

## **Board for International Food and Agricultural Development (BIFAD)**

### ***Metrics for Accountability: Tracking Progress and Identifying Data Gap Development Investments***

#### **Public Meeting**

**Des Moines Marriott, Des Moines, Iowa (Live Streamed)**

**12 October 2016**

#### **Welcome and Opening Remarks**

BIFAD Chairman Dr. Brady Deaton opened the meeting by welcoming the live and webcast audience to the 172<sup>nd</sup> BIFAD Public Meeting. The meeting was held in the Des Moines Marriott in conjunction with the World Food Prize, in Des Moines, Iowa.

Chairman Deaton indicated that the meeting would inform BIFAD in its advisory role to USAID in international development work. The linkage between universities and USAID's international foreign assistance has been a key purpose of BIFAD since its inception in 1975.

The four participating BIFAD Board Members introduced themselves. They included:

- Dr. Brady J. Deaton, BIFAD Chairman, Chancellor Emeritus of University of Missouri, Columbia, Missouri; Executive Director, Deaton Institute or University Leadership in International Development
- Dr. Pamela K. Anderson, Director General Emeritus, International Potato Center, West Palm Beach, Florida
- Dr. Gebisa Ejeta, Distinguished Professor of Plant Breeding and Genetics and International Agriculture, Purdue University, West Lafayette, Indiana
- Mr. James M. Ash, Partner and Chair of Food and Agribusiness Unit, Husch Blackwell LLP, Kansas City, Missouri

Chairman Deaton outlined the meeting agenda, which included a report from the USAID working group on USAID participant training and exchange visitor policy, the announcement of the BIFAD Scientific Award for Excellence in a Feed the Future Innovation Lab and a session entitled "Metrics for Accountability: Tracking Progress and Identifying Gaps in Development Investments." Chairman Deaton introduced and acknowledged Borlaug Leadership Enhancement in Agriculture Program (LEAP) fellows in attendance and Dr. Beth Dunford, Deputy Coordinator for Development for Feed the Future and Assistant to the Administrator, Bureau for Food Security, USAID, who later assisted with the presentation of awards.

#### **Old and New Business**

*USAID Participant Training and Exchange Visitor Policy Working Group Status Report*

Working group committee Chair James Ash reported on the group's review of USAID participant training and exchange visitor policies and procedures. Mr. Ash noted that the working group was created to address concerns across many university institutions about visa protocols. After thanking group members for their service, Mr. Ash noted that many of the key issues are both procedural and substantive. Issues pertain to the system used to get visas for USAID-sponsored programs (TraiNet), time limits of visas, and limitations in obtaining visas. The working group has put together a matrix to find common ground for discussion but notes that the issue is complex, involving significant security and policy issues, as well as university-specific procedures. The working group requested dialogue with USAID's Economic Growth, Education, and Environment Bureau and met in September 2016, which Mr. Ash noted was not substantive but did result in an assured review of protocols. BIFAD concerns were given serious attention and follow up meetings are planned, but there have been no resolutions to date. Mr. Ash emphasized that BIFAD is continuing to work on the inclusion of foreign nationals as a key component of a food security strategy, particularly in light of the new global food security policy, and will continue to work toward removing barriers that limit a commitment to end hunger and food insecurity.

Chairman Deaton thanked Mr. Ash and gave other BIFAD members the opportunity to respond to the report and provide any other updates to those in attendance.

Dr. Anderson noted that she had attended a 3-day Central American Borlaug Summit at Texas A&M University in June 2016, which provided an opportunity to reconnect with USAID missions and colleagues in the region. However, she was disturbed to learn of the level of violence in those countries today, which is closely related to the issues of shocks and resilience. The Summit provided an opportunity to explore, in the Feed the Future countries of Guatemala and Honduras, the differential targeting in the zones of influence. In Honduras, the focus is on poverty, while in Guatemala, the focus is on child stunting in the Western Highlands. Dr. Anderson highlighted that two key challenges facing these countries are (1) getting the private sector more involved in the work being done to ensure it is sustainable beyond each respective government's commitment, and (2) accountability measures. Finally, Dr. Anderson remarked that in some places goals are being surpassed, while other places are struggling to meet goals.

Dr. Ejeta commented briefly on the work of BIFAD to promote USAID's legacy of capacity building and technical assistance since the 1950s. He noted that a panel at the World Food Prize would be convened on 13 October 2016 to celebrate the efforts of the Board and the work of the Agency in highlighting this area and would bring African voices to the discussion. Dr. Ejeta pointed out that there is still a demonstrable need that will not be eliminated by the work of the agency alone.

Chairman Deaton thanked Drs. Anderson and Ejeta for their responses and proceeded to describe the reinstatement of the BIFAD awards for faculty and graduate student research. Chairman Deaton stated that BIFAD feels research direction is critical to its work as a

board. He then introduced the awardees of the annual faculty and graduate student research award.

*BIFAD Awards for Scientific Excellence in a Feed the Future Innovation Lab*

The faculty-based awardees were Dr. Christopher Barrett, Dr. Michael Carter, and Dr. Andrew Mude for their long-term research on Index-Based Livestock Insurance (IBLI). Chairman Deaton acknowledged the team's long-term commitment to looking at causes and solutions to poverty and their establishment of a critical minimum asset threshold below which poverty occurs in Northern Kenya and Southern Ethiopia. Chairman Deaton noted that the Kenyan government has launched a proactive nationwide response to prevent poverty-based catastrophes as a result of their research.

Chairman Deaton also introduced the graduate student awardee, Mr. Daljit Singh of Kansas State University, and his work in applied wheat genomics in Southeast Asia, particularly the use of unmanned aerial systems to increase the speed of wheat typing in India. Chairman Deaton then invited the award recipients to present their research to the board and audience.

Drs. Michael Carter and Dr. Andrew Mude<sup>1</sup> explained that the team has been working on IBLI through the Innovation Lab for Assets and Market Access at University of California-Davis, Cornell University, and the International Livestock Research Institute (ILRI) since 2000. Dr. Carter thanked USAID project manager Lena Heron for her support of the program. The team recognizes that chronic poverty is best studied through the analysis of assets, the resources people use to produce a livelihood, rather than simply through an analysis of income or other livelihood outcomes. Using this approach, they have identified the existence of a critical minimum asset threshold below which individuals become mired in chronic poverty. Protecting the assets of individuals, households, and communities is vital, especially in high-risk systems, to preventing a downward spiral.

