158 | Jenna | Davis | USAID |
| 159 | Ashley | Dean | Chemonics |
| 160 | Jill | Deines | Pacific Northwest National Laboratory |
| 161 | Anupa | Deshpande | USAID |
| 162 | David | Deyoung | Michigan State University |
| 163 | Brian | Dowd-Uribe | University of San Francisco |
| 164 | Esther | Eborka | African women in Animal resources farming and Agri-business Network |
| 165 | Regina | Eddy | USAID |
| 166 | Dave | Ellis | CGIAR |
| 167 | David | Ellis | CGIAR |
| 168 | Amani | Elsheikh | Sudan Meteorological Authority |
| 169 | Anthony | Esilaba | Independent consultant |
| 170 | Dina | Esposito | USAID |
| 171 | Tiberious | Etyang | Salvation Farming Solutions LLC |
| 172 | Youmna | Fakhfakh | USAID Tunisia |
| 173 | Cornelia | Flora | No Response |
| 174 | John | Furlow | Columbia University |
| 175 | Ying | Gao-Balch | University of Arkansas at Pine Bluff |
| 176 | Bibiana | Garcia | Alcaldía de Pereira |
| 177 | Shibani | Ghosh | Tufts University |
| 178 | Lorine | Giangola | No Response |
| 179 | Alexandra | Giese | USAID |
| 180 | Hans | Goertz | University of Tennessee Institute of Agriculture |
| 181 | Andrew | Graham | No Response |
| 182 | Jennifer | Graham | No Response |
| 183 | Rocio | Gutierrez | USDA |
| 184 | Alexis | Halbert | Orton Family Foundation |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 185 | Todd | Hamner | USAID |
| 186 | Britta | Hansen | No Response |
| 187 | James | Hansen | International Research Institute for Climate and Society, Columbia Climate School |
| 188 | Lexine | Hansen | Environmental Incentives |
| 189 | Bobby | Hartwell | No Response |
| 190 | Zakari | Hassane | Consultant |
| 191 | Megan | Hay | Cornell University |
| 192 | Matt | Hayes | Cornell University |
| 193 | Molly | Hellmuth | Winrock International |
| 194 | Teresa | Henson | University of Arkansas at Pine Bluff 1890 Cooperative Extension Program |
| 195 | Allan | Hruska | MSU |
| 196 | Joseph | Hunt | No Response |
| 197 | Teki | Hunt | University of Arkansas at Pine Bluff |
| 198 | Eric | Hyman | USAID |
| 199 | Ogbeyi Adams | Idoko | Helen Keller International |
| 200 | Pablo | Imbach | CATIE |
| 201 | Pierre-Andre | Jacinthe | Indiana University, Indianapolis |
| 202 | Annelise | Jensen | USAID |
| 203 | Kaganga | John | Kikandwa Environmental Association |
| 204 | Susanna | Jolly | USAID |
| 205 | Tyrell | Kahan | USAID |
| 206 | Chelsea | Kay | USAID |
| 207 | Arun | KC | Save the Children |
| 208 | Lia | Kelinsky-Jones | Virginia Tech |
| 209 | Gloria | Kessler | USAID |
| 210 | Wanja | Kinuthia | National Museums of Kenya |
| 211 | Andrew | Kirabira | Uganda Martyrs University |
| 212 | Richard | Kohl | Strategy and Scale LLC |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 213 | Hadas | Kushnir | USAID |
| 214 | N/A | Ladd | USAID |
| 215 | Daniel | Lago | Arise Community |
| 216 | Scott | Lampman | USAID/DDI/ESRM |
| 217 | Mark | Lawrence | Mississippi State University |
| 218 | Nicole | Lefore | Daugherty Water for Food Institute, University of Nebraska |
| 219 | Uma | Lele | International Association of Agri. Economists |
| 220 | Katie | Liming | Tetra Tech |
| 221 | Geneva | List | IRI |
| 222 | Hai-Ying | Liu | No Response |
| 223 | Rebecca | Lochmann | University of Arkansas at Pine Bluff |
| 224 | Vern | Long | World Coffee Research |
| 225 | Danielle | Louther | University of Arkansas Pine Bluff |
| 226 | Nina | Lyon Bennett | University of Arkansas at Pine Bluff |
| 227 | Kenneth | MacClune | USAID |
| 228 | Anna | Madalinska | Karana |
| 229 | Ricardo | Makuil | Center for Strategic and Policy Studies (CSPS) |
| 230 | Christian | Man | USDA |
| 231 | Emily | Marshall | Save the Children |
| 232 | Sarah | Marshall | USAID |
| 233 | Joshua | McBee | Climate Advisers |
| 234 | Tracy | McCracken | USAID |
| 235 | Donald | McCubbin | USAID |
| 236 | John | McGinley | Mekong Strategic Partners |
| 237 | Bruce | McGowan | University of Arkansas at Pine Bluff |
| 238 | Randy | Mengel | USAID |
| 239 | Stephanie | Mercier | Farm Journal Foundation |
| 240 | Andre | Mershon | USAID |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 241 | Hichem | Mihoub | KickStart International |
| 242 | Tracy | Mitchell | RTI International |
| 243 | Eninka | Mndolwa | USAID |
| 244 | Maya | Moore | University of Vermont |
| 245 | Pablo | Morales | University of Puerto Rico, Mayaguez Campus |
| 246 | Steve | Morin | USAID/RFS/CA |
| 247 | Isaac | Morrison | USAID |
| 248 | Willy | Mulimbi | University of Arkansas |
| 249 | Hans | Muzoora | USAID |
| 250 | Nkole | Mwamba | Savannah Zambia |
| 251 | Kakha | NADIRADZE | Association for Farmers Rights Defense, AFRD |
| 252 | Dani | Newcomb | USAID |
| 253 | Matthew | Newman | ISF Advisors |
| 254 | Lambert | Ngenzi | USAID |
| 255 | Kien | Nguyen Van | Vietnam National Plant Genebank |
| 256 | Danielle | Niedermaier | Land O'Lakes Venture37 |
| 257 | Jennifer | Nielsen | Helen Keller Intl |
| 258 | Siku | Nombembe | SwitSpot |
| 259 | Mike | Nsuka | Wizwin Center |
| 260 | Sixte | Ntamatungiro | University of Arkansas at Pine Bluff |
| 261 | Keith | Ochola | TerryAgricentre Limited |
| 262 | Vincent | Ogalo | BIDS Foundation |
| 263 | Michael | Ogunbiyi | No Response |
| 264 | Stanley | Okenwa | A Little Drop that Counts |
| 265 | Ibifubara | Okoseimiema | Lilongwe University of Agriculture and Natural Resources |
| 266 | Dr Mary | Okpala | Federal Polytechnic Oko,  Anambra State Nigeria |
| 267 | Marian | Ostertag | USAID |
| 268 | Saadatou | Oumarou | USAID |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 269 | Christy | Owen | DAI |
| 270 | Solomon | Oyeniran | Osoa Foods |
| 271 | Brandon | Pachman | Senate Committee on Agriculture, Nutrition, and Forestry |
| 272 | Neha | Paliwal | USAID |
| 273 | Aroma | Patrick | Camkwoki Grassroot Initiative for Development Limited |
| 274 | Harriett | Paul | Fl A&M University |
| 275 | Judy | Payne | Digital Solutions for Agriculture |
| 276 | Lesley | Perlman | USAID |
| 277 | Carlos | Pinzon | U.Bosque |
| 278 | Catherine | Pomposi | USAID |
| 279 | Sathish Kumar | Ponniah | University of Arkansas at Pine Bluff |
| 280 | Tracy | Powell | USAID/RFS |
| 281 | Colin | Quinn | Winrock International |
| 282 | Ando | Raonitsoa | Catholic Relief Services |
| 283 | Rachel | Rasmussen | USAID |
| 284 | Aspen | Reese | No Response |
| 285 | Kara | Reeve | USAID |
| 286 | Alexandra | Rivadeneira | No Response |
| 287 | Bea | Rogers | Friedman Nutrition School, Tufts University |
| 288 | Nicole | Rossi | Cornell's Food Systems & Global Change |
| 289 | James | Rowland | U.S. Geological Survey |
| 290 | Mara | Russell | CARE |
| 291 | Alyx | Ruzevich | Land O'Lakes Venture37 |
| 292 | Neema | Rwebangira | Chemonics International |
| 293 | Arouna | Sadji Boukari | MDC |
| 294 | Abibou | Sane | No Response |
| 295 | Emily | Schabert | No Response |
| 296 | Martin | Schultz | No Response |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 297 | Alexis | Settineri | No Response |
| 298 | Chris | Shepherd-Pratt | USAID |
| 299 | Olivia | Shoemaker | FFAR |
| 300 | Melkamu | Sigaye | Ethiopian Institute of Agricultural Research |
| 301 | Alexa | Smith | No Response |
| 302 | R Darrell | Smith | USAID |
| 303 | Amit | Smotrich | No Response |
| 304 | Regan | Smurthwaite | USAID |
| 305 | Anna | Snider | University of Illinois |
| 306 | Tom | Spangler | Save the Children |
| 307 | Caroline | Staub | Abt Associates Inc |
| 308 | Francois | Stepman | Platform for African – European Partnership in Agricultural Research for Development |
| 309 | Zach | Stewart | USAID |
| 310 | Flavelia | Stigger | University of Arkansas at Pine Buff |
| 311 | Anne | Swindale | USAID |
| 312 | Kristi | Tabaj | USAID |
| 313 | Faith | Tarr | USAID/RFS |
| 314 | NDAH | Teddy | University of Dschang |
| 315 | Christopher | Teed | USAID |
| 316 | Ryan | Thomas | No Response |
| 317 | Dick | Tinsley | Colorado State University |
| 318 | Malini | Tolat | Save the Children |
| 319 | Rex | Ukaejiofo | USAID |
| 320 | Corinne | Valdivia | University of Missouri |
| 321 | Cathy | Vaughan | USAID CASA / Tetra Tech |
| 322 | Carl | Wahl | USAID / BHA |
| 323 | Patrick | Webb | Tufts University |
| 324 | Teresa | Welsh | No Response |

| # | First Name | Last Name | Organization |
|---|---|---|---|
| 325 | Malio | West | Global Accounting |
| 326 | Carol | Wilson | RFS/Center for Nutrition |
| 327 | Mulumebet | Worku | NC A&T State University |
| 328 | Comfort | Yelipoie | Ministry of Food and Agriculture |
| 329 | Minghong | Yen | Taiwan ICDF |
| 330 | Ayah Talal | Zaidalkilani | University of Petra |
| 331 | Alicia | Zamudio | Welthungerhilfe |
| 332 | Said | Zarouali | High Commission for Planning |
| 333 | Dahiany | Zayas Toro | No Response |
| 334 | Eilish | Zembilci | Duke University |
| 335 | Fernanda | Zermoglio | USAID |
| 336 | Dan | Zook | ISF Advisors |
| 337 | Unknown | Unknown | Unknown (called into meeting) |
| 338 | Unknown | Unknown | Unknown (called into meeting) |
| 339 | Unknown | Unknown | Unknown (called into meeting) |
| 340 | Unknown | Unknown | Unknown (called into meeting) |
| 341 | Unknown | Unknown | Unknown (called into meeting) |
| 342 | Unknown | Unknown | Unknown (called into meeting) |
| **BIFAD Secretariat and Support Staff** | | | |
| 343 | Carmen | Benson | Tetra Tech, BIFAD Support Team |
| 344 | Clara | Cohen | USAID, Bureau for Resilience and Food Security |
| 345 | Tommy | Crocker | Tetra Tech, BIFAD Support Team |
| 346 | Reid | Hamel | Tetra Tech, BIFAD Support Team |
| 347 | Rachel | Helbig | Tetra Tech, BIFAD Support Team |

