



## Research Workshop:

### Food Industries for People and Planet

26 June 2018

**IFPRI, Conference Room 12A**

**1201 Eye Street NW, Washington D.C. 20005**

#### Background

The International Food Policy Research Institute's (IFPRI) new research program on “**Food industries for people and planet**” (FIPP) will expand traditional ways of thinking about the global food system and will provide evidence-based policy assessments aimed at making agri-food industries and food systems more inclusive in terms of employment and income opportunities, more efficient in terms of meeting global food needs, and conducive to the promotion of healthy diets and environmentally sound production and distribution systems.

Building on its comparative advantages, IFPRI and its partners will focus on three interrelated areas of research (see [Annex](#) for further background to these research areas):

- (1) ***Improving agri-food market efficiency and access***: This research area will focus on understanding the impact that the changing agri-food industry has on market access, food prices, technology adoption, and market interlinkages (e.g. land, credit, and output markets), as well as the role that policymakers can play in influencing these changes.
- (2) ***Innovation for inclusive agri-food value chains development***: In the context of changing food markets, this research area will assess the effectiveness of policy options to create more inclusive, well-developed food value chains that can also help meet global food security and sustainability targets, as defined through the Sustainable Development Goals.
- (3) ***Incentives for safer, healthier and sustainable food***: This research area will focus on understanding the risks posed by food system developments to food safety, the environment, and nutrition and on assessing the potential of innovative policy approaches to mitigate these risks and leverage change for better nutrition and health and food system sustainability.

#### Workshop objectives

The workshop will provide a platform to discuss existing research related to the above-mentioned areas in order to take stock of the state of the art of available and ongoing research and to identify needs for new research directions and explore possibilities for collaborative policy- and action-oriented research. These findings will be used to further shape the FIPP program and forge partnerships for its implementation.

As a further outcome, the papers (or a selection of them) will be bundled into a book publication (or special journal issue).

### Workshop setup

The workshop will kick-off with an overview study prepared by Thomas Reardon (Michigan State University) for the event. The paper will provide a synthesis of recent evidence and analyses of the industrialization of food systems as this is taking place in different parts of the world and lay out some of the more specific knowledge gaps and research challenges which the FIPP program would need to consider. During the first session Reardon will introduce his paper followed by discussion. The subsequent three sessions will be devoted to presentations and discussions of papers that address issues related to the three key research areas indicated above. Each of those sessions will include one or two invited papers and a number of papers selected from a call for papers. In the final session, conclusions of the workshop deliberation will be drawn for the research orientation of the FIPP program and areas for research collaboration among partner institutes and agencies.

### Program

| Light Breakfast – 8:30– 8:55

| Panel Session 1 – 9:00 – 9:45

### Food Industries for People and Planet: what are the issues?

Moderator: *Rob Vos (IFPRI)*

#### Keynote address:

- Food industries and transformative change upstream and downstream food systems  
*Thomas Reardon, MSU*

Discussant: Maximo Torero (World Bank)

## | Panel Session 2 – 9:45 – 11:00

### Improving agri-food market efficiency and access: Challenges and opportunities

Moderator: *Eric Trachtenberg (MCC)*

#### Panel presentations:

- Technology and innovation in food supply chains: theory and practice  
*David Zilberman, UC at Berkeley*
- Implications of Africa's unfolding diet transformation for farm employment: Evidence from Tanzania  
*David Tschirley, MSU*
- Science, innovation, and competition: What the life sciences industry growth, public policy, and regulation mean for developing-country food systems  
*David Spielman, IFPRI*

Discussants: Stephen Gelb (ODI), David Neven (FAO)

### Coffee break – 11:00– 11:15

## | Panel Session 3 – 11:15 – 12:15

### Innovation for inclusive food value chain development

Moderator: *Eelco Baan (SNV)*

#### Panel presentations:

- Transformative changes in dairy value chains in Uganda and Ethiopia  
*Bart Minten, IFPRI*
- Effectiveness of standards and certification for reinforcing tropical supply chains  
*Ruerd Ruben, Wageningen Economic Research*
- Insurance and risk management tools for resilient food systems  
*Berber Kramer, Francisco Ceballos and others, IFPRI*

Discussants: Karen Brooks (IFPRI), Gerd Fleischer (GiZ), James Thurlow (IFPRI)