The team's first pilot project, in Northern Kenya, used satellite imagery to measure forage scarcity and predict livestock mortality. They developed relationships with commercial partners to develop an insurance product that protected the assets of pastoralists. The team designed and extended educational and marketing materials to create informed demand and was able to put out real-time reporting on the index to build knowledge and confidence. The roll out of the project as a randomized controlled trial allowed for reliable identification of the program's impact. Results indicated that less well-off households halved their reliance on meal-reduction strategies, and better off households exhibited reduced reliance on livestock sales as a coping strategy and were thereby able to preserve their future viability by reducing the downward pressure on local livestock prices.

Analysis of impact in Kenya and Ethiopia demonstrated that IBLI has a positive impact on improvements to mid-upper arm circumference (a child malnutrition indicator), boosted

---

<sup>1</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-carter-mude/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-carter-mude/file) for Chris Barrett, Michael Carter, and Andrew Mude's presentation.

household income per adult equivalent, and enhanced household's perceived sense of well-being.

The team concluded their presentation by describing some of the components of a scalable index-insurance program, which include: precise contract design, evidence of value and impact, establishment of informed effective demand, and low-cost, efficient delivery mechanisms, including policy and institutional infrastructure. In this study, the team initially acted as insurance agents, noting the importance of feedback between research and implementation of insurance as a public-private partnership involving government, insurance companies, agents, and extension workers. The team provided an e-learning curriculum for insurance companies using mobile phone-based learning, which increased comprehension and sales. Initially, the process was costly with agents driving around in Land Cruisers to make sales, and, after disasters, driving back with stacks of cash to deliver indemnities. Now, costs are being driven low because agents are using automation in contract design. Money transfer and mobile phone apps are being used to generate sales transactions and to deliver indemnity payments. Automation helps ensure the potential for future scaling. There is also evidence of impact at the household and fiscal levels to deliver social protection instead of food aid. The team is currently collaborating with Kenya's government and the World Bank with plans to roll out to 75,000 households.

The team noted and thanked the IBLI program's many collaborators.

Mr. Daljit Singh then presented his research, entitled "High Throughput Phenomics: Towards Arid Wheat Cultivar Development for South Asia"<sup>2</sup>. Mr. Singh presented the current and projected wheat demand, noting the projected statistics of wheat needed by 2050. Mr. Singh argued for the use of cutting-edge genomics and phenomics tools to accelerate the development of climate-resilient, high-yielding, and farmer-accepted wheat production. Mr. Singh's research includes five sites in India, Pakistan, and Bangladesh, screening for stress and disease tolerance in 600 candidate wheat varieties. Low-cost, high-throughput phenotyping can be achieved using drones, about 10–15 times the throughput of manual measurement (3,900 plots per person-hour using drone systems vs. 285 plots per person-hour using manual measurement). Drone measurements are highly correlated with manual measurements, and drone measurements can be substituted for manual measurements of plant height.

In addition to the development and testing of new tools, the project involves capacity building and technology transfer: interaction with farmers, scientists, and policymakers; farmer's field days and training sessions; and the distribution of high-yielding wheat varieties to national breeding programs. He acknowledged his collaborators at Kansas State University, Cornell University, CIMMYT, and the Bangladesh Agricultural Research Institute.

---

<sup>2</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-singh/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-singh/file) for Daljit Singh's presentation.

Chairman Deaton thanked the awardees for their presentations and invited Dr. Beth Dunford to say a few words about the award winners and provide an update from USAID.

### **Update from USAID**

Dr. Dunford congratulated the Award winners, noting her excitement at the progress, partnerships, and leadership demonstrated by the awardees. She also noted the importance of taking time to celebrate these successes and groundbreaking work. She pointed out that innovations are necessary for farmers to make advances, particularly technological advances. Feed the Future Innovation Labs are changing people's lives around the globe, bringing science and technology to address both current and future challenges posed by an increasingly urban, growing global population and changing diets. She also acknowledged the 2016 World Food Prize winners for their efforts to increase the nutritional value of key staple crops. She pointed out that this is a sustainable, low-cost approach to improving agriculture and nutrition in the developing world. USAID has been a strong champion of biofortification work, and nutrition is more prominent in the new global food security strategy. Dr. Dunford described how the emphasis on new technology is important to her personally, as well. She indicated that she sees how the lack of technology impacts households, noting that as a young foreign service officer in Ethiopia during the droughts and famines she knew there had to be a better way to get food to households. Allowing households to be reliant on food donations each week was not effective.

Dr. Dunford explained how USAID's Feed the Future Initiative seeks to sustainably address the root causes of hunger by actively partnering with universities, civil society, governments, the private sector, and farmers. She pointed out that the Feed the Future model is proving itself in country after country. An FY2016 progress report<sup>3</sup> described notable drops in both poverty and stunting in many places where the Initiative is working. Dr. Dunford noted that Feed the Future aspires to take its efforts to the farmer, because farmers recognize that "there's money in the soil." USAID has observed that people shift out of poverty by becoming more commercial and reaching out into markets. Seven years into Feed the Future, there are a variety of ways the agency reaches out to meet the shifting global needs of increasing production 60 percent to deal with not only increasing population, but also increasing urbanization, changing diets, and climate change. Dr. Dunford asked BIFAD to continue to hold USAID accountable to its commitments to get the right technologies and practices to farmers.

Dr. Dunford noted that the Global Food Security Act, which was passed by Congress and signed into law by President Obama in July 2016, signals to the world that the U.S. continues to be a global leader in the fight against hunger and food insecurity. As a result of the legislation, Feed the Future's 11 partner agencies and departments worked together to develop a global food security strategy, delivered to Congress on October 1, charting how developing countries would be supported to achieve lasting progress. Consultations with key public and private sector stakeholders, global thought leaders, missions, and

---

<sup>3</sup> See <https://www.feedthefuture.gov/progress> for the FY2016 Feed the Future Progress report.

partners in the field helped to inform the strategy, along with rigorous analysis of results to date.

