

**BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT
178TH PUBLIC MEETING
IMPROVING NUTRITION THROUGH PRIVATE SECTOR ENGAGEMENT ACROSS FOOD SYSTEMS**

Meeting Minutes

**Des Moines Downtown Marriott | Davenport and Dubuque Rooms
700 Grand Ave. | Des Moines, IA 50309
Tuesday, October 16, 2018**

MEMBERS PRESENT:

Mark Keenum, Board Chairman, President, Mississippi State University
Brady Deaton, Chancellor Emeritus, University of Missouri
Gebisa Ejeta, Professor, Department of Agronomy, Purdue University
Pamela K. Anderson, Director General Emeritus, International Potato Center

Speakers

Joseph Glauber
Rob Bertram
Lawrence Haddad
Will Masters
Beth Mitcham
Richard Tracy

Betty Bugusu
Gladys Mugambi
Heather Danton
Godfrey Bahiigwa
David Dayhoff
Karin Lapping
Jean Pankuku

Welcome and Opening Remarks

Mark Keenum, President, Mississippi State University and Chair of BIFAD

Dr. Keenum greeted the in-person and on-line audiences and called the meeting to order, introducing himself and giving a brief background on BIFAD. He then described the meeting's primary purpose: to examine the public and private sector relationship at different points in the food system to improve the demand, availability, accessibility and affordability of high quality diets to vulnerable populations. He then noted that recommendations from the meeting would be used to inform future USAID's programs and studies. Dr. Keenum introduced the BIFAD board members, and then invited guests present from the Borlaug LEAP Program to stand for recognition. Finally, he encouraged public comments from the audience and welcomed fellow Board Member Dr. Gebisa Ejeta to announce the recipients of the 2018 BIFAD Awards for Scientific Excellence.

Announcement of the BIFAD Prize for Scientific Excellence in an Innovation Lab

Gebisa Ejeta, World Food Prize Laureate and BIFAD Member

Dr. Ejeta expressed his regret that fellow Board member and chair of the award committee, Waded Cruzado, President of Montana State University, was not present to announce the award herself. He explained that two awards were offered every year, one to a senior researcher or research team and the second to a graduate student who has excelled in conducting agricultural research on a specific problem. The criteria for the award include: demonstrated creativity in bringing about long-lasting, sustainable improvements in international food and agriculture; evidence of sustainable increases in food security and economic growth without degradation to the environment; and success in communicating and disseminating research results to other peoples and places.

Dr. Ejeta announced that the senior researcher prize was to be awarded to Dr. Hillary Egna and her research team from the Feed the Future Innovation Lab for Aquaculture & Fisheries, led by Oregon State University. This team includes six prominent scientists from the United States, Vietnam, Kenya, the Philippines, and Bangladesh. The award recognized the team for its work to address the critical production constraints of feed costs in aquaculture enterprises. The AquaFish Innovation Lab team focused on finding low-cost alternatives to fishmeal as a protein source in aquaculture diets for both small-scale and medium-scale farmers.

The AquaFish Innovation Lab research team included, in addition to Dr. Egna:

- Dr. David Bengtson, Professor Emeritus at the University of Rhode Island;
- Dr. Remedios Bolivar, Professor at Central Luzon State University, Philippines;
- Dr. Russell Borski, Professor at North Carolina State University;
- Dr. Charles Ngugi, Courtesy Professor at Kenyatta University, Kenya;
- Dr. Tran Thi Thanh Hien, Associate Professor at Can Tho University, Vietnam; and
- Dr. Md. Abdul Wahab, Professor, Bangladesh Agricultural University.

Dr. Ejeta announced that the graduate student researcher prize was to be awarded to Mr. Mohammad Mokhlesur Rahman, a Ph.D. candidate in genetics at Kansas State University. The award recognized Mr. Rahman for his pivotal role in establishing Bangladesh's largest wheat testing nursery, where over 1,800 candidate lines have been tested. This has helped identify promising heat-tolerant varieties for the country's wheat farmers.

Dr. Ejeta then explained Mr. Rahman's background, as he is currently a fellow with the Borlaug Higher Education for Agricultural Research and Development (BHEARD) Program, funded by the U.S. Agency for International Development and administered by Michigan State University. He is completing his doctoral research in affiliation with the Feed the Future Innovation Lab for Applied Wheat Genomics at Kansas State University, also funded by USAID. Mr. Rahman grew up in a farming community, spending many of his childhood days helping to cultivate rice, jute, wheat, vegetables, pulse, and oil crops on his family's five acres of land. Mr. Rahman has been responsible for establishing, implementing, and evaluating field trials for the new wheat testing nursery over the last four years. He has led implementation of electronic data capture and high-throughput phenotyping approaches that are modernizing breeding technologies in Bangladesh.

Update on BIFAD Commissioned Study on US Benefits of USAID Investments in Developing Country Agriculture and Food Security

Joseph Glauber, Senior Research Fellow, International Food Policy Research Institute

Dr. Keenum said that BIFAD was asked by Administrator Mark Green to carry out an in-depth study of the benefits of

USAID's agriculture and food security investments for the United States, and that BIFAD had commissioned a team from the International Food Policy Research Institute, led by Dr. Joe Glauber, to lead the study. He introduced Dr. Glauber and invited him to deliver his remarks.

Dr. Glauber remarked that in his initial conversations with BIFAD on the study, he was struck by the timeliness of the study. It is a legitimate question for people who are supporting research to ask what the benefits are, but it is a daunting task because it takes a long time to see the benefits of R&D. All the evidence from studies over the last 20-30 years shows just how much return comes from dollars invested in R&D. He then explained the focus of the study: to examine USAID programs and investments in developing country agriculture and food security to assess how these programs benefit U.S. consumers and producers. He noted the inclusion of both direct impacts, which are easier to quantify, and indirect impacts, which are more difficult to quantify.

Dr. Glauber mentioned that the study will not address humanitarian food aid or nutritional food assistance programs but will instead focus on agricultural development efforts and their effects. These include increasing productivity and incomes in USAID partner countries that in turn affect purchasing power and demand for inputs. He discussed how USAID investments lead to a wide range of benefits, including environmental benefits (e.g., more strategic input use and reduction of greenhouse gas emissions) and spillover effects of research and development (R&D) investments (e.g., drought or responses to pests). Further outcomes include U.S. benefits from capacity building, bio-security (e.g., combatting pests and diseases), and geopolitical impacts.