## ANNEX 5: PUBLIC COMMENT AND MATERIALS PROVIDED TO THE BOARD

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| 1 | Jean | Public | No Applicable (N/A) | 9/6/2023 |
| Submitted Google Form Response:<br><br>“usa shoudl not entr into partnership,. we should also get out of who entirely. no membership fees to them” | | | | |
| 2 | Greg | Collins | University of Arizona | 9/8/2023 |
| Submitted Google Form Response:<br><br>“The document is thoughtful and timely, and I congratulate its authors on their efforts. However, it is very surprising - and a missed opportunity - to not reference and reflect on the Agency's decade-long efforts to build resilience in areas of recurrent crises, particularly given a) these efforts are ongoing and b) some of the priority target areas in this report (i.e. the most vulnerable in the Horn and Sahel) are the focus of those efforts.<br><br>These efforts to build resilience in areas of recurrent crises are one of very few examples of systems thinking in an earmarked world - that is, working across the humanitarian-development-peace nexus and the various sectors therein in coordinated, portfolio-level efforts. Granted these are among the most challenging places to see progress, but they are also areas where preventing backsliding into extreme poverty and crises levels of hunger must remain a USG strategic priority, including for reasons of national security.<br><br>There has also been a decades worth of learning on approaches to measuring resilience associated with those efforts that can also inform how USAID (and others) assess not only climate actions and climate finance, but whether climate adaptation is being realized in relation to near and medium time horizon shock and stress exposure.<br><br>Finally, USAID work on building resilience to recurrent crises acknowledges and embraces the challenge of the complex and compound array of shocks and stresses that impact the ability of households, communities and countries to protect and advance their well-being and development ambitions. Ensuring the Agency's adaptation efforts are similarly embedded in this complex reality should also be a priority for implementation. It's surprising, therefore, that conflict, covid and the impact of Russia's War in Ukraine don't feature in the report given extent to which these and other shocks and stresses impact the ability of households and communities to effectively adapt in the face of climate change.” | | | | |
| 3 | Karol | Boudreaux | USAID | 9/11/2023 |
| Submitted Google Form Response:<br><br>“Research recommendations should include a focus on indigenous knowledge and practices to ensure that viable pathways to enable transformative climate action and support sustainable, equitable and resilient food systems are identified, analyzed and integrated into USAID programming. As Vijayan et all, 2022 point out: “Indigenous knowledge is crucial for sustainable transformations of food systems but often remains marginalized in policy and practice” (https://www.nature.com/articles/s43247-022-00543-1, see also: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9876958/,). USAID can help | | | | |

| No. | First Name | Last Name | Organization | Date |
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| address the marginalization of indigenous knowledge through dedicated support that also explores the gendered nature of traditional agro-ecological practices, such as soil and water management, use of wild crops and seed conservation (see: https://ethnobiomed.biomedcentral.com/articles/10.1186/s13002-023-00576-6).<br><br>The growing interest in and recognition of Indigenous Local Knowledge (ILK) should be specifically reflected in Recommendation 3 as a component of proposed climate-focused research areas and, importantly, under partnerships by adding a bullet on partnerships with Indigenous scholars and investigators, Tribal and First Nations' representatives, Indigenous Peoples' organizations, and indigenous-led philanthropic and private sector entities not just "communities."<br><br>A potentially transformative contribution might be for USAID (along with USDA and DOI?) to provide seed funding and on-going support for a US university-based Feed the Future Innovation Lab for Indigenous Agroecological and Climate Knowledge. It is encouraging to see the report identify empowering women, youth and other underrepresented groups as a key lever to support transformative change through activities and interventions that enhance agency and enable sound land and resource management. As the report recognizes on p. 23, this work can and should be coupled with focused research that seeks to understand how these groups sustain and evolve indigenous and local knowledge and practices – creating space not only to identify barriers that frustrate transformative change but also to explore the values, solutions, indigenous technologies, and co-benefits that might be achieved by more effective integration of these knowledge systems into USAID programming. A US-based Feed the Future Innovation Lab on Indigenous Agroecological and Climate Knowledge could create and implement research agendas and support locally-led research efforts, in collaboration with indigenous and First Nations organizations, and in support of the Leverage Point on strengthening local research and innovation systems. The recommendation is to fund a robust line of research on indigenous local knowledge systems, their gendered elements, and explore housing such a research effort at a new FTF Innovation Lab." | | | | |
| 4 | Molly | Anderson | Middlebury College | 9/11/2023 |
| Submitted Email:<br><br>"I am dismayed that this report has no mention whatsoever of agroecology. As an integrated land management strategy, agroecology has tremendous potential to improve soil fertility, farmer livelihoods, household nutrition, resilience and ecological integrity. Farmer organizations in Africa, Latin America and the Caribbean support it and its benefits are well-documented in peer-reviewed literature. You did include agroforestry, but that is only one component of agroecology. Its omission is really inexcusable --- USAID can't be hobbled by ideological squabbles, if it really wants to serve people in developing countries who are especially vulnerable to climate chaos.<br><br>(NB: I tried to upload several supporting documents, including HLPE 14 from the Committee on World Food Security, but kept getting the message that my intervention couldn't be sent. The other documents that I tried to upload were Bezner Kerr et al. 2023. Agroecology as a transformative approach to tackle climatic, food, and ecosystemic crises. https://doi.org/10.1016/j.cosust.2023.101275 and the report from the Latin American Agroecological Center documenting evidence for agroecology http://celia.agroeco.org/wp-content/uploads/2021/07/Evidencias-agroecologicas-CELIA-Boletin-5.pdf)." | | | | |

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| 5 | Maria | Andrawis | The Salvation Army | 9/12/2023 |

Submitted Google Form Response:

"Thank you for making the draft report publicly available and sharing in the September 11 meeting. In regards to the report, my feedback relates as an organization working on climate, agriculture, and food security issues globally in the developing world, but does not receive USAID funding. In this instance, given the urgency of climate change, my main feedback was that there needs to be some inclusion of how intentionally research and M&E learnings can be shared at a larger scale with those who look to USAID as though leaders directly in the countries where the research is being carried out, and to the most remote locations. Information on best practices, research findings, etc. should be made easily accessible directly to farmers, not necessarily filtered through many different levels and organizations, and so I hope that significant resources are input not just into the research and learning itself, but research for whom the audience is the poor farmers, and therefore results are framed and presented directly to them in actionable, practical ways.

Also, it does seem necessary that "climate resilience" be more clearly defined at this strategic level, and should not wait for another round of reviewers/documents to help define this, since USAID's definition also signals to other NGOs working in this space widely held practice and outcome goals."

| | | | | |
|---|---|---|---|---|
| 6 | Sarah | Gammage | The Nature Conservancy | 9/13/2023 |

Submitted Email:

"A. Strengths of the Document:

1. At the outset of the document, the geographic prioritization of adaptation and mitigation efforts and their integration was particularly valuable.

Identifying regions that have low overall contributions to GHG emissions but are facing early and significant climate impacts; regions that are high GHG emitters or are key contributors to sequestration efforts (or both); and/or areas where key which emphasize certain agricultural commodities that produce methane (livestock and rice) are located. And finally, those regions that have high potential for maximizing adaptation and mitigation benefits within agricultural and food security investments.

This taxonomy should be dynamic, however, as it will shift over time as the effects of climate change are borne out in some of these regions.

Moreover, we need to consider layering the strategies for mitigation, adaptation and financing with a particular and differentiated approach for smallholders and value chains with high levels of monopsony and high transaction costs for transitioning and commodities that are produced primarily for local and regional markets and those that are traded internationally.

At TNC we are increasingly looking at layering strategies for adaptation and mitigation, to secure livelihoods, reduce vulnerability to climate change and to reward nature and regenerative practices that are not sufficiently rewarded in commodity markets through sale prices.

For example, in our resilient agriculture and ranching strategies to increase adaptation and regeneration, foster sustainable intensification and diversification through agroforestry and

| No. | First Name | Last Name | Organization | Date |
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silvopastoral systems, and also sequester carbon in soils and through reforestation or avoided deforestation.

2. Recommendation 4 which highlighted the importance of longer and phased funding beyond five years cycles to foster longer term design and implementation and ensure continuity of strategies is key. This can enable implementers to continue deepening strategies to address climate change and food security, and also to explore soft landings for projects that need to continue with lower levels of public sector investments or a different portfolio of climate funding sources.
3. Recommendation 1 which underscored the importance of data collection and sharing across the strategy design and development through implementation, monitoring and evaluation.

Ensuring that these data are as comparable as possible, applying shared and mixed methodologies (both quantitative and qualitative) and disaggregated as much as possible by sex/race/language/ethnicity and other key intersectional characteristics that may be associated with vulnerabilities, will be essential.

USAID will also need to build capacity across missions, agencies and with implementers to ensure these data are collected as uniformly as possible to maximize comparability.

These indicators should be publicly available for collective analysis and learning to inform multiple donor strategies.

One very important point that is raised is the fact that the indicators differ between the 2022 USAID standard indicators for climate change handbook and FTF. This lack of conformity frustrates convergence and consistent application. Appendix C in the document provides an analysis of this lack of convergence and is extremely helpful.

A. What was not addressed that you would like to see feature more prominently?
B. There could have been more emphasis on the public sector in country and harmonizing efforts with host countries and their climate and SDG agenda priorities.

There is a notable absence of any reference to the value of social protection and green social protection and research and programming that support and reinforce these strategies and do not undermine or provoke unintended consequences.

Policy features marginally throughout the document and shows up in the discussion of reducing food waste and addressing gender inequalities or in examples of creating and standardizing carbon markets.

The exhortation that “National governments need support to develop and implement legal and policy frameworks that create the enabling environment for zero-deforestation agriculture,” on page 38 comes rather late in the document. The suggestion to “build improved tools and systems to monitor land use and land-use change; 2) improve institutions’ capacity to implement low-emissions development policies” on page 56 doesn’t describe how and with what agencies or institutions.

There are only 7 references to NDCs and 5 to NAPS throughout the document.