The new strategy still includes poverty and stunting as the top line indicators but adds hunger as another top indicator, elevating malnutrition as part of the goal statement. The new strategy has three interrelated strategic objectives: inclusive agriculture-led growth, nutrition, and resilience. The objective of inclusive agriculture-led growth emphasizes investments throughout the value chain, including production and beyond to better connect producers to markets and rural to urban areas, in order to improve access to safe, quality food and to generate income and job opportunities, including for youth. This objective includes a more coordinated approach to access to finance, financial inclusion, and private-sector engagement to ensure the support of small- and medium-sized enterprises along the value chain. Nutrition is a strategic objective, as it has been since the beginning of Feed the Future, and the integration of nutrition and agriculture has always been key to the effort, but there is greater emphasis on ensuring that agricultural interventions help to achieve nutrition goals and recognizing the critical importance of water, sanitation, and hygiene and food safety in achieving nutrition goals. The third objective is resilience, which recognizes that households and communities are experiencing increasingly frequent and intense shocks and stresses that threaten food security and nutrition. Previous efforts by Feed the Future have demonstrated that those emerging from poverty can backslide as a result of small shocks and stresses. Reducing vulnerability to these shocks and stresses and improving the ability to manage change is therefore critically important to protect and continue development gains among the extreme poor and most vulnerable. Dr. Dunford concluded by commenting that she is excited about the momentum she is seeing globally, and she encouraged participants to continue their efforts towards a more food secure future.

Chairman Deaton thanked Dr. Dunford for her presentation and emphasized the importance of measurement and analysis, noting that both universities and BIFAD are committed to support Feed the Future and the Global Food Security Act. He also commented that BIFAD is particularly interested to see the metrics being used to measure progress and to bring depth to the new framework. He then introduced Dr. Emily Hogue, the Division Chief of Monitoring, Evaluation, and Learning for Feed the Future in USAID's Bureau for Food Security. Dr. Hogue presented the new Feed the Future accountability framework, the progress that has been made, and the lessons that have been learned during the framework's preparation.

### **The Feed the Future Accountability Framework, Progress, and Learning**

Dr. Hogue<sup>4</sup> explained the dual purpose nature of the results framework: it provides accountability and also learning for improved effectiveness. Empirical evidence is collected through monitoring and evaluation. The team wants to understand how and why something works (or does not work), not just what works (or does not work). Dr. Hogue explained that there are many tools and processes that get at both of these questions in food security

---

<sup>4</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-hogue/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-hogue/file) for Emily Hogue's presentation.

efforts. The current Feed the Future results framework is the foundation of the entire approach to design, program planning, and monitoring and evaluation. The framework has been used since 2010 and will guide work until 2017, when the multi-year strategies are set to conclude and targets will be measured for impact. The framework articulates a broader theory of change. It maps activities and results as well as objectives and goals. For every result or objective, there are multiple indicators at the output, outcome, and impact levels. She explained that in 2010–2011, each country took the results framework as a guide and adjusted it to the country’s specific context to develop a country-level strategy. Countries developed a results framework that worked for them within their cultural context. Standard indicators were used for reporting at the objective level across all operating units. Reporting occurred at both the activity level (i.e., where activity occurs) and at the population or sector-level (i.e., where impact tracking occurs).

Dr. Hogue described some of the results of the framework. Using a web-based monitoring system, over 500 contracts, grants, or mechanisms now report on indicators that are relevant to them. These are aggregated to the operating level, then to the initiative level. Right now, implementers are not only setting targets for the next three years but are also reporting progress for the current year. The reports go under review once the system is closed and the review team looks for both anomalies to the data and areas with successes. The team will start going through the data country by country to understand the results. This feeds into portfolio reviews in the spring to look at where the initiative is excelling and where there are constraints. USAID collaboratively discusses performance with other agencies and how best to proceed. These results feed into progress reports, which explain the context and trends. Dr. Hogue commented that agricultural productivity, improved nutrition, expanded markets, and trade are all areas where progress has been observed.

Impacts noted in an interim analysis were described by Dr. Hogue. Statistically significant reductions in poverty and stunting were observed in some countries. The review team released a report on 13 October 2016 with data for 17 countries that described this data in greater detail. The team identified areas of progress and challenges. Since they now have more indicators that track the overall change, causal pathways can be suggested. Dr. Hogue contrasted the examples of Bangladesh and Tajikistan, where differential progress has been achieved. There has been more progress in Bangladesh, which has exhibited reductions in stunting and poverty, as compared to Tajikistan, where progress isn’t moving as smoothly and some indicators are going in the wrong direction. Tajikistan has proven to be an extreme case for Feed the Future, as other countries are generally showing more progress. As a result, the Bureau for Food Security called a meeting to examine the data from Tajikistan more closely and also look at other reports that might explain the reasons why Tajikistan was not achieving progress. One possibility is that economic problems in Russia are affecting employment and remittances from Tajik workers in Russia. There are also cultural practices that limit the uptake of behavior changes, and there are issues around water and sanitation, which are not currently being supported through by Feed the Future investments. The team was able to use the new metrics to understand why Feed the Future in Tajikistan had such distinct results from those in Bangladesh and other countries.

The new phase of the initiative allows questions about whether or not the right things are being targeted and whether or not assumptions related to the theory of change are valid. The new results framework emphasizes nutrition, climate-smart agriculture, resilience, system-level transformation and natural resource use (including environmental hygiene). Cross-cutting intermediate results are now included in the results framework and will be measured. New indicators will be needed for these cross-cutting intermediate results, but including them does ensure that progress (or revision) is occurring.

Dr. Hogue said that collaboration and support of other partners are critical for multiplying the utility of USAID's financial and human resources. She acknowledged the work of the Monitoring and Evaluation Harmonization Group, organized in 2012, which includes the Bill and Melinda Gates Foundation, USAID, Millennium Challenge Corporation, DFID, IFPRI, OECD, the World Bank, and the Food and Agricultural Organization of the United Nations. This group coordinated work to develop and build partner data systems, to harmonize donor M&E systems, and to develop a joint food security learning framework. The framework has guided and developed their monitoring, evaluation, and learning efforts. She acknowledged the collaboration and cross-fertilization of tools. Dr. Hogue pointed out how this was an ideal time to rethink and regroup, particularly as the Sustainable Development Goals are also closely related to many of the goals that Feed the Future seeks to monitor.

Chairman Deaton thanked Dr. Hogue for her presentation and opened the floor to questions from the BIFAD board members. He asked about how the level and magnitude of effort is determined within Feed the Future (i.e., by contributions or country commitment) and specified that he was thinking specifically of the Tajikistan example. Dr. Hogue responded that impacts measured within the zone of influence level are not attributed to US government or USAID programs; rather, USAID's approach is to collaborate with the partner government and other donors as part of a joint strategy.