He described the classic model of investment in R&D, which leads to improved productivity, which in turn leads to income increases and improved household purchasing power. A marginal increase in income for households that earn little income leads to purchasing more food and diet shifts. As households earn more money, they purchase more meat and more dairy products. This has implications for animal and dairy production but also for the products and feedstuffs that those animals eat. He gave another example of benefits to the U.S. soybeans and vegetable oil industry that stemmed from improved animal feed efficiencies achieved through USAID assistance in aquaculture and poultry production in developing countries like Bangladesh and Pakistan. US Department of Agriculture projections over the next 10 years indicate that soybean imports will increase for most Asian countries because of the development of animal production, some of which is attributable to US assistance.

Dr. Glauber continued that in addition to increased productivity, there are number of other avenues for spillover benefits that will be examined in the case studies selected. The United States benefits from monitoring and R&D investments on crop and animal diseases and pests and from the development of mitigation approaches, including resistant varieties.

Further benefits include those associated with capacity building investments that improve human capital. U.S. scientists, as well as those from countries that have received assistance and capacity building efforts, benefit from R&D collaborations and exchange.

Dr. Glauber also outlined the geopolitical benefits of investments in agriculture and food security. He cited the correlation between food riots in Africa and high food prices during the 2007-8 food price crisis. The causality of such benefits from USAID investments is currently being investigated.

Dr. Glauber concluded with remarks on the challenge of quantifying these benefits. There is a wealth of literature on the benefits of R&D investments. IFPRI is working to relate those results to poverty and household food

expenditures. His team's approach is to model those benefits with data when available, but also to rely on digging into individual case studies.

Dr. Keenum thanked Dr. Glauber and mentioned that the target date for delivery of the study is the spring of 2019.

Bureau for Food Security Remarks

Rob Bertram, Chief Scientist, Bureau for Food Security, USAID

Dr. Keenum next introduced Dr. Rob Bertram. Dr. Bertram expressed his excitement over Dr. Glauber's work and leadership on examining the multiple dimensions to the benefits study, including those tied to resilience. He congratulated Lawrence Haddad and David Nabarro, the 2018 World Food Prize Laureates, for their work in the Scaling Up Nutrition work. He also congratulated the BIFAD prize recipients Dr. Egna and her team and Mohammad Mokhlesur Rahman.

He mentioned the President's recent signing of the five-year reauthorization of the Global Food Security Act and read brief comments from his colleague, Dr. Beth Dunford, who heads the Bureau for Food Security and, with USAID Administrator Mark Green, leads USAID's whole of government work in food security. Dr. Dunford noted that the reauthorization of the Global Food Security Act reflects bipartisan support in Congress for Feed the Future efforts as well as the Administration's commitment, and bears witness to progress made in reducing hunger, poverty, and child stunting. However, the last two years have shown growing numbers of food insecure people, especially in areas linked to conflict. She believes that this year's World Food Prize focus on nutrition is especially fitting, since the Global Food Security Act has elevated attention to nutrition. She hoped that the discussions will demonstrate the importance of food security and nutrition to NGOs working in refugee situations, across efforts in resilience, through public and private sector engagement, as well as in Feed the Future research and capacity building.

Dr. Bertram then acknowledged the economic impact of the food security issues, noting that the President of the World Bank, Jim Kim, has stated concerns to developing country finance ministers about the detrimental effects of child stunting to building a competitive global knowledge economy. Every dollar invested on nutrition that mitigates under-nutrition and stunting is associated with strong economic outcomes. Bertram stated that public policy will remain a major area on which USAID will engage moving forward.

Second, there is opportunity in the food industry to develop more convenient, nutritious, and affordable foods through the integration of products like legumes, beans, cowpeas, ground nuts, or vegetables. These foods would not only be more nutritious and affordable but also would save women time in preparing them, which is a key issue in the developing world. These efforts would be a win-win for producers and consumers, and they would also generate jobs across those value and value-addition chains.

Dr. Bertram also noted that, third, private investment on the farm and across the food system is critical to ensuring that smallholder farmers are able to supply cities and towns with diverse, nutrient-rich foods. The value chains in horticulture and animal-source foods are more knowledge intensive, which makes production more challenging, but these foods are often more profitable, too, which gives an incentive for production. Private sector involvement in better technology, markets, information, infrastructure and value addition will be a critical element to achieving goals in hunger and poverty reduction. Dr. Bertram noted that assuring micronutrient-rich and safe food will require investments from the private sector to improve value chains and processed foods. He noted that to this end, the

launch of the new Innovation Lab on food safety would be an important contribution. In closing, Dr. Bertram reiterated his excitement about these efforts and thanked BIFAD.

Keynote Address

Lawrence Haddad, Executive Director, Global Alliance for Improved Nutrition

Dr. Keenum introduced Dr. Haddad, the World Food Prize Laureate for 2018. Dr. Haddad congratulated BIFAD and USAID on choosing such a timely topic. It is an emerging area, and many in the nutrition community have realized that the Sustainable Development Goals cannot be achieved without the involvement of the private sector, but the question is how, when, where, and why. GAIN is one organization where nutrition and business meet, and Dr. Haddad was happy to talk about learnings from GAIN's experience. He explained that for his presentation, he would make '10 points in 10 minutes'.

Dr. Haddad's first point was that when we think about malnutrition, we usually think about hunger. That is a tragedy and also worrying, because the numbers of hungry have been on the rise for the past two years. Additionally, there are another two billion people who are micronutrient malnourished, and another two billion people who are overweight and obese. When those different forms of malnutrition are combined, at least one in three people on the planet suffers from some manifestation of malnutrition. Poor diet lies at the center of all of these manifestations of malnutrition. While a number of other factors contribute to this, including healthcare, water and sanitation, women's empowerment, physical exercise and urban planning, diet is the common denominator.

Second, poor diet has consequences for the burden of health. The Institute for Health Metrics in Seattle, funded by the Bill and Melinda Gates Foundation, produces an estimate of the global burden of disease, which puts together mortality and morbidity data at the state, country, and global levels. In India, for example, of the top 10 risk factors responsible for that country's burden of disease, six of those are related to diet. In Iowa, five of the top seven risk factors are related to diet. Diet is important for all countries, not just developing countries.