Yet harmonizing ODA and bilateral support with national development plans and aspirations will be critical, particularly in contexts with little fiscal space, debt burdens and high levels of vulnerability to

| No. | First Name | Last Name | Organization | Date |
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climate change. PES are discussed but without meaningful analysis of whether they are public or private approaches to internalizing externalities and rewarding nature.

1. Fiscal Space and Harmful Subsidies.
   One particularly challenging distortion in food systems and value chains is the existence of harmful subsidies. Yet the redirection of harmful subsidies, is only mentioned on page 49. This is surprising for a document that sets out to "Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems."

The World Bank estimates in their recent report on harmful subsidies that:

"Subsidies for fossil fuels, agriculture, and fisheries exceed $7 trillion in explicit and implicit subsidies, which is around 8% of global GDP. Explicit subsidies - direct government expenditures - in agriculture, fishing, and fossil fuels total about $1.25 trillion, the subsidies' impact on people and the planet - amount to over US$6 trillion a year and the burden fall mostly on the poor."

Moreover, Governments are spending trillions on inefficient subsidies that make climate change worse – these are resources that could be repurposed to help solve the problem.

Agriculture subsidies are responsible for the loss of 2.2 million hectares of forest per year - or 14% of global deforestation.

Fossil fuel usage—incentivized by subsidies—is a key driver of the 7 million premature deaths each year due to air pollution.

Fisheries subsidies, which exceed $35 billion each year, are a key driver of dwindling fish stocks, oversized fishing fleets, and falling profitability.

Repurposing these wasteful subsidies will help ensure a green and just transition that can provide jobs and opportunities for all.

Again, as the World Bank estimates, "Annually, countries spend six times more on subsidizing fossil fuel consumption than their commitments made under the Paris Agreement to tackle climate change."

Applied research and targeted interventions to demonstrate how redirecting these subsidies can unlock significant funds for adaptation and mitigation and to crowd-in or incentivize regenerative practices could be game changing for ODA, climate finance in general and for governments.

Throughout the document here could also be greater reference to rights and tenure and support for initiatives that uphold land and water rights, support stewardship rights and draw attention to the importance of a rights-based perspective. Without secure tenure or established rights many of the incentives to protect and conserve and change extractive nehaviors collapse. But this should also include collective rights and tenure – and not be seen as an attempt to only prioritize individually held rights.

C. Are there any sectors or actors that you feel could have been emphasized more strongly?

Regenerative agriculture and sustainable intensification do feature as strategies throughout the document, but they could be emphasized more prominently with examples of how they can be

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| powerful strategies to address climate change, enable adaptation and resilience, and include sequestration objectives.<br><br>Embedding these strategies across the entire value chain, from end-to-end will be critical in ensuring that markets sustain investment in regenerative and adaptive practices. Targeting landscapes and focusing on multiple crops that can suffer highly correlated shocks should also be emphasized more.<br><br>TNC has been working to ensure that sustainable production and reforestation is possible: our cocoa-based agroforestry work, implemented in Pará over the past decade, has become a case study for such layering strategies across key value chains:<br><br>- We have convened community leaders, smallholders, the private sector, governments, and banks to implement a sustainable, nature-positive business model for the whole cocoa chain.<br><br>- At the center are farmers who are implementing agroforestry methods which means planting cocoa, banana and native hardwood trees on lands that were once deforested for pasture. The results are compelling: it helps to restore the Amazon tropical rainforest, it provides better livelihoods, improves soil health and reduces carbon emissions.<br><br>- A financial assessment has shown that sustainable cocoa is approximately seven times more profitable than ranching for smallholders, allowing them to focus on managing their existing farms, stopping a cycle of slash-and-burn expansion.<br><br>- Companies and markets act as drivers of systems transformation. For example, Mondelez International, a multinational confectionery company, established a brand of sustainable chocolates that is using 400 tons of cocoa per year sourced from the farmers implementing these agroforestry methods.<br><br>- Banks are making loans to farmers for the first time, facilitating subsidized rural credit to smallholders practicing regenerative techniques participating in the project.<br><br>- The success of this initiative, which is currently benefitting 300 families in Pará and is challenging the mindset that the standing forest has no value, has attracted other partners—such as Amazon Inc.—interested in supporting the conservation of the Amazon rainforest through the expansion of cocoa-based agroforestry.<br><br>- Under our partnership with Amazon.Inc, we are also testing layering in a new component: carbon markets as a tool to reward further restoration.<br><br>- to complement the company's assertive decarbonization efforts. Over the next three years, this project aims to restore 20,000 hectares of land—an area about the size of the city of Seattle—and remove as much as 10 million tons of greenhouse gases over the next 30 years."<br><br>Attached References:<br><br>● Beyond Beneficiaries: Fairer Carbon Market Frameworks, The Nature Conservancy (2023) | | | | |
| 7 | Gary | Alex | N/A | 9/14/2023 |
| Submitted Email: | | | | |

| No. | First Name | Last Name | Organization | Date |
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| "1. Since the BIFAD Report on Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems is based on that USAID Strategy, a review of that USAID document is a necessary first step in evaluating the BIFAD draft report. The USAID Strategy reads very well and has what appears to be an ambitious set of targets but is disappointing in its lack of focus and does not suggest a sound base for achieving desired objectives. It may be questionable to establish targets without a relationship to a specific estimate of funding required to achieve se targets.<br><br>Climate change is not a new issue for USAID and has been a basis for programming for many years. A USAID Climate Change and Development Strategy (2012–2016) was issued to help countries transition to lasting and climate-resilient, low-emission economic development. All missions were required to integrate Global Climate Change into the Country Development Cooperation Strategy (CDCS) planning process. Even though there has been discontinuity in policy in this area, one would hope for more evidence of lessons learned and understanding of the problems and opportunities to address them.<br><br>Lack of focus is the major problem. The Strategy proposes working with 80 countries and implementing programs in 40 of them. With the past USAID experience and the extensive scientific research on climate change, it should have been possible to prioritize countries and sectors for funding at the outset, rather than leave this vague, presumably to be defined over the course of the decade. Clearly, some countries and sectors are more significant in this global problem, and some represent more opportunity for significant early impact.<br><br>Nature-based solutions have been identified to have a key role. This implies a focus on agriculture and natural resource management. Still, somewhat conflicting with this is the recognition that cities are responsible for 70 percent of CO2 emissions. This would suggest that a larger part of the problem and perhaps larger opportunity for significant impact may lie in urban areas, though actions there may be less politically acceptable than dispersed rural activities.<br><br>There is also a heavy emphasis on indigenous people and disadvantaged or marginalized group. Certainly, USAID and other donors are guilty of long having neglected consideration of such peoples in development programs, but this seems an odd program to focus so heavily on them. The harsh reality is that these groups generally control limited resources and bear less responsibility for climate change. They are therefore not in a position to effectively or efficiently impact necessary mitigation changes. They do have two important roles in the Strategy. First, they are or can be stewards of sustainable management of natural resources (e.g., forests, rangelands, etc.). Secondly, they are often the most vulnerable to climate change and must be the target for adaptation and resilience efforts that threaten their livelihoods. There are limits to their roles.<br><br>The Strategy commits to many of what might be considered parallel objectives or activity areas. Foreign assistance programs have long contended with the problem of multiple objectives that dilute focus and disperse efforts. If climate change is indeed a global crisis that requires impact within the decade, it deserves a primacy of focus. Climate change is complex and extensively interrelated with human livelihoods and well-being, and – as is true with all development efforts – interdisciplinary linkages are important. Still, the Strategy gets lost in its holistic approach to address community decision-making, child protection, health and mental health, gender-based violence, education, anti-money laundering, remittances and diaspora investment, affordable housing, and many other issues. | | | | |

| No. | First Name | Last Name | Organization | Date |
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This is certainly not a laser-like focus on the key climate change problems, nor the paths to address them.

The BIFAD Report must respond to the Strategy with recommendations to help address these weaknesses, as well as consider the additional points below.

2. The BIFAD report shows a lot of work, considerable detail, and input from many authors and contributors. Comments at this stage in the process are probably at best difficult to consider and address.

3. The Report does a good job of carving out an 'agriculture share" of Agency climate change targets. Again, this probably makes little sense without some relationship to an expected level of funding. A further additional funding prioritization is needed between adaptation activities and mitigation activities. (Yes, many activities may do both or claim to do both but the primary objective for funding should be clear.)

4. The Report makes some reference to targeting, noting the DRC and India are major sources of emissions and that the Feed the Future zones of influence (ZOI) that were highly questionable for food security programs would be even more problematic for targeting climate change funding. Targeting will require country prioritization by need and potential for impact and then within country activity targeting by agro-climatic/farming system/ socio-economic or other considerations. The Report should go further with recommendations for country priorities.

5. The Report's recognition of the need for longer term commitments for effective programs in agriculture, natural resource management, research, and behavior change is important. Whether USAID can respond to this in a meaningful way may be questionable.

6. The Report envisions an ambitious program. This is appropriate but may also over-estimate USAID's role. Even with an ambitious program, USAID alone can't deliver on the needed global mitigation and adaptation to climate change. This will be up to the people of the host countries. At best, USAID can be a key facilitator and support for change. It would be helpful for the Strategy to more clearly recognize this and position USAID in its appropriate role.

7. Recommendation 1: Strategy, Design, and Implementation in the Program Cycle strikes at how USAID will implement the Strategy. There are dangers in this. The Report includes 166 "shoulds" including 48 specific "USAID should…" This continues a past practice of "piling on" additional objectives for foreign assistance and expanding bureaucratic requirements. This is disheartening to staff trying to implement programs and often ends up not accomplishing the objectives. Procedures should require Missions (and other operating units) in conjunction with country counterparts to program funding with clearly defined climate change rationales but with greater flexibility to do so as appropriate to the country and situation.

9. Recommendation 2: Measurement and Reporting presents a dilemma. It is nice – and probably necessary – to be able to total indicators across global programs, but country conditions and activities vary widely. [This may not be the case for public health program but is for food security and is even more so for the diverse climate change adaptation and mitigation programs.] It is highly desirable to let country programs measure and report on what makes sense.