Mr. Ash asked whether data collection was done by dedicated evaluators or distributed throughout the Feed the Future projects. Dr. Hogue said that both approaches are used, depending on the level. Results at the activity level are collected by the contractor for that activity, and results at the population level are collected by contractors for that specific purpose.

Dr. Anderson expressed excitement for the formalization and institutionalization of the results frameworks, which are the type of instrument that can lead to a true learning agenda and accelerate progress. She stressed the value of the results framework for the whole community. Dr. Anderson noted with excitement that the Women's Empowerment in Agriculture Index (WEAI) was a critically important instrument for monitoring, measuring, and understanding the importance of women. Dr. Anderson asked about the collection of qualitative data to interpret the quantitative data, drawing upon the example of financial diaries used at the Bill and Melinda Gates Foundation as a tool for understanding, rather than speculating on, how poor people spent money in the context of financial services programming. She asked if USAID were considering tightening up not only the quantitative



framework but also the use of qualitative data. Dr. Hogue responded that each partner that enters data also submits a page-long performance narrative that can be used to explain the results. Longer, key issue narratives on specific topics can weave together these stories. In terms of more qualitative research, Dr. Hogue explained that targeted studies are carried out in which qualitative data are collected. For example, one study has looked at the spillover effectiveness of technology adoption or application to indirect beneficiaries. Feed the Future has been collecting qualitative data to understand why adoption is happening.

Dr. Ejeta celebrated the harmonization and collaboration effort with other partners, and he asked if this allows for a better understanding of filters that should be utilized to avoid multiple or double counting. He also wanted to know what tools, if any, exist. Dr. Hogue responded that these are excellent questions that had not yet been targeted. She noted that this would be ideal when looking at reach and accounting, not prevalence.

Dr. Anderson asked about the Women's Empowerment in Agriculture Index (WEAI) and other resilience tools. Dr. Hogue responded that these were analyzed while developing indicators. The WEAI—developed in 2011 as a partnership among USAID, IFPRI, and the Oxford Poverty and Human Development Initiative—looks at women's engagement and empowerment. It provides hard evidence that women are critical to agriculture but not fully engaged. This is detrimental not only on the economic side, but also on the nutrition side. The WEAI is an index that was developed to conceptualize empowerment as five, multifaceted domains whose results are compared using a gender parity index comparing women's empowerment to men's. The WEAI examines gender dynamics, not just empowerment in isolation but the relationships of women to men. The baseline data from the WEAI was used as a diagnostic tool, and USAID made changes to programs mid-stream on the basis of the data. Gender strategies did not previously account for such robust knowledge. The WEAI is dynamic and measures change within a household. Dr. Hogue noted that USAID is still grappling with indicators for resilience for the new results framework, which must be completed within the next year. Impact evaluations in Ethiopia, Kenya, and the Sahel have included indices for resilience on adaptive capacity and transformative capacities, which are probable candidates for inclusion. Other indicators need to be developed to show the nutritional impact of agriculture programs.

Chairman Deaton again thanked Dr. Hogue for her presentation and willingness to address some questions before introducing panel respondents: Pietro Gennari (UN Food and Agriculture Organization (FAO)), Richard Caldwell (Gates Foundation), and David Ameyaw (AGRA).

### **Perspectives of the Feed the Future Accountability Framework (Panel)**

Mr. Pietro Gennari, Director, Statistics Division, UN Food and Agriculture Organization (FAO)<sup>5</sup> emphasized the strong partnership with USAID, starting with the Global Strategy on Agricultural Statistics and improving agricultural surveys and harmonization of

---

<sup>5</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-gennari/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-gennari/file) for Pietro Gennari's presentation.

monitoring and evaluation systems. He noted the strong similarities between the Feed the Future framework presented by Dr. Hogue and the results framework of FAO. Additionally he noted that the alignment between the two frameworks lends itself to possible future partnerships. Mr. Gennari provided an overview of the FAO results framework, starting with FAO strategic objectives, which include: eliminating hunger, food insecurity, and malnutrition; making agriculture, forestry, and fisheries more productive and sustainable; reducing rural poverty; enabling inclusive and efficient agricultural and food systems; and increasing the resilience of livelihoods to threats and crises. All of the objectives contribute to global goals and indicators.

Mr. Gennari described the elements of the FAO enabling framework, which includes global progress, changes in country-level enabling environment and capacity to achieve strategic objectives, FAO's delivery of outputs, and technical quality and support. He also described how the FAO measures organizational outcome indicators. It uses secondary data, which is already in the public domain, and measures it against the country-level enabling environment needed to achieve specific FAO strategic objectives to understand the FAO contribution to progress. Two main data collection instruments are used: policy review of documents and opinion surveys of FAO stakeholders at the country level. There are three measurement stages: the corporate baseline assessment, corporate outcomes assessment (end 2015), and corporate outcomes assessment (2017). The corporate outcomes assessments are compared to the baseline assessment. The outcome assessment was developed using a survey design with a sample of 80 countries and six groups of respondents in each country. Respondents include representatives from government, academia, civil service organizations, UN agencies, donors, and financial institutions. The survey questionnaire included one section for each strategic objective.

Mr. Gennari then commented on the Feed the Future framework, specifically noting that as a result of the updates both FAO and USAID have made, they will now be able to compare the frameworks in more meaningful ways. Mr. Gennari noted that two Feed the Future objectives are well aligned with five of the FAO strategic objectives. Specifically, Feed the Future objectives 2 and 3 almost match FAO strategic objectives 1 and 5. He noted that Feed the Future objective 3 is broader than FAO strategic objective 1, and that work under this objective is also carried out by UNICEF and WHO. He noted that Feed the Future objective 1 is a combination of FAO strategic objectives 2, 3, and 4, leading him to ask: is Feed the Future objective 1 too comprehensive, and does it allow for the development of a meaningful result chain?

Mr. Gennari explained that the FAO results framework distinguishes between cross-cutting themes (i.e., priority objectives) and core functions (i.e., key means or instruments to achieve strategic objectives). In FAO's results framework, statistics is a core function of the organization important in the production of public goods and directly supports the work program of the different strategic objectives. Mr. Gennari provided a short overview of the incomplete monitoring and evaluation section of the document, noting that a complete list of indicators to monitor the new results framework is not yet developed and could represent an opportunity to work together and align. He raised questions about the need to develop

indicators at the right level of the results chain, the lack of counterfactual data to benchmark country performance, how USG support can be measured, and how FAO indicators will be aligned.