Third, food systems are the main factor that shape diets, as they impact what is available, affordable, and desirable. They shape the demand, supply, and the enabling environment.

Fourth, businesses are the main investors in food systems, so if we want to shape food systems so that they make healthful choices easier, it is important to understand and engage businesses in this work.

Fifth, people in the nutrition community (more often than the agricultural community) often do not want to work with businesses, because of a notion that businesses are only interested in profit, not nutrition. However, Dr. Haddad said that not working with businesses is living a 'fantasy world', because most people acquire their food from markets. World Bank LSMS data show that even in rural areas like Ethiopia, 50% of food that is acquired comes from markets. In countries like India, Bangladesh, and Nigeria, that number is much higher, around 80-90%. In 1980s, most people got food through semi-subsistence agriculture, but that is changing fast. That is important because prices for non-staple food (i.e., nutritious foods like fruits, vegetables, beans, dairy, and fish) are increasing rapidly. Data gathered from IFPRI in Ethiopia have shown an increase of 50-60% in the price of non-staple food over a 5, 6, and 7 year period.

Sixth, businesses are a part of the problem, especially around issues like diabetes, hypertension, cancer, and

consumption of highly processed foods, etc., but they have to become a big part of the solution as well.

His seventh point was that it is important to deconstruct how we think about what “business and the private sector” means, because it means different things to different people. Dr. Haddad said that there are four ‘buckets of business’ important to food systems: the first includes businesses that work on fortification and re-formulation. This involves taking foods that are already consumed and adding micronutrients to them and removing trans fats, sugars, and salt. These processes are much more complicated than many think. There are a number of food safety, demand creation, regulation, trade, tariff, standards, tax, and capacity development issues, in addition to the technical reformulation issues, that make these processes very complicated. The second type includes those businesses already involved in value chains that produce foods that are part of a healthful diet (i.e., dairy, fish, eggs, horticulture). It is important to find ways to support these organizations. He mentioned that the World Bank’s Small and Medium Enterprise (SME) database found that access to finance is number one constraint to business expansion of small and medium enterprises throughout Africa. GAIN has worked with SMEs and larger companies to help them build capacity to develop investable propositions. The other half of the problem is that there are not enough investors. GAIN has worked to bring together investors and help the SMEs develop investable propositions to present. The third bucket of business is big multinational corporations, which dominate the soft drink industry (50% of soft drinks sold are the big 5-10 MNCs), but also account for about 15 percent of the food industry. Those companies are important because their behavior is a signal to national companies that may want to emulate them. He mentioned that governments need to be more activist about using both ‘sticks and carrots’ in terms of regulating and incentivizing multinational corporations. There are more ‘sticks’ than ‘carrots’ at the moment, including sin taxes, regulations, and standards. When faced with ‘sticks’, businesses tend to do the minimum; they also need ‘carrots’. There are many opportunities to incentivize businesses to produce things we care about. If sin taxes exist, then why not ‘virtue subsidies’? These incentives could include agricultural R&D; CGIAR research tends to be focused on staples and not on more nutritious foods. Very little R&D exists on fruits, vegetables, animal-source food, and dairy. The fourth category of businesses is those that are not directly involved in the food industry but greatly impact it and are important for the infrastructure of the food system. One example is marketing companies, which can help develop campaigns for healthful food and behavioral changes. Dr. Haddad suggested making these nutrition messages more exciting and noted that the private sector is very good at this. He suggested that healthful food messaging needs to blend the compelling, aspirational, non-logical messages of the private sector and the more educational, logical arguments made by scientists. Another example of this fourth type of business is storage and refrigeration companies, which are important to food safety issues.

His eighth point was that multi-stakeholder dialogues are necessary to make all of this happen. Collective analysis, sharing, and planning are needed at all levels to make a huge impact. This could happen on a national level, but also on a community level, or on platforms such as the World Food Program, the Fresh Platform, the World Business Council for Sustainable Development, the EAT Forum, etc. More platforms are needed at a national and sub-national level.

Ninth, information sharing is critical, which means the research community needs to do a better job of documenting when public-private partnerships work and when they don’t. Documentation and independent evaluation are vital to developing these public-private partnerships. GAIN is investing resources in getting others to evaluate its public-private work.

His tenth point was to engage private sector partners and businesses so that opportunities will not be missed. The

risks of not engaging with the private sector are often bigger than the risks of engagement, and how we manage the downside risks. He concluded with the notion that to change someone's mind, you have to have them in the room with you. Not taking the time to understand and find common ground leads to missed opportunities to advance nutrition for the most vulnerable.

Diet Transformation in the Context of Evolving Food Environments and Consumer Behaviors

Dr. Will Masters, Professor, Friedman School of Nutrition Science and Policy, Tufts University

Dr. Keenum then introduced Dr. Will Masters. Dr. Masters gave an overview of his presentation on diet quality, the levers of change that allow us to improve diets over time, and progress to date and what remains to be done. He summarized how diet quality and its influence on health have been measured, noting that research on food has played a key role in the history of science and history in general. Among the most important early uses of experiments to demonstrate causality was an 18th century finding that showed how limes prevented scurvy among the British navy, establishing the precedent that nutrition research can drive national security through military readiness in addition to public health for the population as a whole. The discovery that food had energy that kept people going, and that different foods had different quantities of it, dates to the 1770s.

A related example is the early 19th century French military search for food preservation technology, which led to the discovery that boiling and sealing preserves food, and the science of food safety. Over time the entire discipline of biochemistry of different food compounds (fats, carbohydrates, and proteins) and their differential metabolism in the body, the discovery of germ theory and the pasteurization of milk, and the early 20th century discovery and isolation of vitamins drove successive improvements in public health and national security in the countries that took advantage of each new discovery. Recently in the 1990s, enough evidence emerged about diet patterns for dietary guidelines to include recommendations about entire food groups that are protective in health, such as fruits and vegetables, rather than individual nutrients. Evidence about harmful substances, such as trans-fats, emerged as late as the 2000s. In the United States, this was taken out of the food supply.