10. Recommendation 3: Research is an obvious priority. The Report needs to go further and – rather than encourage collaboration with country institutions – move the research focus to the country level

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| where it can be better planned, owned, institutionalized, and implemented. This may add some additional costs but should help develop local capacity and reduce inefficiencies of managing research from the US or international centers.<br><br>11. Recommendation 6: High-Potential Leverage Points is not convincing. The listed activities or leverage points are all good and generally established in development programs. They don't provide much focus. USAID Strategies tend to be developed with various staff and operating units each promoting their on-going activities as key in any new strategy. This needs to be resisted. Many of the identified activities will be almost certainly be part of country programs. There is substantial experience with most of them but few dramatic examples of success. Much innovation is needed. Providing such a diverse list of program options is not helpful.<br><br>12. An alternative might be for a recommendation for investments in areas to develop and leverage local capacity to address climate change problems. These would likely be: #1 - Policy; #2 - Research; and #3 - Education/Extension, along with more diverse locally tailored mitigation investments.<br><br>13. Country level staffing, focus, and planning will be critical to strategy success. Resources must be aligned to support continuing analysis and implementation of programs. Tensions may be expected with local stakeholder interest greater for adaptation investments (private goods) generating more direct benefits than those for mitigation investments (public goods) that have global benefits.<br><br>Final Comment: The USAID Strategy starts out noting that "Climate change is a global crisis". If this is so, an all-out effort is needed with resources focused on the key problems and opportunities for impact. The proposed broad agenda risks a dispersion of activities and "business as usual". Hopefully the agricultural piece of the Strategy development can counteract that." | | | | |
| 8 | Andrew | Bisson | USAID | 9/15/2023 |
| Submitted Google Form Response:<br><br>"I previously commented on the value of greater emphasis on methane abatement. I'm grateful this feedback has been received and methane is cited more frequently. I do still feel that the strategic value of addressing short-lived climate pollutants could be stressed more overtly - methane contributes close to half of agriculture related warming and because of its short lived nature and high warming potential, it is THE key GHG which we need to work on. A 30% reduction is essential if the 1.5degree pathway is to be met. This evidence-based imperative to reduce methane emissions as well as the value for money option it represents might be elevated in the recommendations, beyond the welcome inclusion of low emission livestock as an identified leverage point.<br><br>The power of partnerships: I feel there is too much emphasis on what USAID's field programs might do. USAID has a miniscule amount of resources relative to what is required to 'turn the ship around' - calls for more funding are understandable but optimistic. How USAID influences the MDBs, other major donors and particularly the private sector is where we can have transformational impact, their resources are many orders of magnitude greater than USAID's. Our programs/projects have a role, for me this is in their ability to help catalyze change - they are too often viewed as an end in themselves. I feel the rport could push USAID to work much more in its zone of influence and step out of the safe zone of control which isnt going to move the needle. There are challenges but I dont see how we will meet the vision wit the current modus operandi- ie staying largely in our zone of control." | | | | |

| No. | First Name | Last Name | Organization | Date |
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| 9 | Nicole | Van Abel | USAID | 9/15/2023 |

Submitted Email:

"My first question is why was no one from USAID/BHA asked to be a KII on this document? Considering USAID/BHA has massive investments in food security this feels like a big oversight.

I would also ask why no one from the USAID Center for WSSH were called to participate in this as either a KII or reviewer. This document suffers from a lack of water perspectives on the USAID side!

Also, this document relies heavily on academic papers but has missed some key USAID published documents especially related to water resources management. Can this document make sure to incorporate not only policies but technical briefs that speak to what USAID is thinking with respect to water?

Overarching Issues:

One main point is that this document does not address humanitarian assistance at all. Considering climate change is driving emergencies around the globe (i.e. Horn of Africa drought and the upcoming El Nino). This document would benefit from a lens of the humanitarian-development-peace coherence. As an example, the USAID section of the Global Water Strategy does a very good job of layering all these unique contexts.

Secondly, this document speaks about specific climate funding as being small and while this is true I think it is important to embed climate resilient programming into all other earmarks and activities to ensure longevity. As we see when administrations change anything with the words 'climate change' may be removed while climate adaptation programming that is built into a food security development or emergency program many continue.

Third, water is constantly lumped with soil management and this feels like it is weakening the importance of water. Please make Water Resources Management its own section. Important USAID resources to consider are the USAID WRM Technical Brief for how we are thinking about WRM in our portfolio (https://www.globalwaters.org/resources/assets/water-resources-management-usaid-water-and-development-series). Also, the USAID Improved WRM for Agricultural Systems (https://pdf.usaid.gov/pdf_docs/PA00ZX79.pdf)

Re: WATER. This document should leverage the outcomes of the UN Water Conference in March 2023 that seeks to "the Secretary-General highlighted key game-changers: from reinforcing water's place as a fundamental human right and reducing the pressures on the hydrological system, to developing new, alternative food systems to reduce the unsustainable use of water in food production and agriculture and designing and implementing a new global water information system to guide plans and priorities by 2030." In the illustrative example of Soil Water Management, the authors focus a lot on green water as opposed to blue water but considering the goal of this report was for "ambitious action for climate change adaptation" then I encourage the authors to think BIG on water and not quibble over green versus blue water.

The US Ag WRM brief states "This work includes engaging in allocation processes; incentivizing and expanding access to profitable and efficient irrigation technologies; promoting on-farm soil, land, and water conservation practices; and supporting improved and equitable WRM within sustainable food

| No. | First Name | Last Name | Organization | Date |
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| production and processing systems." These objectives don't feel reflected in the current version of the BIFAD document.<br><br>Specific comments:<br><br>Early in the document it states that "Opportunities and challenges to achieving USAID's climate change ambitions USAID has a comparative advantage to work on climate change and agrifood development at scale. The establishment of the Bureau for Resilience, Environment, and Food Security (REFS) in 2023 also creates opportunities to better integrate climate and food security programs." I would also argue that BHA is uniquely positioned to integrate climate and food security in both HA and ER4 programming.<br><br>USAID Institutional Changes, Recommendation 5: Human Resources—This is an interesting recommendation. I think many of us within USAID would welcome this change as 90% of our workforce are contractors who have to continually renew and reapply for our jobs. While having an assessment for climate jobs would be nice, but the reality is we need ALL jobs. I would also push back against the recommendation for more trainings for staff. The vast majority of staff are pretty overworked and adding more climate trainings for them feels like an unnecessary burden.<br><br>Leverage Points Recommendation 6: Water preservation is not the common nomenclature. USAID has been using water conservation. Please adjust the language.<br><br>Pg 34: Again water preservation is used here. Can you please explain what you mean by water preservation?<br><br>Pg 34: Leverage Point: Integrated Soil and Water Management Impact Pathways: The impact pathways almost 100% framed through the lens of soil and not of water. This is woefully weakens the water angle. Without water there is no life and there is definitely no food security. Please increase the discussion on water management alone. I would decouple soil and water management into separate sections so water can be elevated on its own.<br><br>Pg 35: "USAID should set sub-targets that specifically address soil health, sustainable water use, and regenerative practices with the greatest combined impacts in adaptation, mitigation, and human health". This is not an ambitious target for water. We need to go beyond sustainable water use and think about climate adaptation strategies especially in drought prone areas that look at conserving water." | | | | |
| 10 | James | Hansen | Columbia University | 9/15/2023 |
| Submitted Email:<br><br>"It is great to see the new USAID climate, agriculture and food systems strategy, and the excellent public event. BIFAD enlisted an outstanding set of authors and contributors. I applaud USAID for integrating climate into agriculture and food security programming through the Bureau for Resilience, Environment, and Food Security.<br><br>Given time constraints, I reviewed the Weather and Climate Services leverage point, and only briefly scanned the rest of the report. The overall strategy, and attention to the climate-agriculture-food | | | | |

| No. | First Name | Last Name | Organization | Date |
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security nexus is great. I am glad to see weather and climate services recommended as a leverage point to drive transformation toward climate resilience.

The concise summary of the rationale for investing in weather and climate services is good, and cites relevant reviews of the evidence.

I support the recommendation that USAID invest in National Meteorological Services (NMS). FEWSNet and SERVIR (p. 46) use global data and largely bypass NMS. FEWSNet and SERVIR serve important roles and stakeholders, but are not substitutes for strengthening sustained capacity of national institutions. The quality of data that are produced by NMS — including merged station-satellite-reanalysis gridded data sets that a growing set of countries use to provide information and analyses at a scale relevant to farm decision making with complete national coverage — is higher than the best global data products available from advance research institutions and private companies in the Global North because they steward far more observational data.

I recommend broadening national capacity investments beyond NMS, recognizing the essential role of NARES. Climate services "involve the production, translation, transfer, and use of climate knowledge and information..." NMS have the mandate and increasingly the capacity to produce locally actionable historical, monitored and forecast weather and climate information. However, agricultural research, and public and non-government extension systems have the mandate and comparative advantage to translate weather and climate information into agricultural management advisories, and to communicate that information with farmers and support its use for farm decision making. Exploiting the synergies between NMS and NARES seems to be the most important but most neglected aspect of agricultural climate service investments across sub-Saharan Africa and probably other FTF priority countries. Achieving it requires a combination of (a) formalized partnership and appropriate governance arrangements between the agencies and their parent line ministries, (b) scalable training for agricultural extension professionals (public, NGO and private), and © accountable feedback processes from farmers back to NMS and agricultural research. The report highlights the need to "ensure that stakeholders and end users are equipped to act on the basis of climate services to enhance development and resilience outcomes"; and the best way to achieve this at the farm level is to train and equip extension providers to build farmers' capacity to access, interpret and act on weather and climate information. Relevant good practice knowledge, and more recently, curriculum resources are available.

p. 44: "The strengthening and utilization of climate services that prioritize user needs should be consistently integrated within agrifood systems projects (e.g., FTF), through either embedded interventions or external coordination." The reference to "e*mbedded interventions or external coordination*" is not clear.

Regarding the adaptation target: Conceptually, framing the goal in terms of "resilience" represents an important advance over earlier thinking about adapting to long-term climate projections. As the report notes, measuring resilience is challenging. The illustrative target, "Reduce the number of additional people pushed into extreme poverty because of climate impacts on agrifood systems by 50 million, at least half of whom are women" is useful but incomplete. A development perspective of resilience also considers the ability of those who are trapped in poverty (or food insecurity, or

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| another adverse welfare indicator) due to climate to escape. The number of rural individuals who escape poverty is a meaningful indicator of resilience, even if attributing current poverty to climate impacts is challenging.<br><br>p. 18: Co-funding through the President's Emergency Plan for Adaptation and Resilience (PREPARE) seems important. The PREPARE Action Plan has a lot on weather and climate services, but the connection to development goals and national capacity strengthening in target countries is not clear. I'm glad to see the call for synergistic intervention, and would like to see a clearer strategy how this can be achieved.<br><br>I hope you find these comments useful. Let me know if I can provide further information or clarification." | | | | |
| 11 | Siddaqat | Ali | Village Development Organization (VDO) Ghotki | 9/16/2023 |
| Submitted Google Form Response:<br><br>"I had read The BIFAD-commissioned report, Operationalizing USAID's Climate Strategy regarding to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems, On behalf of Village Development Organization (VDO) Ghotki I'm very thankful to USAID and others for sharing this kind of draft for reviewing, The strategy draft is written very carefully and covering overall aspects, In my opinion further need to make sure availability in all other languages while grassroot level engagements could reach throughout strategies tenure." | | | | |
| 12 | Michael | Ogunbiyi | SM SUNRISE GLOBAL VISIONS (SSGV) NIGERIA LIMITED | 9/16/2023 |
| Submitted Google Form Response:<br><br>"This is a fantastic report to leverage for the operationalization of USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems). Strengthening the strategy will be key to achieving the net-zero target of USAID by 2030 with the inclusion of multi-stakeholder collaborations. However, this report is a significant tool for the transformation of the food system across the world. Also, the fund fledge will help to accelerate the food system transformation and support the Least Developing Country in the National Adaptation Plan (NAP) to mitigate the negative effects of climate change, thereby paving the way for job creation and youth inclusion in the policy formulation to achieve the long-term goals set out." | | | | |
| 13 | Kristi | Tabaj | USAID | 9/16/2023 |
| Submitted Google Form Response:<br><br>"The Executive Study states "The goal of this report is to identify and recommend ambitious action for climate change adaptation and mitigation related to USAID's agricultural and food security programs." In reviewing the evidence gathered for this report, it seems that the Bureau for Humanitarian Assistance's agriculture, nutrition, and food security activities were not taken into | | | | |