To conclude his presentation, Mr. Gennari spoke about the alignment with the 2030 Sustainable Development Goal (SDG) monitoring framework. He noted that the adoption of the SDG agenda—in which agriculture, food security, and nutrition have a major role—provided a unique opportunity to align the efforts of donors, countries, and allies of development around monitoring and evaluation. Alignment will reduce the costs of monitoring and the burden of data collection and will enable the identification of synergies and opportunities. FAO is working to align the strategic objectives of its results framework with the SDGs; this mapping process will be approved by FAO membership in December 2016. FAO is a custodian agency and will have a role in developing 21 of the SDG indicators (out of 230 total indicators), and this will have to be fully endorsed at an international level. Alignment is necessary also at the country level, and countries can select those targets that are more relevant to their work; however, if countries don't monitor the 230 SDG indicators, global-level monitoring and benchmarking progress against neighboring countries cannot be achieved. Therefore, FAO has been trying to convince countries to align national-level indicators as much as possible with the global indicators.

Mr. Richard Caldwell, Senior Program Officer, Monitoring Learning and Evaluation, Bill and Melinda Gates Foundation (BMGF), then presented<sup>6</sup>. Mr. Caldwell noted that the BMGF recently developed a new results framework and credited BIFAD member Pamela Anderson for helping to raise the importance of accountability when she worked at the Foundation. He acknowledged that the Foundation's goal had always been to get people out of poverty, primarily through agricultural productivity investments targeting subsistence smallholders, but their focus is now shifting support to inclusive transformation of subsistence, farm-centered agri-food systems to more commercialized, diversified, productive, and off-farm-centered systems. Specifically, BMGF emphasizes productivity for consumption, moving agriculture to contribute to economic growth, integrating agriculture into the macro economy, and promoting agriculture in industrial economies. There are five stages of agricultural transformation, and the Foundation is primarily focusing on countries in transformation stages zero to two.

Reflecting on the FAO and Feed the Future results frameworks in comparison to the BMGF results framework, Mr. Caldwell observed that there is not a lot of difference. All three are trying to get smallholders out of poverty. The Foundation is still working to standardize its indicators and has been using a scorecard approach, starting with “dashboards” as a tool to help understand the critical elements for defining whether a sector is successful or not. These evolved from Bill Gates' original request for a “report card” for agriculture similar to ones that had been used in the health sector to get a conversation going on why health systems were doing poorly. Nine dashboards were developed in such areas as gender,

---

<sup>6</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-caldwell/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-caldwell/file) for Richard Caldwell's presentation.

nutrition, fertilizer systems, seed systems, extension systems, livestock, policy, and agricultural productivity. These dashboards were limited to what the BMGF believed a community of practice would use to determine how each system or service is functioning and so far have only been used in the geographic areas where the BMGF operates. The dashboards were challenging and time consuming to develop but are now being made public and have helped to energize discussions by experts on what should be measured and what actions should be taken. The dashboards have been used to understand what indicators are actionable, including quality of extension services or the quality of fertilizers being purchased or used. Another example provided by Mr. Caldwell was agricultural productivity, with indicators like labor productivity, total household income per capita, crop production income, livestock production income, land productivity, area-weighted cereal yield, crop production cost per hectare, cost of crop production, and cost of livestock production.

Living Standards Measurement Survey (LSMS) data have been used as inputs to the dashboards, including plot-level data. For the first time, BMGF has been able to disaggregate how farmers are managing fields and crops and who in the household manages the plots. More transformative work on gender has come out of LSMS that has helped support greater understanding of the productivity differences between men and women, who makes decisions about what to grow, and who captures the income.

At the same time, data gaps exist, and there are challenges in developing strategies for cost-effective data collection and decreasing the cost of measurement. A two- to three-fold reduction in survey cost would be needed to make surveys sustainable, and a fundamental shift in how household surveys are carried out is needed. Surveys currently cost \$120 per household and may take up to four hours of a respondent's time. BMGF continues to develop the dashboard prototype and is working as a partner to influence the process of agriculture scorecard development by the African Union for the Comprehensive African Agricultural Development Plan (CAADP) and to ensure that scorecards are actionable. He further noted that the Foundation had received a request by ten states in India to develop an agricultural scorecard there, as there is real movement in India to use accountability frameworks like scorecards and dashboards to stimulate innovation.

Caldwell emphasized the uptake of technology as a key indicator and the importance of measuring the proportion of farmers adopting new varieties of staple crops where the Foundation has investments. DNA fingerprinting has been used by the BMGF to estimate the uptake of new genetic resources because expert opinion is not reliable, especially for new emerging varieties. The results from the effort have unfortunately called into question all adoption studies; using DNA fingerprinting analysis, the Foundation has come to understand that the nature of bias or the direction of bias cannot be well understood; higher proportions of farmers are using improved varieties than one would guess based on interviewing, but at other times, the opposite trend was encountered. The cost of DNA fingerprinting is currently \$65 per sample and is projected to come down to about \$10 a sample.

Mr. David Ameyaw, Director, Monitoring and Evaluation, Alliance for a Green Revolution in Africa (AGRA), presented<sup>7</sup> on the challenges of being a recipient of funding from, and being accountable to, multiple donors. Mr. Ameyaw noted that audience members should be able to see why organizations like AGRA are confused about which approach to use in terms of indicators and monitoring and evaluation. AGRA tracks agricultural transformation in Africa, and its point of reference is the Malabo Declaration, which is linked to the SDGs. The strong emphasis of the Malabo Declaration on inclusive growth is consistent with both USAID and BMGF priorities. Mr. Ameyaw noted that the CAADP Goal, Agricultural Change and Sustained Inclusive Agricultural Growth, is similar to a Feed the Future goal. AGRA is focused on productivity improvement and adoption of improved staple crops by smallholders, not commercial farmers. This approach limits how far AGRA can go in fitting its results framework to those of BMGF, Rockefeller Foundation, USAID, DFID, and IFAD. Mr. Ameyaw noted that AGRA is developing an accountability framework that meets its original mandate, which is CAADP and the SDGs, but also meets donor needs. AGRA has two programs for USAID: 1) strengthening input and output markets in Africa; and 2) scaling seeds and other technologies. AGRA is in the process of developing a new Global Development Alliance with USAID.