Dr. Masters then framed current knowledge of day-to-day energy balance and long-term health needs. Daily energy needs are fixed around metabolic set points, while diet quality varies widely. Energy intake and needs are poorly measured, except in laboratories, but are driven by total body weight adjusted for physical activity, metabolism and disease state. Falling short in diets is most severe in infants under age two and has lifelong, irreversible consequences; excess consumption accumulates in later life and has metabolic impacts in the long term.

Higher quality diets are key to improving body composition and health, as different energy sources (protein, fats, and carbohydrates) are metabolized differently; 'essential' nutrients (vitamins and minerals) are needed for specific functions; and many other food attributes (fiber, omega-3, etc.) alter health and disease risk. Some food attributes have U-shaped benefits, in which a little is beneficial but too much is harmful (e.g., sodium), and some harmful components may be newly discovered (e.g., trans fats) or ancient (aflatoxins and fumonisins from molds in grains).

His next points focused on how diet quality can be changed to enhance long-term health while meeting daily energy needs. The oldest, deepest lever for improving diet quality, he said, is income growth, and this predates the scientific improvements. More wealth means people can buy better food. It makes a huge difference to provide cash or in-kind assistance. Making healthful foods more accessible and less expensive can also have a big impact on improving

diet quality. Cultural norms and preferences also can have a huge impact on diet quality. For example, poor people eat a larger fraction of their meals away from home because fire and cooking are more expensive.

Standards and regulations are the most essential dietary change lever in a discussion about the private sector role because they are so foundational to a healthy market and to competition and growth of firms that have the trust of consumers. The first basic food law was Britain's system of Assizes, by which local authorities were empowered to regulate manufactured bread and ale in the Middle Ages. Dr. Masters gave historical examples of food standards and regulations in the United States, including establishment of regulatory agencies in 1906 (Food and Drug Administration (FDA) and USDA's meat inspection service), the U.S. Supreme Court 1924 ruling outlawing of false advertising, the 1938 FDA establishment of packaged food standards, the 1958 FDA definition and regulation of additives, the 1990 regulation of differentiated kinds of foods and introduction of organic standards, the disclosure of nutrient composition of packaged foods (1993) and restaurant menus (2018) using nutrition fact panels, and the identification and removal of harmful compounds such as trans fats, from foods (from 2006).

Dr. Masters shared a chart of FAO data showing progress to date in dietary transformation in countries around the world: people moving from not having enough food; to getting enough food to get taller, bigger and more active; to getting better food; to getting more diverse foods, including fruits and vegetables and animal-source foods, and foods that are more convenient, tastier, packaged, and potentially more healthful; and finally to a reduction in total intake of foods in some countries like the United States.

He noted that food systems link farms to consumers through agribusiness and food companies. Family agriculture dominates field crop production around the world and is fundamentally limited by resources. Economies of scale and proprietary technology in food manufacturing and distribution systems allow them to innovate at the level of the food system. Local and multinational companies stand between most farmers and most consumers. As USAID continues to engage more on nutrition outcomes, it is essential to remember that agriculture can provide more of the nutrients needed to solve undernutrition by growing more abundant food, but poor diet quality and overconsumption of harmful ingredients cannot be achieved by cutting back on agriculture. Engaging directly with the private sector is necessary to solving problems with food manufacturing and distribution that cause poor diet quality and diet-related disease from overconsumption.

Dr. Masters noted our focus on agriculture has to do with where rural people and farmers are geographically, and this in turn drives farm size. Africa will continue to have a rise in its rural population for the foreseeable future, in part because of improved nutrition, and this keeps a larger share of African workers at each level of income on farms as compared to other regions. At each level of national income, child stunting rates are higher in Africa than in other regions. This is because they reside in rural areas and because African countries have fewer inputs to maternal and child health as compared to other countries. Nutrition programs over the period between the 1990s and the 2010s have had great success in all countries, and to a lesser extent in African countries, in reducing the proportion of stunted children at each level of income because of new kinds of interventions—institutions, safety nets, incentives, and technologies—to help achieve nutritional outcomes. The other half of the nutrition transition is that people meet their genetic potential in terms of growth but then overshoot in terms of consumption, leading to pre diabetes and obesity. He also noted that African adults are less likely to be obese than adults in other regions, but as African incomes rise and people acquire the ability to purchase what's on the market, the prevalence is worsening quickly.

Dr. Masters concluded by reiterating the idea of improving diet quality to meet nutrient needs within energy balances

and ending undernutrition without overshooting consumption. Many levers of change are available to improve diets, and while great progress has been achieved in filling nutrient gaps, a significant challenge of overconsumption now exists.

Enabling Environment to Accelerate Private Sector Engagement in Improving Diet Quality: The Role of Market Infrastructure, Research and Development, and Enabling Trade Policy

Beth Mitcham, Director, Horticulture Innovation Lab, UC Davis (moderator)

Richard Tracy, Vice President, International Programs, Global Cold Chain Alliance

Betty Bugusu, Managing Director, International Food Technology Center; Director, Food Processing and Post-Harvest Handling Innovation Lab, Purdue University

Gladys Mugambi, Advocacy, Communication, and Social Mobilization Officer, Kenya Ministry of Health (via teleconference)

Dr. Keenum then introduced the first panel moderator, Dr. Beth Mitcham.

Dr. Mitcham expressed her excitement that the focus of the World Food Prize this year is on nutrition. She lauded the focus on going beyond calories to examine the importance of nutrient-dense foods and dietary diversity. She explained that while nutritious foods tend to be more perishable than staple foods, and this is where the potential business opportunities come in. It is extremely important to increase their availability and their accessibility (price). There are several ways that this can be done; one way is to focus on reducing high levels of loss and waste and rates of deterioration in foods; another is to focus on expanding production in the harvest season for nutritious foods, so they are available more year-round, which would include the use of protective cultures, plastic houses, and green houses to protect crops from weather. Another focus area is looking at better varieties that could extend the season. A final consideration is stabilizing nutritious products, so they can be stored after harvest and consumed at a later date, using drying methods, cold storage, etc. These represent opportunities for businesses and entrepreneurs. She then posed a question to the panel: "How can we more effectively engage the private sector in this space? What are the opportunities for the private sector, how can we engage them, and how can we help assure that the foods that they develop will be nutritious foods?"

Dr. Mitcham introduced panelists Mr. Tracy, Dr. Bugusu, and Ms. Mugambi. Dr. Mitcham asked Mr. Tracy first: "Where are the business opportunities along the cold chain for perishable foods? What are the main impediments to private sector participation? Are there examples of successful enabling policies?"