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| consideration. BHA's experts spanning several technical areas in food security, including agriculture, nutrition, and gender, among others (climate included), were not consulted.<br><br>The recommendations for implementation in 2024 are unrealistic given the limited human and financial resources in USAID Washington and the Missions.<br><br>For the recommendations offered, it would be helpful for the authors to provide the evidence base for the suggestions put forward. For example, on page 16 under Recommendation 3: Research, what are the evidence-based examples of social and behavior change to develop approaches that support communities making difficult agricultural transitions? The recommendations offered should be based on demonstrated, successful approaches.<br><br>A general comment - the USAID Advisors listed in the Acknowledgements section demonstrate a gender imbalance. I hope this will be resolved in future engagements with BIFAD." | | | | |
| 14 | Ricardo | Makuil | Center for Strategic and Policy Studies (CSPS) | 9/18/2023 |
| Submitted Google Form Response:<br><br>"It's my pleasure to thank and appreciate the BIFAD members who presented solid and productive sessions on Monday. I personally benefited from the sessions about climate strategies, Agricultural, food security and Malnutrition mitigations around the globe. I wish the boards to have sessions monthly if possible.<br><br>I'm suggesting if possible BIFAD should issue the Certificate of participation to show recognition to participants.<br><br>Thanks" | | | | |
| 15 | Geoffrey | Dahl | USAID, Feed the Future Livestock Systems Innovation Lab, University of Florida | 9/18/2023 |
| Submitted Google Form Response:<br><br>"All comments pertain to "Leverage Point: Low-Emissions Animal Production" pagers 41-43 of the report.<br><br>Low emissions vs emission intensity<br><br>The report text uses mixed and confusing terminology regarding emissions and emission intensity. For example, the section title refers to 'Low Emissions Animal Production'', but most of the narrative emphasizes increasing productivity to aid in mitigation while simultaneously increasing access to animal source nutrients, esp. from dairy products. This is more correctly termed 'Low Emissions INTENSITY Animal Production', as the higher yields realized from better feeding, management, and health lead to greater yields per animal. While that likely leads to a lower number of animals and thus GHG mitigation, it is not necessarily 'Low Emissions'. In addition, 'Low Emissions' could be realized with reduction or elimination of animal production, which squarely places lower GHG output in direct competition improving nutrient availability from animal source foods to vulnerable | | | | |

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|
| populations. Given that Africa, for example, accounts for only 4% of global GHG emissions[1,2], any effort to reduce access to animal source foods would devastate nutrition for potentially minor gains in GHG reduction. We recommend the final report be edited to be consistent and consider emission intensity or emission intensity by unit of nutrient, rather than the simplistic low emissions descriptor.<br><br>Further, the statement on P 42: 'no Innovation Lab for Livestock Systems research specifically targets methane reduction' - is incorrect. We can provide numerous examples of efforts to improve productivity and thus decrease GHG emissions intensity from projects supported by the Feed the Future Innovation Lab for Livestock Systems. See also: https://livestocklab.ifas.ufl.edu/projects/<br><br>1 OWID; Global Carbon Project, 2022, www.ourworldindata.org.<br><br>2 Sy, A. Brookings Inst., https://www.brookings.edu/wpcontent/uploads/2016/08/global_20160818_cop21_africa.pdf" | | | | |
| 16 | Richard | Tinsley | Colorado State University | 9/18/2023 |
| Submitted Email:<br><br>"I very much enjoyed the BIFAD meeting last week and would like to take advantage of the invitation for additional comments available until Monday. Mostly I would like to highlight the article I posted reflecting on my 50+ years assisting smallholder communities (https://agsci.colostate.edu/smallholderagriculture/wp-content/uploads/sites/77/2023/03/Reflections.pdf). I hope you can take the hour or so needed to carefully review the contents and possible some of the links included in the article as it might modify your ideas of how to effectively improve the assistance for smallholder farming communities that will assist them in meeting the environmental concerns discussed in the meeting. While I accept that most of my comments are outside the Politically Correct Party line on how to assist smallholder communities, I think you will find them factually accurate and perhaps a reality check on current activities. I think the issues in the article and these comments are a precursor to smallholder farmers obtaining their family's food security that will encourage to address the environmental issues discussed in the meeting. However, before doing that I would like to take a couple paragraphs to review a very disturbing comment someone made near the end of the presentations.<br><br>If I understood the comment correctly, toward the end of the afternoon session someone, apparently after reading my comments on individual owner/operator of tractors as only means to effectively introduce contract mechanization to smallholder communities, stated that it was still theoretically possible to effectively manage a communal ownership of mechanization and that is the way we should proceed. While I will agree that in theory, he is correct, however, to me that implies the individual considers the academic theorical approach is more important than the effectiveness on the ground in serving the beneficiaries. Thus, dismissing the pragmatic experience of the past. That is a bit arrogant. Is that the overall opinion of BIFAD? While I appreciate academic ideals, as I am anchored in a major academic institution with an extensive history of involvement in international development (Colorado State University) and recognize that academic idealism is a great starting point, but it must be tempered by ground truth reality, with the reality given priority. If not, you end up squandering good equipment and massive taxpayers' dollars with minimal accomplishment. I also wonder if this comment favoring the ideal over the practical has resulted in our over 30-year commitment to | | | | |

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|

producer organization for funneling aid to smallholder even though the beneficiaries wisely, repeat wisely avoid them like the plague. Their wisdom in avoiding them can relatively easily be demonstrated with a couple weeks of effort, which should have been done decades ago as relying on producer organizations will likely result in forcing smallholders deeper into poverty!!

How did we develop this obsessive compulsion to impose, at all costs, these group business models? Aren't these imposed assuming they have a competitive advantage to offer, without ever taking the few weeks needed to effectively confirm they can offer a sustainable advantage. Does this violate the non-credit remedial course in business – know your competition!

Since BIFAD is top heavy in academia, it might be good to carefully reflect on what academia can contribute and the limits of that contribution. Academia has many highly motivated, intelligent professional people who can be fully committed to improving the wellbeing of smallholder communities. They can be good think tanks to develop great potential innovations to be tested in smallholder communities. Unfortunately, they can become overly committed to their innovations, making it difficult to see the limitations mentioned above. Also, while I don't question the interest and commitment, I do question how much time they can devote to international work, vs. meeting their obligations to they home institute, particularly if it is a land grant university that must concentrate on local needs. The result is I fear too often academicians are limited to multiple short-term visits mostly devoted to reviewing limited innovations they conceived without the time for an in-depth evaluation how their innovation integrates into the overall community's activities. Such insight comes from more long-term residential assignments allowing repeated visit during a cropping season with time to observe surrounding areas. I hope reading the referenced article will provide some of that insight into these concerns and concepts that might have been overlooked.

With these initial comments I would like to step through the article and what I hope it contributes to improving BIFAD's ability to assist with smallholder community development. Many of these concerns may not be focused on some of the specific environmental concerns expressed in the meeting, but are issues that would need to be address if solutions proposed and important for environmental preservation are to be widely accepted by the intended beneficiaries.

1. The first section reviews the overall economic environment common to most low-income countries, in which the bulk of individual/family income must go just to proving a low-quality diet unable to meet basic calorie needs for their economic opportunity based on heavy manual labor let alone provide an egg-a-day per child as promoted by the World Bank. How the consumers limited buying power place tremendous downward pressure on consumer prices, depressing profit margins of the private food value chain and thus making it virtually impossible for administratively cumbersome producer organizations to compete. Consumer prices in most low-income countries are often only 1/3rd to 1/5th US supermarket prices. It also limits the tax base needed to generate the revenue to fund any increase in government support services often suggested by development projects. Thus, when asking governments to provide additional support services exceeding what can be fully funded you risk encouraging informal income opportunities by civil officers accepting gratuities for claiming they are providing the services but do not have the financial resources to fully fund the service. I think this economic environment transcends most low-income countries so what

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|

succeeds in one will likely succeed in another while, perhaps more important, what fails in one will likely fail in others and should only be cautiously attempted.

2. A review of how projects are developed, before implementation time & cost, the limited ability for beneficiary input despite any rhetoric to the contrary resulting in project being mostly impose rather than collaborated and leaving the only voice left for beneficiaries the extent they participate or avoid projects. This is something that the M&E portion needs to comprehensively evaluate.
3. Looking more directly at agriculture, the article reviews the operational feasibility of agronomic innovations with particular concern for those requiring additional labor. How many of our environmental innovations are more labor intensive? Operational feasibility appears to fall into an administrative void between the agronomists and social scientists assisting smallholder communities. It is really the result of small plot technology used for agronomic research and extension, which deliberately overrides the operational requirements to get a good grip on the physical potential of the research/extension effort, then unfortunately assumes it is not a problem. Interesting the yield gap analysis as originally developed by Randy Barker and Bob Hurd at IRRI, that someone referred to in the meeting, does not include labor or access to mechanization. Unfortunately, few people appear to conceptualize labor availability or mechanization as a hinderance to agronomic production, just assuming it is not a problem.
4. Part of the operational feasibility issue is the horrible dietary energy balance in which smallholder farmers only have access to 2500 kcal/day when they need 4000 kcal/day to undertake a full day of agronomic field work. Allowing 2000 kcal/day for basic metabolism this only allow 500 kcal/day of work energy which will be burned in about 2 hours of diligent effort, perhaps paced out over a couple more hours of less diligent less productive work. That extends the crop establishment period to over 8 weeks, with progressive reduction in potential yield until farmers can no longer meet their family food security needs and voiding most crop management practices and returns to any production loans. This than has ramification over all aspects of smallholder family life, including domestic chores, women income generation activities, and improved nutrition for children and nursing moms. Would it also limit farmers' ability and interest in environmental concerns promoted by BIFAD? I fear maximizing the calories needed optimize economic opportunities makes for some very tough choices and compromised other involvement. Is this the rational thing to do? How much of the pesky yield gap and limited acceptance of crop recommendations would this explain? This again should have been quantified decades ago when we first acknowledged smallholder farmers were poor and hungry but didn't factor this as a major hinderance to implementing crop management recommendations. Also, in a real nasty but realistic question, if our agronomic innovations compel farmers to exert more caloric energy than they have access to how close are we to conspiring, encouraging, and promoting the genocide of smallholder farmers? If this was referred to the International Criminal Court in the Hague in those terms as a crime against humanity, would we have to plead Nolo contendere? I fear we are considerable closer then we would like.
5. The limited diet leads to the impossibility to hoe your way out of poverty and the absolute necessity of providing access to mechanization as the only way to expedite crop establishment sufficiently to meet the smallholder family food security needs with a marketable surplus. While mechanization might be critical, it needs to be done with due consideration to the success and failures of the past and not repeat past failure simply