Demonstrating results to different audiences is a challenge. Mr. Ameyaw articulated five expectations of a monitoring system: 1) to provide data and to generate knowledge in order to assess success or failure, and to adjust programs based on evidence; 2) to support decision making by management; 3) to provide accountability for financial support; 4) to generate learning that will inform the development, adaptation and scale-up of models that can be used in an Africa-based culture and context; and 5) to broaden knowledge of agricultural development.

Mr. Ameyaw acknowledged that selection of, agreement on, and acceptance of indicators by all donors is extremely challenging. For example, many donors disagree about whether or not to report yield or yield gap. AGRA has developed a scorecard to show progress in agriculture, and he felt that AGRA can contribute to multiple intermediate results in the new US Global Food Security Results Framework, as well as to the SDG agenda. Another challenge is the demand for different levels of data collection and aggregation: continental data, data from sub-Saharan Africa, data at the level of regional economic zones, and country-level data. He noted that different countries have different baseline data, and that common targets cannot be set country by country. Also, because countries cut across ecological zones, it is challenging to set common targets even within a single country; targets must be set at the regional level and at the farmer level. He called for the development of tools so that each level can collect relevant data and present the right data to the right audience.

Mr. Ameyaw stated that AGRA is setting up a center in Africa to promote M&E that is more culturally and context specific and would like to work with other organizations to

---

<sup>7</sup> See [http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD\\_Library/2016-wfp-presentation-ameyaw/file](http://www.aplu.org/projects-and-initiatives/international-programs/bifad/BIFAD_Library/2016-wfp-presentation-ameyaw/file) for David Ameyaw's presentation.

develop a common framework based on the SDGs, the Malabo Declaration, and the multiple donors contributing to Africa, as well as data collection tools that reduce costs through use of technologies like SMS, remote sensing, and VOIP. Mr. Ameyaw concluded with the statement: “if you cannot count, it doesn’t count” and called for the need for a results framework demonstrating agricultural transformation in Africa.

### **Opportunity for Questions and Answers between the panelists, BIFAD board, and the public**

Mr. Caldwell emphasized the importance of a strong counterfactual to be evidence based. He was still unclear how USAID addresses this. BMGF invests in randomized controlled trials (RCTs) to get at the counterfactual, even though they are expensive. Many things are measured at the farmer organization level, where it is challenging to identify a counterfactual. Another challenge is the high cost of measurement at the household level. Mr. Ameyaw shared that he is appreciative that the FAO is working to align indicators and serving as custodian of so many agricultural indicators. CAADP, AU, and AGRA have been working on joint scorecard showing progress in agriculture, and Mr. Ameyaw wanted to know how they could collaborate with FAO so that the SDG goals indicators are an integral part and not an add-on.

Mr. Gennari raised the concern that countries have a strong desire to regain control of their statistical systems, and the lack of involvement of national statistical systems has created tensions and has duplicated effort. It is critical that efforts be coordinated with national statistics systems so that all can benefit from the same data sources and reduce costs. To respond to Mr. Ameyaw’s question, Mr. Gennari said that by harmonizing donors’ and international community development partners’ results frameworks, we can ensure that organizations and countries do not have multiple and conflicting requests. Mr. Gennari felt that the SDGs present an opportunity for harmonization. Mr. Gennari also mentioned the need for survey instruments that are more flexible to accommodate different purposes and data requirements responding to multiple questions. FAO is working with USAID and BMGF to develop an integrated program of agricultural surveys that can be adapted to different contexts and countries and can provide instruments for collecting the information needed on smallholders, farm management, and other data that donors are requesting.

Mr. Ameyaw, responding to Mr. Gennari’s point about national statistical systems, mentioned his previous work at the Millennium Challenge Corporation to build the capacity of national statistical bureaus in Lesotho and Mozambique and to support a national agricultural survey. National statistical bureaus face competing demands of carrying out the LSMS, the DHS, the national accounts, enterprise surveys for the formal and informal sectors, and the agricultural census. The seasonality of agriculture and lack of time and capacity of enumerators to collect data present substantial challenges, especially when specific data must be collected across multiple geographic zones to provide accountability in intervention zones. Mr. Ameyaw mentioned that only three countries in Africa conduct regular agricultural surveys on an annual basis; surveys in other countries are 10 and 15 years apart resulting from the multiple demands on time.

Dr. Anderson thanked the panelists for their thoughtful and thought-provoking presentations. She asked Mr. Gennari what it means for the FAO to be a custodian of SDG indicators. Going back to the harmonization effort that was launched, Anderson noted, her assumption was that the conversation was around common indicators and how to harmonize them to accelerate progress and to reduce the burden on implementers. In a way, she noted, SDGs have almost become the new common indicators; she asked if there was now a pivot toward asking how we work together to develop tier 2 and 3 indicators and influence those indicators. Which indicators are we going to accept? She noted that it becomes more of an alignment. Dr. Anderson urged the reactivation of the harmonization group because it is needed, given that a new global framework now exists. She asked panelists to describe what the harmonization group needs to do, what is needed to relaunch as a community of practice, and the obstacles to getting back on track.

In response, Mr. Gennari commented that the custodian role of international agencies, which he pointed out is somewhat contested by developed countries, is a multiple role. Custodian agencies have the responsibility to 1) develop methodologies, including identification of data sources and compilation of indicators; 2) to collect data and report globally, including information collection, harmonization, data aggregation, and production of reports; and 3) capacity development to enable countries to develop indicators that can be included in national master plans for agricultural statistics by providing tools, instruments, and training. Mr. Gennari also described the SDGs as a “game-changer.” He pointed out that in the era of the Millennium Development Goals (MDGs), there was a very limited set of development indicators, but the scale of indicator development has increased enormously under the SDGs and looking for additional indicators makes sense. He argued for the need for donors to stand behind the indicators developed by countries, which puts donors in a good position to leverage country efforts to monitor those indicators. The common indicators are selected by a statistical commission where all countries are represented. He emphasized that we have an opportunity and a way to use a common indicator framework. Responding to Dr. Anderson, Mr. Caldwell commented that time is the biggest impediment. He noted that data staffs are small and very busy. Harmonization worked before when there were just a small number of people dedicated to M&E. He recommended identifying champions who can take the issue forward. The SDGs are high-level outcome indicators but, importantly, do not get down to actionable steps. If trends like child stunting are not going in the right direction, there is a need to understand the underlying causes that organizations can rally around to move forward. Mr. Caldwell suggested that the harmonization group could look at the methodologies around how to collect the data, not the indicators themselves, and could achieve some standardization around that.