Mr. Tracy noted that the Global Cold Chain Alliance is happy to be represented on World Food Day. The Global Cold Chain Alliance represents private companies and wants to improve the business environment globally and to help provide safe, quality products around the world. He then discussed opportunities and challenges, noting that while there are opportunities across the food system, GCCA sees the need to grow opportunities for small-scale farmers to ramp up production and get the economies of scale necessary to move food from rural locations to urban locations. There are opportunities for farmers to develop temperature-controlled mechanisms, and those can be low-tech and affordable, such as placing food in the shade while waiting to transfer it to market, for example. Education is important as well, so farmers understand what the business opportunities are and what the costs and benefits are to improving these processes. Getting products from rural to urban areas is often a challenge in emerging markets

because of a lack of infrastructure such as roads and electricity, which is typically provided by the state or donors. As was mentioned earlier, access to capital is another huge challenge; frequently money is available from donors and venture capitalists, but the issue is in capacity to access it. Many small-scale farmers may not have fully developed business plans, or may be unable to attain funding because of high interest rates, or they may be asked to give up part of their business to venture capitalists in order to obtain funding. Mr. Tracy concluded by noting that policy-wise, governments should be able to support access to capital, access to markets, and access to education.

Dr. Mitcham followed up to ask if Mr. Tracy had seen any policies that are particularly limiting or particularly enabling that have been enacted. Mr. Tracy noted that he liked Dr. Haddad's 'carrot and stick' approach. In India and Uzbekistan, the governments have used 'carrot' strategies to incentivize businesses to invest in capital-intensive cold chains by providing subsidies: rebates on energy and rebates on taxes for the importation of refrigeration equipment products. He mentioned that food safety regulations can be a policy hindrance, especially in countries where the government dictates that all perishable products must be handled separately by commodity, which is limiting and inefficient. In developed countries, multiple commodities can be handled together. Governments can often overcompensate with heavy regulations for food safety violations, and that makes things inefficient. Dr. Bugusu added her agreement that there is immense value to investing in cold chain in developing countries in terms of providing a shed for commodities to preserve nutrients. She noted that refrigeration infrastructure in developing countries can be improved with investments from the private sector and an improved enabling environment from government actors. Ms. Mugambi added that the process of preserving nutrients across the value chain needs to start at food production through to packaging and marketing.

Dr. Mitcham said that not all processed foods are equally nutritious and that many processed foods contained empty calories. She asked Dr. Bugusu, "How can U.S. universities leverage their talents in research and development to help develop nutritious foods and de-risk market entry for small and medium enterprises?"

Dr. Bugusu briefly introduced the Feed the Future Food Processing and Post-Harvest Handling Innovation Lab at Purdue University. Another innovation lab, the Post-Harvest Loss Reduction Innovation Lab at Kansas State University also works in the post-harvest space. Both labs operate under the principle that food security does not end at harvest. The labs work toward answering the question: "how can resource-limited people acquire, preserve, and consume food that is healthy, safe, and nutritious from the time they harvest to the next?" The lab's work, mostly post-harvest, focuses on areas of drying, storage, food processing, and nutrition. US universities are powerhouses of research and development, working with multi-disciplinary teams that involve higher education institutions, government, civil society, and connecting with consumers using the private sector. The lab is developing products and conducting food processing research and market development, looking at foods that meet consumer needs, meet nutritional requirements, and are affordable. Her lab is looking specifically at developing a market-driven fortification strategy, recognizing that in developing countries there is often a mandate for fortification, but no return on investment for manufacturers because fortification makes foods expensive. Thus, the innovation lab focuses on fortifying food products naturally and affordably using nutrient-dense, locally available plant materials such as *baobab* and *moringa*—a strategy called "using food to fortify food.", targeting micronutrients like iron, vitamin A, and zinc, which are limiting micronutrients in the human body. The lab's fortification target has been 25% of the recommended daily allowance of these micronutrients in the products developed. Acknowledging that there is a market for these nutrient dense foods at the base of the income pyramid has been helpful to the lab's work. People actually want to eat these products and will buy them.

Dr. Mitcham followed up to ask whether the natural fortification products that they use are generally less expensive for the processors. She also asked whether processors produce the fortification products themselves, buy them from the market, or have people who grow for them directly. Dr. Bugusu responded by saying that their research focuses on making sure nutrients are preserved when foods are processed. They also make sure nutrients are bio accessible and bioavailable. To do this, they work with small- and medium-scale processors who supply the market in rural and some urban areas. The innovation lab provides service and technical assistance and expertise in processing as well, assisting farmers in making high-quality products so they can attract repeat buyers. The innovation lab also helps processors develop business plans, and both the technical and the business plan support have helped producers go after finance. In Senegal, women producers are both exporting their products and selling in local markets. Mr. Tracy commented that U.S. universities have the brain power to help consider the viability of innovative ideas around drying, nutrient fortification, refrigeration or freezing. University collaboration on issues like cold chain – discussing what has been done and how it can be done better – can help solve problems in post-harvest loss and waste. Ms. Mugambi stressed via telephone the importance of having universities on board for technical support and also marketing/business development.

Dr. Mitcham then posed the next question to Ms. Mugambi: “Are there examples of national or regional policies that have helped incentivize the private sector to engage in the production and sale of more nutritious foods, for example, trade, pricing, taxation, infrastructure, public R&D, etc.? Have any hindered private sector engagement? Have there been notable positive or negative consequences from those policies?”

Ms. Mugambi responded, giving Kenya as an example. Kenya’s policies on trade were launched last year, and the policies are very general and don’t specifically address nutrition. However, Kenya is engaging with the private sector to develop a strategy for how the policies can be implemented and how to create an environment conducive for business. To provide access to nutritious foods in hard-to-reach areas, the policies need to promote local food production and marketing. Implementation of the policy will require input from several ministries, not just the ministry of trade. Dr. Mitcham asked if she sees any challenges in having different ministries come together around a topic like this that involves so many different sectors. Ms. Mugambi responded that there are several challenges; because of the devolved government in Kenya, there are challenges around engaging both national government and governments of the 47 counties. Another issue is around defining markets and the difficulty in linking to markets. A final challenge is the public perception that nutritious and safe food is more expensive. She said that several sectors are involved and are as yet not coordinating well, but that government is working on this. Farmers are coming up with products but don’t yet know where they will be able to be consumed. Once government comes up with a policy implementation strategy, they will be able to tackle these challenges.