| No. | First Name | Last Name | Organization | Date |
|---|---|---|---|---|

because they comply with some academic ideals. Thus, the only way to effectively provide mechanization services to smallholder is via individual owner/operators as all forms of group ownership as failed with maintenance problems that has valuable equipment surveyed off-line with < 50% of designed operating hours, while individual owner/operators will maintain the equipment for several times the designed hours. Just look at the contract tractor operations in Egypt, Pakistan etc. vs. the line-up on surveyed off-line tractors in all Nigeria ADPs. Also, for the impact of mechanization look at the impact of the shift from water buffalos to paddy power tillers in Asia some 40 years ago concurrent with IRRI developing the initial high yield rice varieties. How has this impacted crop establishment, size of land individual smallholder can management, spontaneous diversification of farm enterprises, and economic well-being of the smallholder families. Has this also allowed most of smallholder agriculture since to Asia be rechanneled to Africa. Also, note that mechanization in Asia was done without external assistance and thus is largely overlooked by the development effort which attributes the total success of the green revolution to IRRI's development of high yielding varieties. True, IRRI got the yields up but did not get the crop established in time to take full advantage of them. That was accomplished by the farmers shifting to the power tiller. The biggest need for mechanization in Africa is financial packages that will allow individuals to drift out of full-time farming to become full-time mechanization service providers. This will require initial capital funding to obtain the equipment as well as operating funds to allow them to provide the service on credit with in-kind payment at harvest.

6. The next section of the report deals with the sensitive issue of farmer organizations and other group enterprises. These are the sacred cows of development that for over 30 years have been the backbone of assisting smallholder communities. We seem obsessively compulsively committed to group business model, at the expense of the small village-based family enterprises, that effectively handle the bulk of producer needs even when a producer organization is active in the community. This includes members of the organization side-selling most of their produce to private dealers despite by-law commitment to the organization. However, are they effective or an unqualified failure? Can they really provide a sustainable competitive service to the communities they serve, or do they require continuous expensive external facilitation and collapse as soon as that facilitation ends, perhaps before the last expatriate advisor clears the departure lounge for the flight home? What percent of the thousands or perhaps million producer organizations survive for 2 years, 2 complete agronomic cycles, beyond the end of their external assistance? Would relying on producer organizations force smallholder farmers deeper into poverty? Note these business models are imposed on the community with limited and leveraged input from intended beneficiaries and without taking a couple weeks to verify if they can provide any financial benefit to the farmers, it is just assumed as group organizations they will automatically be beneficial. They then benefit from what can best be called appeasement reporting the overlooks basic business parameter like overhead costs, etc. Then the M&E portion of a project is more a propaganda tool to proclaim success than a true evaluation that will guide future programs to better serve them. The truth is they attract only a small fraction of the beneficiary populations and even those participating will divert most of their business to private competitors leaving the producer organization with a trivial contribution to community, perhaps less then 5% total market share. In the end they represent a far greater commitment to mechanism to assist the community than to the members of the community. What do we have against individual enterprises? Why can't we work with them to improve their ability to

| No. | First Name | Last Name | Organization | Date |
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serve the community? How often are they vilified as exploitive without and taking the couple weeks to evaluate their effectiveness and how much of the mark-up is covered by the legitimate costs of providing the services they perform? Isn't vilifying someone without documenting the proof slander and thus liable.

7. Finally, the last section is on Monitoring and Evaluation. While M&E can be used to document the contributions of projects, the ultimate objective is to provide guidance to future projects so they can better serve the beneficiaries. Unfortunately, too often the M&E has become more propaganda tool to cover-up failure and proclaim success for programs the beneficiaries avoid like the plague, than a guide to improve future programs. Much of this is not so much the data collected than how it is reported. The M&E tends to report nice aggregate value often over several programs of even countries. This can provide impressive numbers, good for publications but totally meaningless as an evaluation. This would be looking at the total number of people benefiting, or total tonnage marketed. However, this only says how massive the program, not how effective or appreciated it is, as if fails to mention what the numbers should have been. Proclaiming something a success does not guide future programs to better assist the beneficiaries, but just entrenches failure. However, if you take the same numbers and express them as a percentage of the potential you will come up with a very different and more accurate analysis of how effective the program is or is not. The real problem is the urgent need for M&E to set targets as to what separates a successful program from a failure. The targets mentioned should be quoted more as percentages than aggregate totals, such as percent of potential beneficiaries' activity participating, market share within the communities served, etc. They should also be reasonably close to what the underwriting taxpayers are expecting. Wouldn't that better guide future programs? What is it going to take to guide the future away from the group business to some more effective and better business models?

I think that covers the article. I hope this stimulates a more in-depth look at the contents. I do recognize that this review and the article itself is rather deliberately provocative and well outside the accepted Politically Correct Party Line, pure heresy if you like, that guides our assistance to smallholder communities. However, it is factually correct which can readily be shown with only a few weeks' effort in the field. Thus, no need to repent the heresy even when burned at the stake! I understand the many reading this will be inclined to reject the content, if so I hope the contents will haunt them, and they will ultimately support the need for substantial changes in our approach to assisting smallholder communities, and allow us to move past the current programs that are more a demonstration of USA good intention to more effective programs capable of guiding smallholder out of poverty to allow them to address some of the more environmental issue the meeting concentrated on. Remember the commitment must be to the beneficiaries with the commitment to the mechanisms only to the extent it can be effective.

Thank you for reviewing these comments and the main article referenced."

| 17 | Lori | Groves Rowley | LGR Strategies, LLC | 9/18/2023 |
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Submitted Google Form Response:

"1. Regarding Recommendation 2 - Measurement and Reporting - The bullet points regarding implementation of this recommendation seem out of sync with USAID's Evaluation Policy and its

| No. | First Name | Last Name | Organization | Date |
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| Agency Learning Agenda in that there is not mention of either. To what extent did the Subcommittee and its supporting staff engage with USAID's Office of Policy, Planning and Learning in developing Recommendation 2? In working more directly with this office, these recommendations can be more deeply developed for greater learning and evidence-based policy making.<br><br>2. Regarding Recommendation 6 - and the bullet "Local Research and Innovation Systems" - Considering the Administrator's and USAID's overall emphasis on increasing local actors and local voices in USAID work, "local" appears to be taking a far back seat in this document. To what extent will this work stream be embedded in the prioritization of local voices throughout its implementation?<br><br>3. Regarding Recommendation 5 - Human Resources - This section focuses exclusively on USAID staff - operating units at headquarters and to some extent missions - for training and staff additions. "Local" is completely absent from this recommendation. It lacks engagement and therefore opportunity with local human capital in sharing expertise, experience, and lessons learned. The document should add this important component in partnering with local researchers, farmers, the private sector, policy implementers, and others in this area. Implementers of this document/strategy should engage directly with USAID's LFT Hub and its new Local Capacity Strengthening Policy to more deeply embed this concept for greater sustainability and increased knowledge." | | | | |
| 18 | Jonathan | Cook | USAID | 9/18/2023 |
| Submitted Google Form Response:<br><br>"I would like to see specific recommendations on how the USAID agriculture research budget should directly address longer-term changes, challenges, and needs in the agrifood system related to climate change. Much of USAID's current research appears to address nearer-term needs, if it does speak to climate. Finding a better balance between incremental and transformative approaches and incorporating longer-term climate data into activity design considerations (geography, production systems, etc) is critical.<br><br>There are excellent general points on building greater climate-related capacity, but I would like to see more targeted/specific discussion of this issue with regard to the Agency's agriculture backstops who will be critical to greater integration at the programmatic level.<br><br>I would like to see more on how USAID can motivate transformation in agrifood systems through its 'soft power', such as through partnerships, convening, and institutional strengthening - recognizing that direct funding will never be enough on its own.<br><br>I would like to see a stronger focus on how USAID can support national governments in financing and implementing the agriculture-related components of NAPs and NDCs - recognizing that this is a critical approach for both scale, sustainability, and transformation, but that USAID has played a very uneven role in this arena over the years.<br><br>I would like to see more explicit discussion of landscape approaches that integrate and/or look for geographic complementarity between USAID's agricultural and other investments (e.g. climate, water, biodiversity) including through watershed and food-shed approaches (e.g. links to cities). With the creation of the REFS Bureau, there may be opportunities to break down silos and support more | | | | |

| No. | First Name | Last Name | Organization | Date |
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| integrated approaches. These approaches exist across the Agency but are largely funded through other funding streams and rarely interface with the FtF programming.<br><br>On finance, I hope the report can talk more about the importance of a balanced approach to increasing both public and private climate finance going into the ag sector (depending on the country context) - recognizing that this is also critical to sustainability and scale." | | | | |
| 19 | Noel | Gurwick | USAID | 9/18/2023 |
| Submitted Google Form Response:<br><br>"1. The report presents disparities between directed climate change funding and funding directed towards agriculture programs that could be mobilized in service of achieving climate change objectives. That opportunity could be further developed and connected to more specific recommendations. For example, the CGIAR has two programs that explicitly address climate change and the food system: the MITIGATE+ initiative headed by Lou Verchot and the carbon group headed by Ana Maria Loboguerrero Rodrigue with the Alliance for Biodiversity in CIAT. Neither of those groups has received FtF research funding despite tens of millions of dollars per year invested in the CGIAR. One of those programs has received Sustainable Landscapes funding – perhaps $2-3 million between 2014 and 2023, averaging between $200-$300,000 per year, which is a small fraction of FtF research investments. If USAID is serious about using funding associated primarily with agriculture programming, including Feed-the-Future funding, to transform the agriculture and food system to address the climate crisis, then the MITIGATE+ initiative and the climate change group within the Alliance for Biodiversity should receive substantial and sustained funding.<br><br>It is worth emphasizing that USAID has the authority to make this change. It does not require additional funding or authorization from Congress. It does not require establishing a new funding mechanism. It is purely a matter of senior management making a decision.<br>It is also worth noting that because one of the Subcommittee co-chairs works within the CGIAR<br>and within one of these programs, there is the potential for an appearance of conflict of interest. The Subcommittee will need to figure out how to handle this issue, but the Subcommittee should be able to do that; it is not a reason to ignore the opportunity.<br><br>2. The recommendation on measurement and reporting could be refined. (It is a bit confusing to have a 'monitoring, evaluation, and learning' section followed by a 'measurement and reporting' section. What is the difference between monitoring and measuring? I am using those terms interchangeably here.) The challenge is that monitoring and reporting at USAID can become insular – a function that can become divorced from the reason for doing the monitoring and reporting in the first place. Articulating the reasons for this recommendation and the opportunities for impact very clearly would help. The report does this to an extent, e.g., under the "Monitoring, Evaluation, and Learning" section of recommendation 1:"The results of these exercises should then be used to inform action plans to update or improve the use of climate change information in agrifood systems activities." Please consider amplifying the point under recommendation 2, with specific respect to measurement and reporting. | | | | |

| No. | First Name | Last Name | Organization | Date |
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One reason for monitoring and reporting is to enable adaptive management of programs. In this case, the point is to adaptively manage and course-correct programs supported with agriculture funding so that they meet multiple objectives. It will likely take concerted effort to embrace a "ten north star" way of doing business instead of a 'single north star' model. The text around the monitoring and reporting recommendation needs to make this clear.