### Lunch – 12:15 – 13:15

| Parallel Sessions – 13:15 – 15:15

<p style="text-align: center;"><b>1</b></p> <p style="text-align: center;"><b>Improving agri-food market efficiency and access: Challenges and opportunities</b></p> <p><b>Moderator: Ruerd Ruben/Rob Vos</b> <b>Conference Room 12E</b></p>	<p style="text-align: center;"><b>2</b></p> <p style="text-align: center;"><b>Innovation for inclusive food value chain development</b></p> <p><b>Moderator: David Spielman</b> <b>Conference Room 12F</b></p>	<p style="text-align: center;"><b>3</b></p> <p style="text-align: center;"><b>Incentivizing food that is safer and healthier for people and planet</b></p> <p><b>Moderator: Gina Kennedy</b> <b>Conference Room 12G</b></p>
<p>Estimates and affluence elasticity of consumer food waste</p> <p><i>Monika Verma, Wageningen Economic Research</i></p>	<p>Gendered milk markets in peri-urban Nairobi</p> <p><i>Alessandra Galie, ILRI (Steven Staal presenting on behalf)</i></p>	<p>Weight gains from trade in foods: Evidence from Mexico</p> <p><i>Matthias Rieger, International Institute of Social Studies</i></p>
<p>Implementing the Dry Chain to Reduce Postharvest Commodity Losses and Improve Food Safety</p> <p><i>Kent Bradford, UC Davis</i></p>	<p>What is the role of men in connecting women to cash crop markets? Evidence from Uganda</p> <p><i>Kate Ambler, IFPRI</i></p>	<p>Food Consumption and Household Expenditure Variability: Evidence from Nigeria</p> <p><i>Sylvan Herskowitz and Alan de Brauw, IFPRI</i></p>
<p>Assessing determinants of food loss along the food chain: Implications for policy research</p> <p><i>Eduardo Nakasone, MSU and IFPRI</i></p>	<p>Options for Reducing Poverty in Remote Areas of Northern Ghana: Can Maize Contract Farming Schemes Help?</p> <p><i>Catherine Ragasa, IFPRI</i></p>	<p>Recapturing vegetable phytonutrients for healthier diets</p> <p><i>Ray-Yu Yang, World Vegetable Center</i></p>
<p>Imperfect competition in fertilizer markets: implications for output markets and food security</p> <p><i>Manuel Hernandez, IFPRI</i></p>	<p>Improving trust and reciprocity in agricultural input markets: A lab-in-the-field experiment in Bangladesh</p> <p><i>Berber Kramer, IFPRI</i></p>	<p>Analysis of perceived risk on consumers' confidence in food safety practices: Evidence from Ghana</p> <p><i>Carl Johan Lagerkvist, Swedish University of Agricultural Sciences</i></p>
	<p>Overcoming the challenges for large-scale utilization of ready-to-eat fish products for nourishing nations</p> <p><i>Shakuntala Haraksingh Thilsted, WorldFish</i></p>	<p>Demand for aflatoxin-safe maize in Kenya: Dynamic response to temporary discounts and advertising</p> <p><i>Vivian Hoffman, IFPRI, Christine Moser and Tom Herrman</i></p>

Coffee break – 15:15– 15:30

## | Session 4 – 15:30 – 17:00

### Incentivizing food that is safer and healthier for people and planet

Moderator: *Emmy Simmons (GOPAN)*

#### Panel presentations:

- Unhealthy diets and the global burden of disease: food policy implications?  
*Ashkan Afshin, Institute of Health Metrics and Evaluation (IHME), University of Washington*
- Effectiveness of sugar taxes on dietary outcomes: The case of Guatemala  
*Valeria Piñeiro, Lionel Cosnard, Flor Paz, Summer Allen, Eugenio Diaz-Bonilla, IFPRI*
- Demand for porcine cysticercosis vaccine in Uganda: Lessons and insights  
*Steven Staal*