Dr. Mitcham thanked the panelists and mentioned again the need to market nutritious products better, in catchy ways.

Dr. Keenum then dismissed the group for a brief break until 11:30 a.m.

Drivers for Private Sector Engagement Across the Supply Chain to Improve Diet Quality: The Role of Labeling, Marketing, Processing and Product Standards, and Policies that Encourage Greater Demand for and Accessibility to High-Quality Diets, Including

Accountability and Transparency Systems

Heather Danton, Director, USAID Advancing Nutrition, JSI Research & Training Institute, Inc. (moderator)

Godfrey Bahiigwa, Director, Rural Economy and Agriculture, African Union Commission

David Dayhoff, Vice President, Programs and Operations, Partners in Food Solutions

Karin Lapping, Director, Alive and Thrive Program, FHI 360

Jean Pankuku, Group Food Technologist, Universal Industries Limited

Dr. Keenum introduced the moderator, Heather Danton.

Ms. Danton briefly introduced the panelists and posed to Dr. Bahiigwa, “What key standards and/or policies are needed to promote improved nutrition through private sector investment in Africa, including doing no harm to human health, nutrition, or natural resources while also stimulating economic growth?”

Dr. Bahiigwa responded that public policy responds to observed needs or deficiencies. He noted, for example, that he worked with the government of Uganda for several years, as the Ministry of Agriculture was trying to address vitamin A deficiency and iron deficiency. The government introduced bio fortified orange-fleshed sweet potatoes and bio fortified high-iron beans. The Ministry of Agriculture partnered with Harvest Plus, led by IFPRI, local communities and farmers, NGOs, and private sector companies, including those that multiplied the vines for sweet potato production. The government has had success with these two initiatives.

He said that when the public sector puts laws and regulations into place and partners with the private sector, we see progress. He noted that incentives to support the private sector, including access to micro finance, are another important priority. Governments can also help create demand for nutritious produce by actively promoting the consumption of beans and sweet potatoes in schools and encouraging schools to purchase nutritious foods from farmers. A final successful policy he mentioned is government support to private sector companies in bio fortification, particularly in maize. Fortified maize flour is highly consumed in schools, the armed forces, and in prisons.

Dr. Bahiigwa made recommendations to USAID. He recommended that USAID support countries that are prioritizing nutrition programs within their development agenda. USAID can do this by supporting the inclusion of nutrition programs within national investment plans. Second, intra-Africa regional trade is an important factor to supplement national nutrition efforts that the African countries are making, because what a country cannot produce for itself, it can get from trade. Citing the large and growing middle class on the African continent, he said there are huge market opportunities for the private sector to invest in food processing in Africa. The African Union recently introduced the Africa Continental Free Trade Area, and he recommended that USAID should help support and grow this effort across the continent. Third, he recommended that USAID work with African member states to support strong food safety mechanisms, both to ensure safe food and to promote regional trade.

Ms. Danton then asked Ms. Pankuku the next question about challenges and opportunities that come from running and working within a medium- to small-scale enterprise in the food processing area. “What are the key challenges faced by small enterprises—including those wanting to sell more nutrient-rich foods—to moving from informal markets into more formal markets? What kind of assistance is needed to small businesses to overcome these hurdles and to make their products more affordable to consumers?”

Ms. Pankuku first emphasized that the private sector is always ready to contribute to nutrition outcomes, as long as it

makes business sense and is not just a social venture or charity. Small enterprises can have a big impact in contributing to nutrition because they are more focused. While small enterprises face challenges in entering the formal market, they can be very useful in contributing to nutritional outcomes regionally or locally, provided they get support. Ms. Pankuku posed some important questions for the panel to consider: are rural communities that need improved nutrition ready to pay for the extra cost that comes with branding, marketing, and the production/processing of nutritional products, and is there a market big enough to motivate the private sector to invest more in producing nutritional products? Do small enterprises have enough capacity to produce enough products to meet that demand?

Ms. Pankuku noted that one challenge small enterprises face that prevents them from entering formal markets is the cost of research and product development. There is an opportunity for the private sector to work with universities and share knowledge. Universities could do research and product development, for example, while the private sector scales up and improves production. She noted that the private sector in developing countries often does not have R&D-dedicated staff. The nutritional analysis needed for the private sector to make nutritional claims is costly, and in some countries, products have to be sent outside the country for analysis. Another challenge she mentioned is marketing and branding, which also pose high costs for small enterprises. Partnership with private sector companies to create awareness is another opportunity. A third challenge is that small enterprises have low capacity when it comes to production; they are limited by the equipment and limited technical expertise. Most of their food processing activities are done manually, so their level of production is low, and they cannot scale up easily to meet demand. A fourth challenge is that employees of small-scale enterprises may not have the knowledge they need to sustain the business and create viable business plans. A fifth challenge is the inconsistent supply of locally available raw materials, which is limited by the growing season. For example, in Malawi, there is one main growing season, and there is a lack of specialized storage facilities for seasonal products.

Ms. Pankuku recommended that USAID should work with small enterprises and with capacity building in general. There is an opportunity for USAID to help build the capacity of small-scale enterprises in the areas of certification by national regulators and establishing quality management systems. USAID can also work with governments to create more enabling environments for small enterprises (e.g., through taxes, licensing fees, and development of standards).

Ms. Danton reiterated the point that regional trade is key, noting that Ms. Pankuku has been working on introducing the orange-fleshed sweet potato in Malawi, but lack of a regular year-round supply is limited by seasonality and has posed a challenge. Cross-border trade could enable the sweet potato growing in Uganda to support industry in Malawi.

Ms. Danton framed the next part of the discussion, linking back to consumer demand and the challenge of ensuring that people want to eat nutritious foods in light of strong competition from non-nutritious products. She posed the next question to Mr. Dayhoff, asking: "What incentives or marketing efforts are needed to improve brand recognition for nutrient-rich foods among rural consumers, and what are some challenges in the industry that USAID could help overcome?"