A second reason for monitoring and reporting is that the data USAID is in a position to collect about the ongoing results of agriculture programs intended to achieve multiple benefits is that the broader community could derive great benefit from these data. "Big data" analysis has come a long way, and the type of data USAID could collect could be analyzed either internally or externally (without any cost to the Agency). USAID has an opportunity to couple monitoring and reporting with research and adaptive management.

Finally, the FtF monitoring team has in the past contacted me (on the sustainable landscapes team) to inquire which of the 'improved practices' they monitor can be counted upon to deliver climate change mitigation. The answer was: none of them. The report talks about the need for an aligned set of indicators. It might be worth pointing out that the existing FtF indicators cannot be used to estimate mitigation impact.

3. On human resources. I was glad to see this recommendation as it speaks to a core need if the Agency is going to tackle the climate crisis via the food and agriculture system. The recommendation reads (excerpt):

- Detailed assessments of staffing needs and gaps across OUs
- Increased mandatory technical trainings for Missions on climate risks, adaptation, and
- mitigation opportunities, and on climate-related analysis and measurement
- Increased climate technical assistance and dedicated staffing across Missions and in
- Washington according to OU needs

It might be worth elaborating on the effort this assessment would require. The primary need is to have staff with meaningful climate change training and dedication to the issue on agriculture teams, on project designs, on proposal evaluation panels, and in roles managing agriculture projects. As I understand the situation, often there are no staff at all with that experience on agriculture teams. Validating that understanding would not be a very heavy lift, I do not believe.

Similarly, consider switching the order of bullets 2 and 3. Increased training might not hurt; many staff seem to enjoy training. However, the real need is for different staffing patterns. How much would the existing situation change as a result of the understanding that can be conveyed in a 1-day or 3-day training?

Finally, but critically, the text reads: "Despite this recognized leadership and broad commitment, analysis revealed several barriers to increased integration of climate adaptation and mitigation." The following text captures some of those barriers but misses one dominant factor. There are centers of power and influence within USAID which strongly resist the types of changes this report is recommending. Given the way that this report effectively blends a technical strategic approach with an operational understanding of USAID, consider (as part of this recommendation

| No. | First Name | Last Name | Organization | Date |
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or perhaps as a separate recommendation) a statement about the need for sustained engagement from the highest levels of leadership at USAID. There was a question at the public meeting to which one of the panelists replied that 'It comes from the top.' The types of changes this report recommends will only occur with sustained engagement from the top.

4. There is a huge opportunity to work more on agricultural policies. Numerous LMICs have included agriculture in their NDCs even as far back as 2015 (Richards et al. 2015, https://cgspace.cgiar.org/handle/10568/68990). So there are clear openings for working with national level policy on this front. In some cases, it should be possible to run a thread from the countries' NDCs to Missions' CDCSs to activity designs. On a more global level, it should be possible for USAID's agriculture programs to show how landscape planning, transparency in supply chains, and appropriate finance mechanisms can help countries meet their NDCs. Work supported by DDI provides examples of what the Agency could do with the much greater agricultural resources.

A couple of specific cases:

4a. Land governance and agricultural expansion
With adequate resources, the policy team could support national and sub-national governments to establish and implement land governance and policies that would prevent agriculture from expanding into other ecosystems (e.g., forests, grasslands) even in areas where FtF does not invest to increase productivity. The report Agriculture's Footprint details the various options for addressing this central link between agriculture and climate change. DDI supported that analysis, which FtF could use as a foundation for future work. (Agriculture's Footprint: https://www.climatelinks.org/resources/agricultures-footprint-designing-investment-agricultural-landscapes-mitigate-tropical)

4b. Subsidies

The word 'subsidy' or 'subsidies' appears only four times in the document, once in a footnote. Yet shifting agricultural subsidies represent a critical opportunity – albeit one that is very challenging. The agri-food landscape looks the way it does largely because these subsidies incentivize particular types of behaviors from the individual to large institutions.

The role of subsidies and opportunities to shift them could be addressed through research (FtF innovation labs, the CGIAR centers, and other investments) and through interventions (e.g., the policy team within RFS, soon-to-be REFS). This opportunity need not be confined to zones of influence or even to FtF focus countries. Other institutions are willing to make the case for reforming agriculture subsidies. For example: https://www.reuters.com/sustainability/investor-pressure-group-urges-g20-reform-agricultural-subsidies-2023-08-21/
And, although more dated still relevant:
https://foodtank.com/news/2020/09/agriculture-subsidies-can-fight-climate-change-and-protect-food-security-according-to-world-bank/
Unless the writing team has a reason for omitting this policy lever from the report, I recommend including it as part of a broader recommendation on devoting substantially increased resources to research and capacity-building around agricultural policies.

| No. | First Name | Last Name | Organization | Date |
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5. There is a tendency at USAID – and perhaps beyond – to have two distinct conversations about agriculture: one focused on smallholders and the other focused on agribusiness corporations and commodity-driven deforestation which is a major component of agriculture-driven GHG emissions. However, these commodity supply chains often source from smallholders. In which geographies and which commodity supply chains are there opportunities to bring these two narratives together not only to describe the situation but to employ interventions that address smallholder well-being and land use change at scale simultaneously? What prevents that from being part of the FtF strategic approach?

6. I'm aware this point has already come up but think it is worth amplifying: if the Subcommittee feels that there is an analytical basis, add targets (or subtargets) for CH4 emission reductions and for N2O emission reductions.

7. I wonder if there is an opportunity to be a bit more visionary in terms of approaches that could achieve many of the outcomes the Subcommittee was asked to address: climate change mitigation and adaptation, improved nutrition, improved food security. I am not suggesting the report identify silver bullets. I do believe there are general approaches that hold great promise and that have received minimal investment and minimal attention because they are unusual and perhaps regarded as distasteful. (They could also threaten entrenched economic interests and power structures.) Could the report identify some of these as a chapeau and attach a recommendation that would cut across research and interventions?

For example, the report mentions insects as a potential source of animal feed – but what about as a direct source of proteins for humans? It's common in many parts of the world, albeit not in the United States. The efficiencies compared to mammals are enormous. There is an FtF Innovation Lab focused on fish that has done some work with insects – but it is a small subinvestment. Does it deserve a higher level of visibility and investment?

More generally, there is substantial evidence that we cannot stay within the 1.5 degree threshold without dietary shifts. Consider a recommendation that USAID invest substantial resources in options for research and programming towards low-carbon, high-nutrition dietary trajectories look like?

8. Please remember that USAID is not obligated to take BIFAD's recommendations, and do not shy away from recommendations that you believe are reasonable to achieve the stated objectives, whether or not they elicit strong reactions from some parts of the Agency.

There is a lot of reasonable but rather abstract language in this report. For example see excerpt below. So there is not much danger in advancing a recommendation that parts of USAID will find objectionable. In fact, if the report does not touch on sensitivities within USAID, it probably will not have had much influence. If the recommendations do not challenge USAID, then there is a good chance that the great momentum that the Agency carries will perpetuate the status quo and that no real debate will occur. On the other hand, a real debate on these issues with visibility from the highest levels within the Agency would be unprecedented and could be very healthy for the organization.

| No. | First Name | Last Name | Organization | Date |
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| *Example of reasonable language that will be unlikely to generate consideration of any real change:*<br><br>Scale/Importance<br>Development and climate resources are limited and their judicious use is critical to achieving USAID's climate and food security goals. It is therefore important to establish that the scale and/or importance of a proposed transformation will contribute substantially to achieving the shared goals of the country and USAID, while also being socially inclusive. Project theories of change should establish that a specific transformation will produce a change toward one or more adaptation, mitigation, or food security goals, either through impacts across large populations or areas or by targeting a key population or process that might leverage wider impact. If a proposed transformation does not do so, designers should reconsider the transformative need they have identified and restart the design process around another transformational opportunity." | | | | |
| 20 | Geoffrey | Blate | USAID | 9/18/2023 |
| Submitted Email:<br><br>"I had hoped to coordinate a bit with colleagues and send consolidated comments, but could not get that done. Also, I know it would have been better to use the google form to submit my comments, but I've run out of time and just wanted to quickly offer some reflections and a few modest suggestions:<br><br>● Reflections<br>○ I greatly appreciate the overall call for better integration of USAID's GFSS and Climate Strategy. In the worst case, failure to integrate could lead our ag-related efforts to exacerbate climate change. Ideally, thoughtful integrative programming would identify and encourage scaling of climate adaptation and mitigation synergies. In this regard, the synthesis of last Monday's meeting should be further underscored in the document: that is, we need to acknowledge that we have multiple 'north stars' and must address the multiple, interconnected crises -- biodiversity loss; climate change; food insecurity, malnutrition, and stunting (and other food systems related issues); and water insecurity to name the most salient that emerged in the discussion -- to the greatest extent possible.<br>○ I greatly appreciate that the authors proposed quantitative targets that USAID's ag-focused programming should aim to contribute to the Agency's high-level Climate Strategy targets.<br>○ I appreciate mention of the flat (or diminishing) direct climate funding appropriated by Congress (but think this is worth further underscoring - if rules allow). Perhaps noting that additional direct funding commensurate with the ambition we aim to achieve (per our Strategy's targets) would be appropriate?<br>○ I like the level of specificity included in the identified leverage points and recommendations...(recognizing that further digestion and discussion may be needed by some operating units)<br>● Modest suggestions | | | | |