Mr. Ameyaw replied that his experience has allowed him to know both sides, as a donor and as an implementing partner, and he felt that it is easier to rally around the high-level indicators, like child stunting. However, when it comes to how countries can use the indicators, they need to be able to break a concept, like stunting, down to everyday life and make it applicable, rather than theoretical or broad, so that it can be understood by

politicians. A national monitoring framework needs to build the capacity of countries and develop something they can apply to their country and context and use to be accountable not to the big organizations, but to the citizens. He indicated that he has heard people ask “where are we?” in the context of the SDGs. In conclusion, he said, we need to be able to develop a monitoring framework that can be communicated to citizens using “street language” indicators.

Dr. Hogue agreed that time and workload were significant issues. Another obstacle is competing priorities. In her experience, USAID did best at harmonization when there was a push from leadership and a clear objective. USAID’s leadership is expecting a food security learning framework, and the SDGs are the place to get back together and work on areas like methodology development, utility of indicators, answering questions that make indicators more actionable, and planning for filling in data gaps.

Dr. Ejeta expressed a concern to Mr. Caldwell about monitoring and evaluation instruments that have come from the health field, wondering about the issue of parallel or lack of parallel between health and agriculture. He asked if there has been pushback and about the extent of iteration the Foundation had gone through to sharpen the monitoring and evaluation systems to be true to agriculture.

Mr. Caldwell responded that the learnings from health and education are now being picked up in the Foundation’s agriculture work, but that there is still a long way to go. Randomized controlled trials have been used in health and education for decades, and an extensive body of evidence has been generated to make decisions about how to intervene. This has just started in agriculture. In BMGF’s Agricultural Technology Adoption Initiative, for example, RCTs were used for the first time in 2009. While there have been many learnings from education and health, Mr. Caldwell said that he has always argued that agriculture is different and more complicated. BMGF learned from the primary health care performance initiative that to improve primary healthcare outcomes, there are underlying factors that drive change at a sub-regional level in a country. But education derives most data from schools, and health data come from clinics. Agriculture is so different because data come from households, and this is expensive and makes the noise in the data large. Measurement systems in agriculture are still nascent; there is often agreement on what to measure more than on how to measure and where to measure. Mr. Caldwell spoke of the need to commodify data. He also spoke of the large burden we place on farmers to respond to multiple surveys, and this is also different from health and education, where questions are directed at highly paid individuals. Mr. Ameyaw added that medical advances have helped to solve big issues like malaria, HIV, and Ebola in a short period of time. Agriculture is different because of the heterogeneity of crops planted, land issues, land composition, nutrient requirements, language systems, and farming systems. In comparing the Green Revolutions of Africa and Asia, he noted that there was not a single farming system or commodity being promoted in Africa that would work like rice or wheat in Asia. It is difficult to adopt methods and systems that work in education and health and apply them to agriculture. He noted that we can learn from other areas’ techniques, but cannot compare or borrow readily.



Chairman Deaton opened the discussion to the public and recognized among the audience participants former BIFAD Chairman, Robert Easter, President Emeritus of University of Illinois, and former Minister of Agriculture from Liberia, Florence Chenoweth. He commented that in the context of the Global Open Data for Agriculture and Nutrition, or GODAN, there is a vast hunger for data, including highly specialized data. He mentioned that when crises like the Ebola epidemic occur, data are often lacking to take the next step. The concept of open data has been endorsed in the United States and other countries and by the Obama Administration.

The first question was from Dr. Samantha Alvis from the Association of Public and Land-grant Universities in Washington, DC, who asked about the role of universities in the monitoring, evaluation, and learning of the new Global Food Security Act implementation strategy. Chairman Deaton commented that universities are involved in many measurement aspects of USAID projects worldwide. For example, impact assessment work by universities has increased our understanding of how food aid programs have increased asset formation at the household level. Dr. Deaton emphasized that it is vital for universities to carry out this type of research in supportive ways, not just through Innovation Labs, but also through funding from other institutions, governments, and foundations to address issues germane to what USAID is doing. Partnership with universities is fundamental, with a primary role of BIFAD to ensure that university expertise is called to the attention of USAID.

Mr. Caldwell said that DFID and BMGF have co-funded the Agricultural Technology Adoption Initiative (ATAI), a 7-year investment led by MIT's Abdul Latif Jameel Poverty Action Lab (JPAL) together with the Center for Effective Global Action (CEGA) at the University of California at Berkeley. ATAI has been instrumental in bringing new researchers into the agriculture field, and universities have taken the lead in rigorous evaluation work. He suggested that universities could do more on the qualitative side, however. BMGF has invested in participatory impact and assessment learning approaches, an effort being led by European universities. He stated that universities are needed to push the frontier on the methods side. Mr. Ameyaw commented that AGRA is working with sixteen different university partners on rigorous impact evaluation of agricultural innovation interventions. These partnerships bring rigor, independence, credibility, and objectivity to impact evaluations, but a tension or challenge is the time needed to do agricultural research given the appetite by AGRA management and stakeholders to get information quickly. Mr. Ash commented that universities should continue to be as broad as possible with respect to subject matter disciplines related to agriculture through an interdisciplinary approach, ensuring social sciences are involved. The monitoring, evaluation, and learning field is a science unto itself, and these programs need to be brought into universities. Providing training and bringing capacity back on the ground is a huge benefit that universities can provide to students coming from abroad.

The next question was from Dr. Cynthia Donovan of Michigan State University. She noted that universities are often engaged in upstream approaches, and, based on the indicators described in the presentations, research is not valued in development until it reaches users.