Mr. Dayhoff began by introducing Partners in Food Solutions (PFS). PFS is an independent non-profit organization and a consortium of six international food companies. PFS uses employees of those companies to provide *pro bono* technical help and business assistance for small or medium enterprises in sub-Saharan Africa and beyond. PFS helps with such issues as quality management to obtain certification, creating marketing plans, plant layout, and

equipment procurement. PFS finds companies to work with through partnerships, the most important of which, TechnoServe, is funded by USAID. TechnoServe has teams on the ground in Africa that identify small to medium enterprises in need of assistance and puts them in touch with PFS, which helps connect them with volunteers from around the world to provide *pro bono* assistance.

Mr. Dayhoff said that marketing is about influencing someone's behavior and making them want to buy something. Consumers are not always looking to buy a product that is healthier for them, but they are aspirational in their purchasing behavior, wanting to buy what they perceive to be premium and high quality. Nutrition can be a component of quality or premium, and people are motivated to buy this. For example, a fortified maize flour manufacturer in Kenya reported that there is a spike in its premium brand sales before the holidays, because consumers buy what is perceived to be 'premium' porridge, not because it is fortified with extra nutritional content, but because the premium brand is aspirational and considered to be high quality. Another example from Kenya is an enterprise that makes whole grain flour, and markets it by differentiating it as 'unique' and different from all other flours, rather than marketing it as 'healthful.' The wheat flour market is competitive, and many competitors are not marketing whole grain flour. The customers buying from the miller are marketing differentiated bakery products to appeal to relatively lower-income consumers, who aspire to buy different, higher-quality foods.

It is critical to recognize that consumers want to buy products that taste good. Mr. Dayhoff gave an example from a Malawi school feeding program of a corn-soy blend developed by food scientists that improved not only quality of the blend but also taste. As a consequence, schoolchildren ate more of it. The children were not eating the higher-quality product because it was better for them, but rather because it tasted better. Understanding these aspects of consumer behavior can help win-win opportunities for improving nutrition and supporting business.

Mr. Dayhoff made three final points about challenges and opportunities. First, he reinforced Dr. Bahigwa's earlier point that governments can use their purchasing power to buy the food they want people to eat, as in schools and in the military. He gave the example of Ethiopian flour mills, which are sensitive to what the government procures for the military. Higher quality food procured for the military provides a strong incentive for the private sector to produce at scale and to expand to other markets. Second, he noted that USAID should continue funding technical assistance for longer timelines. When knowledgeable people have their contracts end while they are providing technical assistance, it impedes progress. Finally, he suggested that USAID expand technical assistance directly focused on feed and animal feed manufacturers, which is key to improving the productivity of egg and dairy operations.

Ms. Danton framed the final area of discussion around private sector assistance in marketing and social and behavioral change at the individual level, and how can we drive consumer demand. She asked a final question to Dr. Lapping: "What do you know about how to effectively create demand and share information, and where might there be a role for the private sector in helping to do this better within the food security and nutrition realm?"

Dr. Lapping noted that she leads the 'Alive & Thrive' Project, which works primarily in Africa and Asia on maternal, infant, and child nutrition through social behavior change and systems strengthening. Dr. Lapping noted that demand generation is not as simple as, "build it and they will come." Just because a product or supply exists does not mean it will be consumed or that increased income will be translated to higher consumption and improved nutrition outcomes. In order to help make this translation, Alive & Thrive approaches the world through a social behavior change lens.

Dr. Lapping noted that people live in the context of dynamic interactions, so working with individuals is not enough: it

is important to work with families, peers, caregivers, service delivery providers, and enabling environment actors from the individual and local level to the national level. Alive & Thrive uses multiple channels to create and drive demand, through interpersonal communications, mass communications, community mobilization, and targeted advocacy, all of which are underpinned by data and analytics to understand the context and the audience. They aspire to create tailored, understandable, and actionable social behavior change approaches that result in nutrition outcomes.

Important lessons are experienced based around planning for scale, focused on sustainability, building and nurturing alliances, and leveraging unique skills of stakeholders. Strategies are tailored based on the understanding of the communities that we work with, and deriving innovations from those that are responsible for those outcomes.

One of the lessons Alive and Thrive has learned is to take an aspirational approach, not an educational approach. Very little behavior change is stymied by lack of supply or knowledge. Alive & Thrive campaigns rarely focus on nutritional outcomes, instead focusing on parents' aspirations for children and what they need to do to help their children succeed (e.g., in Ethiopia, the campaign focuses on educational attainment). Another important lesson learned is the need to understand the target group and their behavioral determinants and who influences people in a given context. Who decides on behaviors, and who influences them? Even a behavior like breastfeeding, which many assume is in the mother's domain, is influenced by many variables. Women seldom have agency, and whether or not to breastfeed is also an economic decision, involving calculations of opportunity costs. This is an extreme example not based on the supply of a product. Another example helps to illustrate who is credible and what channels are credible for stakeholders. In Ethiopia, the Ethiopian Orthodox Church (EOC) is extremely influential. The EOC required that followers above the age of 7 fast for over 180 days a year, which equates to not eating until afternoon and not eat animal-sourced foods. Alive & Thrive did formative research showing that children of these families were 50 percent less likely to eat animal-sourced foods and had unilaterally poorer infant and child feeding behaviors and practices. Alive & Thrive worked with Ethiopian Orthodox clergy to incorporate messages in their sermons that feeding children animal-sourced foods was healthful and not in violation of fasting rules. This is an example of Alive & Thrive's behavior change approach of saturating the target population through multiple channels—interpersonal communication, mass media, and clergy—and tweaking the message in support of a specific outcome.

A final point she made is the need to define realistic target numbers. Alive & Thrive research has found in prior work that five to seven contact points make a shift with behavioral outcomes, with the interpersonal contact component being particularly powerful. The more places that people come into contact with messages, e.g., through peer to peer contacts and through mass media, the more these messages are reinforced in a "tipping point" or dose-response relationship. She also noted that quality matters for sustaining behaviors. Successful behaviors don't remain static; sometimes behavioral backsliding is observed. For example, breastfeeding rates may fall when women enter the workforce. She noted some of Alive & Thrive's successful work with media houses, like Pepsico, on marketing, media work, supply chain, and maternal, infant, and child nutrition and encouraged more work with the private sector in non-traditional ways in how new products are presented. In spite of the acrimonious history between nutrition and private sector, we cannot afford not to be in dialogue. She commented that deliberate, thoughtful demand generation is absolutely required.