| No. | First Name | Last Name | Organization | Date |
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- Recommendation 1 notes that climate adaptation and mitigation should be incorporated into Ag & FS programs. The Agency's Climate Risk Management Strategy essentially already requires this. It would be helpful to (a) mention that CRM could be used as a launchpad for achieving the integration requirement, and (b) offer ways for OUs to comply without substantially increasing burden (since 'reducing burdens' is an Agency priority).
- In general, I thought the context (section 2) was good, but it could be strengthened by providing more context on the linkages between food systems, climate, and water. The report mentions water, but could make a more compelling case about the need to better manage water use as part of the food systems transformation. Calling out how surface water deviations and groundwater abstraction are maladaptive in many cases seems essential. In general, the thoughtful comments of Professor Brauman during Monday's panel discussion should be incorporated and elevated in the report. The authors should 'double-check' the budget figures. On p. 5, the text says that 'less than one percent was appropriated for climate-focused work...'. However, $715M is 1.2% of $59.7 billion. This is an easy fix. (see also bottom of page 7)
  - If the numbers can be ascertained (and they're public), it would be good to say how much of the $2 billion request and the $715 million appropriated amounts were for USAID. Even just mentioning percentages for each earmark would be helpful so as not to mislead the public on amounts going to USAID.
  - The final sentence on p. 5 also could use elaboration. What is meant by 'efficient, demand-driven partnerships'?
- Top of page 6 -- It's nice to mention the objectives and potential benefits of the REFS reorganization. I wonder if the report has to also acknowledge that individuals across all sectors and disciplines (in both Washington and the field) have to decide to consider climate and even put climate action as a central objective in their work the reorg by itself will not necessarily achieve the desired goals.
- The Challenges section (page 6) surfaces important issues.
  - Unfortunately, some OUs are finding it challenging to meaningfully integrate climate change across all their programming. Limited direct climate funding doesn't help. However, nearly all Missions updated their R/CDCS Climate Change Annexes and this effort required them to explore ways to incorporate climate into their programming and contribute to the Climate Strategy. It would be good to acknowledge this large undertaking by the Missions (although the point about lack of universal target setting on the top of page 7 is well taken).
  - The 2nd paragraph left me wondering if the authors are pushing for more evidence that integrating climate considerations into Ag programming is yielding greater and more sustainable impacts. If that is the case, it would be good to make that point more explicit.
  - I found it curious that the authors found the Climate Risk Profiles not fit for purpose because they were developed in consultation with Mission colleagues. Given uncertainties in climate models, I am curious if the authors are pushing for USAID to use more precise climate modeling projections vs other approaches to explore risks and potential impacts.

| No. | First Name | Last Name | Organization | Date |
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- Top of page 14 -- The 2nd paragraph starts with "USAID activity planners and CORs ... finite resources around adaptation, mitigation, and development objectives." I think it's very important to insert the word 'other' before 'development'. We need to shift thinking that puts climate action and development into separate streams. Climate adaptation and mitigation ARE development objectives. Development can't happen well or sustainably without both. Lack of the word 'other' unfortunately perpetuates the 2-track paradigm. The same is needed in the next paragaph and wherever 'adaptation, mitigation, and development' appear.

I hope these resonate, are useful, and are relatively easy to address."

| 21 | Cynthia | Cox | USAID | 9/18/2023 |
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Submitted Google Form Response:

"(1) The report could be strengthened by a more detailed and inclusive treatment of climate change resilience/adaptation strategies from a humanitarian/disaster and crisis lens. The humanitarian community has equity when it comes to climate-smart solutions, as climate-related disasters (along with conflict) are prominent and increasing drivers of human suffering worldwide. As such, humanitarian assistance may offer unique perspectives when it comes to emerging areas of leverage and institutional change to achieve transformative adaptation in agricultural and food systems (e.g., anticipatory action and climate-risk financing).

(2) The strong emphasis on low-emissions agriculture (and focusing on absolute GHG emissions vs emission intensities) is potentially problematic for a US-based international donor agency where global poverty reduction/eradication is a priority. From an international humanitarian perspective, and because we often work with the world's most vulnerable populations, mitigation receives virtually zero public policy support and funding, and is notably absent from the Climate & Environment Charter for Humanitarian Organizations (that is, beyond the limits of operations – such as decreasing agency carbon footprint during emergency assistance). Low-emission crop and livestock interventions should be urgently promoted to high-income/high-emitting nations first and foremost – followed by middle-income/high-emitting nations for secondary targets. There are opportunities to increase agricultural productivity in low-income countries through climate-smart solutions, including those that target carbon-sequestration and efficiency through holistic land and and natural resource management, but a laser-focus on GHG mitigation in such regions where emissions are already relatively low are arguably weak entry points/investments for the radical global mitigation goals sorely needed in agriculture and food systems."

Attached references:

- 2023 Global Food Policy Report: Rethinking Food Crisis Responses, IFPRI

| 22 | Julius | Bright Ross | USAID | 9/18/2023 |
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Email Submitted:

"Thank you very much for the opportunity to provide feedback on the Draft Report from BIFAD on Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in

| No. | First Name | Last Name | Organization | Date |
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Agricultural and Food Systems. Please find below my feedback on this report, and please don't hesitate to let me know if you have any follow-up questions.

- Pg. 28: I find the initiative to enable locally led R&D systems to be admirable, and am particularly glad to see the inclusion of the Agency's guidance on Integrating Local Knowledge in Development Programming into this list. I also encourage the authors to more explicitly promote co-creation of adaptation best-practices with participants of USAID funding in activities such as Farmer Field Business Schools. Participatory problem-solving helps identify the contextual limitations of externally-generated solutions and encourages a spirit of innovation beyond the lifetime of the award.
- Pg. 32-33: I am surprised to see carbon payments for soil carbon in this section. While I appreciate the focus on enabling conditions and envelope investments in this section, this section does not sufficiently reckon with two major limitations that have thus far kept soil offsets from reaching the mainstream adoption of their forest counterparts - namely that 1) the science behind the ability of improved agricultural methods to provide substantial long-term storage of carbon is as-yet inconclusive and 2) for the storage capacity that does exist, there is an asymptotic response that means farmers must continue using improved methods with decreasing additional carbon storage and, consequently, carbon payments.
- Pg. 34: I am disappointed to see no consideration of water security in this report on its own merits as a leverage point for climate adaptation beyond integration with soil management. While soil and water conservation represents a suite of interventions with proven merits for food security, it can occasionally suffer from too narrow a scope, without considering the larger context of water availability and replenishment. There are larger challenges to water availability and supply than those related to integrated management with soil, including but not limited to: watershed restoration; financing of water supply systems for small-scale irrigation; operations and maintenance of water infrastructure; investing in groundwater monitoring and early-warning systems; mapping of water tenure and promoting community compacts around multiple uses of water; and promoting context-sensitive communication of fine-scale meteorological forecasts for growing seasons. These any many other primarily water-focused interventions are crucial to the enabling environment for any functional food system.
- Pg. 34: In soil and water conservation, we typically speak of water "conservation" rather than "preservation" to reflect the nature of our goal, which is to promote improved use of the water that becomes available through the hydrological cycle through increased efficiency, reuse, and sharing with environmental flows.
- Pg. 35: Please rephrase "facilitating better water management and irrigation" to clarify that "better water management" and "better irrigation" are both goals, as there is a currently grammatically-correct reading that implies this report might advocate for blanket increases in irrigation which, of course, does not always represent better water management.
- Pg. 35: I am very disappointed that the authors of this report have chosen a purely agriculture-based example as their primary illustrative intervention for the ostensibly integrated soil and water management section. There are myriad excellent illustrative interventions that could highlight the need for considering soil and water conservation together, including demilunes, shelterbelts, stone/soil bunds and swales, Green Roads for Water, soil ripping, and many others. I strongly recommend choosing a different illustrative intervention; perhaps the Resilience Design in Smallholder Farming Systems approach,

| No. | First Name | Last Name | Organization | Date |
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developed by Mercy Corps under the USAID-funded TOPS program in response to environmental and economic shocks and stresses that severely constrain the productivity and resilience of smallholder farming households. Resilience Design asks farmers to seek a deeper understanding of their farming systems within the broader ecosystem to create a farm design that optimizes use of available resources - and particularly water resources - over the long term and responds to external changes. Resilience Design has also been used to promote participant innovation and climate adaptation through the Bureau for Humanitarian Assistance's 5-year Resilience Food Security Activities (RFSAs) in Zimbabwe.

- Pg. 63: The distinction made in the "soil water management" illustrative intervention between green water and blue water is artificial and unnecessary except for building simplistic water budget models. As a simple example, in many watersheds the water table (representing "blue water") cuts across a fall line and becomes available once more for agricultural crops ("green water"). As another example, hydraulic lifting by certain species of agroforestry species can bring deeper water closer to the surface for crops to use. I strongly suggest removing the distinction between blue and green water and simply focusing this illustrative example on the importance of improving the infiltration and retention capacity of agricultural soils.
- Pg. 64: Smallholder systems should incorporate a wide variety of vegetation into their food systems, not just trees. Just to list a few important additions to this section: grasses can stabilize soil and water conservation structures; bushes provide mid-height shelterbelt protection from winds; and trees themselves should be broken into different canopy heights.
- General: This entire report makes no mention of termites and other insects, nor any recognition that I was able to see of the importance of faunal and mycelial biodiversity for maintaining and restoring the function of soil health and water infiltration in agricultural land. These are oft-overlooked aspects of ecosystem health that nevertheless represent promising avenues for interventions to improve both climate adaptation and mitigation in agricultural landscapes."

| 23 | Chelsea | Kay | USAID | 9/19/2023 |
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Email Submitted:

"**2030 Adaption Target aims to "Enable the improved climate resilience of at least 180 million people who depend on agriculture."**
I suggest that the authors define "depend on agriculture" in the report. I assume you are referring to individuals who participate in the growing, producing, processing and distributing of agricultural products, and not consumers of agricultural products. However, the way it reads now it can be interpreted to be any person on the planet as we all 'depend on agriculture'.

**Recommendation 1: Strategy, Design and Implementation / Recommendation 3: Research.**
This recommendation encourages the use of climate data throughout the program lifecycle. There are many known challenges to 'using climate data' – gaps in data availability, particular at the sub-national level; challenges with quality control of data; barriers in uptake and use of data for decision making; and challenges to use data to change behavior that leads to increased adaptive capacity. I suggest that the report make stronger linkages with 'Recommendation 3: Research' to address these challenges in climate data, including applying the findings from research back into the design and implementation of programs. In general, I suggest strengthening the language in

| No. | First Name | Last Name | Organization | Date |
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| Recommendation 3 to demonstrate how the research will be applied to meet the established 2030 targets.<br><br>**Recommendation 4: Resource Allocation**<br>I appreciate and am very supportive of the recommendation for longer-term (more than 5-year) investments. A longer-term implementation cycle will be required to support the transformational system changes that we aim to achieve under the GFSS and Climate Strategy. I suggest the authors consider including a target for funds attributed to address climate change -- such as a required percent (%) of total Feed the Future funding that must be attributed to climate change mitigation and adaptation activities. This would ensure that Missions are incentivized to put adequate attention and resources to climate smart programming.<br><br>**Recommendation 6: High-potential leverage points**<br>The eight high-potential leverage points articulate important, integrated technical areas for climate resilient programming. However, I believe this section is missing the institutional capacity building at both the national and local government level. These institutions are critical for implementing and sustaining the initiatives outlined in each of the identified high-potential leverage points. Like USAID, host country institutions often work in silos and will need technical and organizational assistance to support the integrated/holistic programming.” | | | | |