She wanted to know if this results in an underinvestment in research. Chairman Deaton commented that data should be a public good, but a problem with public goods is underinvestment by countries seeking specific data demanded by their citizens. An increased focus on citizen outcomes can help to ensure that investment is there for the knowledge that is required. Mr. Gennari also noted that data access is essential to spread knowledge and to enable various constituencies to make use of data and respond to questions of the learning agenda. There are large investments in data collection that don't pay off because data remain in the drawers of statisticians. The national statistical offices don't have the time or capacity to analyze the data and produce very narrow, poorly disseminated reports. Data should be made available to other entities—academia and civil society—with both the time and resources to further analyze or make use of collected data. Dr. Anderson commented that this was an interesting question and noted that, from her former position in the CGIAR, she found that there were risks when trying to identify upstream research as part of an articulated impact pathway. Funders wanted to know the output and how those translated into outcomes and impacts, but this approach runs the risk of damping down creativity. Even though it may reduce visibility, it is very important to leave space for creativity and to not force research into impact pathways too soon in the research process. Chairman Deaton agreed, noting the long-term nature of research.

Dr. Tom Byers of Washington State University commented on the direct relationships many universities already have with non-governmental organizations (NGOs) abroad that they have either helped to develop or have collaborated with over the years. Many of those NGOs have monitoring and evaluation capability that comes and goes with projects. He noted that these NGOs could benefit from university support to keep these M&E units such that they could provide data that have been requested for the development of indicators. Chairman Deaton agreed, as did Mr. Caldwell. Mr. Caldwell also noted that one challenge is that NGOs often work in a particular region of a country and thus do not have a national perspective. BMGF has been supporting several institutions to build regional capacity. Tegemeo Institute, in Kenya, serves as a think tank for the government but also has a private sector offshoot that can provide support to organizations and governments. In West Africa, BMGF has supported the Institute for Social Science and Economic Research at the University of Ghana. But the demand is larger than two institutions can provide. NGOs can be a viable alternative, as long as one can sort out issues about what NGOs work on and where they work. Mr. Gennari added that NGOs are a viable alternative provided they are well coordinated with the national statistical institutions. If they are not coordinated, he argued, the data is likely to end up being unused and thus the time, energy, and resources would be wasted. Mr. Gennari added that data collection is lagging behind in agriculture compared to other sectors because it has suffered from years of disinvestment at the same time other sectors were privileged. He noted the importance of looking at a national statistical system—not just the statistical offices—which can have multiple data providers. These should be well coordinated, have common methodologies, and be able to not just produce results for monitoring specific interventions but also generate representative data that can be used by everyone. Finally, Mr. Ameyaw cited a Michigan State University project in Mozambique that supported the agricultural survey and worked with the national

institute of statistics to collect data. This type of project can build capacity for local institutions to take over in the future. Mr. Ameyaw described how the Bureau of Statistics in Mozambique worked with NGOs to build their local capacity in household listing, sampling, quality control, and questionnaire review, for a fee.

Ms. Stella Salvo from Monsanto asked Mr. Caldwell about the shift from agricultural transformation to industrialization, specifically wanting to hear about any interest in increasing the resolution of the surveys in terms of the environments from which they are coming, e.g., from a country-specific to a mega- or micro-environment scale. She asked if transformation could be captured in a regional, community-specific scale and if dramatic changes coming from a community—or “halo” effect”—could be tracked. Mr. Caldwell responded that this is desired, but there are challenges in cost and in getting the attention of heads of state. If productivity is lagging in Tanzania, for example, extension programs might be a weak link. Getting the head of state to recognize that weakness is a first step, and then this can be broken down regionally or sub-nationally. If it is broken down sub-nationally, there needs to be prior evidence that there is a weakness in the system. To aggregate up from the micro level is not feasible because of the cost. In India, for example, there are states with variable performance. States doing well—like champion villages—can be identified, and other states can be challenged to borrow the lessons and to replicate them, if replicating success is possible in a different context. In summary, there is a great need for higher resolution but many challenges. Chair Deaton added that he always urges graduate students to focus on outliers in data and to understand the causes of these anomalies.

Ms. Salvo expressed interest in the types of metrics used and asked about the role of the private sector. Mr. Caldwell gave an example from the fertilizer industry. The private sector has great data on fertilizer coming into ports: whether it is bagged on or off deck or out of the port, what impact that has, and the cost metrics. What industry does not know is what is happening at the household level. Industry is extremely interested in accessing data on how households are using fertilizer. He argued that industry has a role in releasing data and informing downstream information. There are also great advantages to sharing household data with the private sector to motivate them, because they may not see that an economic opportunity exists. When industry finds out that 17 percent of households in Tanzania are using fertilizer, there is an economic motivation to increase that number, so they have to understand the barriers to households using fertilizer. There is a demand for partnership, but it is as yet unexplored and underexploited.

Mr. Ash added that at the previous BIFAD meeting, held at North Carolina A&T University, BIFAD members had discussed this issue as well. He noted that the consensus was that industry does some things extremely well, including gathering and processing information with a goal in mind. People in a business must figure out what information is needed, how to process that information, and how to make a decision with that information on the back end. Businesses have the opportunity to inform the community on better ways to get information and how to incentivize people to give information. Business has connections through its distributions system, agents, and community actors who can all

gather information. They must just ask more questions than “will you buy X?” Dr. Anderson added that there are skill sets that the private sector has and doesn’t realize it has. Agricultural transformation will not happen unless smallholders and women can acquire financial and business skills—and a product development and delivery mentality. Training and teaching are necessary for this.

## **Conclusion**

Chair Deaton concluded the meeting by thanking Board members, participants, and attendees, both in person and online. He added that we are entering a revolutionary period in data needs and data analysis potential, with all the information technology that we now have. The recent GODAN summit in New York highlighted that point, particularly pointing to the private sector as an active participant in the tremendous needs for research. There is a clear link between outliers and nationwide data sets. Knowing we’re on track to achieve food security goals by 2030 or 2050 requires in-depth data and aggregate sets by country. The costs involved in managing large amounts of data are substantial; public-private partnerships and making data open will be critical. The public good, propriety and privacy aspects of data and the availability of data to inform citizens and drive policy decisions are other serious questions needed to discuss. Linkages with universities and students will also be important for collaboration and to gain new insights rapidly. Chairman Deaton commented that the transdisciplinary nature of knowledge generation and utilization suggests that we are entering a revolution over the next 30 to 50 years in designing new data sets, data points, archiving systems, and sharing systems. The continual building processes and dialogue among universities, USAID, and other partners are critical to continue to address issues of hunger, stunting, and malnutrition.

Chairman Deaton adjourned the 172<sup>nd</sup> public meeting of BIFAD.