Public Comment Period

Mark Keenum, Mississippi State University, BIFAD (moderator)

Dr. Keenum thanked the panel and moved to the public comment period.

- Jeannie Blankenship, Vice President of Policy Initiatives and Advocacy with the Academy of Nutrition and Dietetics. She participates in a National Academies of Science Medicine and Engineering roundtable on obesity solutions, which recently convened a forum about global obesity. Helpful comments relate to the policy implications of addressing undernutrition and subsequent contributions to obesity in some countries. She recommended overlaying obesity and undernutrition data and relating that to acculturation and migration. She said it is important to think about how country-specific recommendations and messaging (for example, consuming palm oil to address vitamin A deficiency) can affect migrants, who may follow recommendations for their home country when they move elsewhere and have access to a broader diet.
- Cheryl Morton with the International Fund for Agricultural Development mentioned two initiatives under development in light of the comments on the critical need for financing for smallholder farmers and SMEs to produce bankable products. IFAD is launching an agribusiness capital fund to build on IFAD's expertise in reaching small-scale farmers with financial assistance (\$25,000 to \$1 million) coupled with technical assistance and integration with other IFAD projects. Another is a Global Food Loss Reduction Facility that will be launched next year and resources for investing along the value chain to address needs to reduce food loss.
- John Leary with Trees for the Future works on crop storage, crop conditioning, post-harvest and farming business manuals for training farmers in East Africa, and through his work, he has made observations about household nutrition and economics and challenges. Smallholder farmers who grow crops that require storage are exposed to high levels of risk and potential loss, and there are nutritional implications of a predominantly maize diet. He believes farmers can't just grow one crop to sell and be able to afford other, more expensive, more nutritious, higher-value foods to eat. In his experience, diet usually reflects what is being grown in the field. He recommended diversifying agricultural production toward high-value, nutrient-dense crops. He noted that finding ways to diversify the timing of production throughout the year will help address challenges with storage issues. The private sector could also engage on the processing, fortification, and input supply. He mentioned that diversifying crops and growing crops in guilds is good for nutrition and good for the soil; however, it is challenging for the private sector to aggregate harvests. The private sector must step in on the input side and on the marketing side to help small scale farmers sell multiple crops.
- Valerie Davis with Catholic Relief Services asked, considering all of the challenges that private sector faces, how to capitalize on Farmer to Farmer volunteers from the U.S. to Africa and Asia to help build the skills that are lacking in the private sector. CRS has had some success with this.
- Tawanda Muzhingi from the International Potato Center acknowledged USAID's support to breeding programs because they assure the availability of nutritious food crops. In Kenya, CIP is working with the private sector to transform nutritious sweet potatoes into nutritious, value-added products for low income consumers. Because of changing food systems in sub-Saharan Africa, more people are moving to cities and those in the rural areas are increasingly buying foods. Having staple foods bio fortified with iron and vitamin A can help ensure that even the urban poor can have nutritious food products. He also noted that working with U.S. universities and the U.S. private sector has enabled CIP to come up with technologies that can be transferred to countries in sub-Saharan Africa and customized for their needs. He stressed that it is not just access to capital, but also access to technology, that are relevant for the food industry in developing countries and should be prioritized. Cold storage and shelf stability applications are important technologies for adoption in regions where technologies are needed for improved livelihoods.
- Mary Adjepong, from the Kwame Nkrumah University of Science and Technology in Ghana, and a fellow of

the Borlaug Leadership for Enhancement in Agriculture Program (LEAP), asked about existing partnerships for those who are in small-scale businesses to scale up and help the people of their country. She mentioned that Ph.D. students graduate with great ideas that they want to scale up but without the means.

- Dr. Rob Bertram addressed the question, acknowledging that the issue of finance has been brought up repeatedly, and that it is a huge constraint. The most exciting successes from the first six to seven years of implementing Feed the Future came from work with the private sector, and sometimes the public sector, to overcome these constraints. The agency has a lot of experience in this area, not all of it from agriculture. Going forward, USAID would like to do more and is working hard to engage innovative approaches. He suggested that BIFAD may want to think about this as another topic moving forward because it is salient and timely.
- Mr. Dayhoff also responded, mentioning the USAID-funded East Africa Trade and Investment Hub as a body that brings together a lot of different incubators and accelerators that help with finance and market linkages. PFS also works with the Aspen Network of Development Entrepreneurs (ANDE), which has chapters around the world that help fledgling entrepreneurs start their businesses.

Closing Remarks

Mark Keenum, Mississippi State University, BIFAD

Dr. Keenum remarked that it had been a very informative session, echoing the importance of bringing the different sectors together and bringing the dialog to the attention of USAID's leadership. He turned to BIFAD member Dr. Pamela Anderson to make some closing remarks.

Dr. Anderson said that BIFAD was particularly excited and pleased with the session. "BIFAD" stands for "the Board on International Food and Agricultural Development", but in taking up this topic—engaging private sector to address malnutrition—BIFAD is going beyond agriculture and food to a food systems paradigm, as Will Masters pointed out. Food systems is a more robust and appropriate paradigm for addressing this kind of challenge and brings in a more inclusive set of stakeholders to work together on this problem, particularly the private sector. She noted that USAID Administrator Green has laid down a challenge to the Agency: that the real job of development professionals is to 'work ourselves out of a job'. Dr. Anderson noted that this will not happen if the development community does not address global malnutrition and if we do not figure out how to bring everyone to the table. Administrator Green's challenge requires a different kind of thinking. Engaging private sector to address malnutrition opens a rich space for learning, discussion, and action. She continued, saying that the development community no longer has the luxury not to engage the private sector. In spite of past frustrations and failures, a more sophisticated approach is needed to move into this space. It is important to take a food systems approach, to understand the food system, and to identify such entry points as fortification, formulation, supporting SMEs, carrots and sticks for multinationals, etc. Understanding the food system will help to identify creative ways to work with other entry points to move forward. She thanked everyone who presented and the audience.

Dr. Keenum thanked the speakers, Dr. Clara Cohen, Executive Director of BIFAD, and others at USAID who helped put the meeting together, as well as Dr. Mark Varner and Ms. Devin Ferguson at APLU, before adjourning.