Discussants: *Harold Alderman (IFPRI), Gina Kennedy (Biodiversity)*

## | Session 5 – 17:00 – 17:30

### Lessons for further research and research collaboration

Concluding remarks and next steps

*Thomas Reardon and Rob Vos*

### Reception – 17:30 – 18:30

## Annex: Background and key research issues

### Why take a closer look at the food industry?

***Food systems in both developed and developing countries are changing rapidly.*** In developing countries, food system transformation is being driven by the recent explosive growth of urban populations, as well as by income growth and the emergence of the middle class. At the same time, the expanding food industry in developing countries has experienced increased consolidation and vertical coordination (via contracts and market-linkage arrangements), as well as a shift from the public sector to the private sector for the establishment of commodity grades and standards. Worldwide, the expansion of supermarkets has changed the nature of food distribution networks and supply chains, while market liberalization and reduced restrictions on foreign direct investment have created an ever-more globalized agri-food industry with complicated worldwide supply chains. Finally, information technologies and online distribution channels continue to change how markets are organized and how people access food.

***These changes in the global food system have opened up enormous opportunities.*** The global food industry has vast potential to underpin economic growth, create jobs, and satisfy changing consumer demand in developing countries, especially in countries experiencing rapid urbanization. Importantly, the food system could open the door for the widespread creation of lucrative employment opportunities in Africa south of the Sahara and South Asia. Agriculture remains the driving factor for food security and economic growth in many developing-country contexts; however, as countries develop, off-farm contributions to the food economy increase substantially.

As with any other industry, the food industry will thrive when supported by a favorable enabling policy environment and reliable, high-quality infrastructure. This context will allow and encourage firms to take advantage of economies of scale and to invest in R&D. The evolution of the food industry in developed countries illustrates the potential of the sector to drive growth and innovation as firms expand across national boundaries. In developed countries, scale economies and technological innovation have helped improve efficiency along the entire agri-food chain, diversify food availability, and enhance food quality and safety, including through cold storage facilities and improved handling and processing techniques.

***However, modern food industries also pose new challenges and controversial questions.***

Consumer preferences have begun to shift in favor of more processed foods, raising concerns regarding the high calorie and low nutritional content of many food items. In addition, increased market concentration and the need to produce for a large-scale global market have raised new barriers to market access for smallholder farmers and small-scale food producers and service providers. The modernization of food chains has helped reduce food loss through improved storage, handling, and conservation, but mass production has also induced greater food waste at the consumer stage. In addition, the lengthening of food chains comes with increased risk of food-borne disease and food-related health risks; lengthened food value chains also require increased use of energy and other resources, leaving larger ecological footprints than traditional food chains. Finally, while new technologies, such as the internet, smartphones and mobile

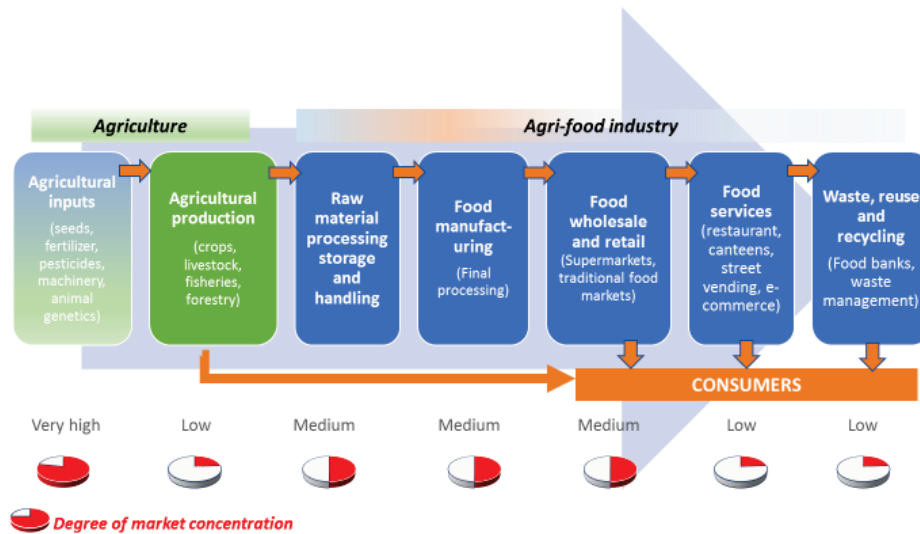
devices, and satellite information, bring new opportunities to better integrate supply chains, they also run the risk of leaving behind smallholder producers who are unable to adapt.

The implications of all of these changes for the future of global food security, health, and environmental sustainability remain poorly understood. It is clear, however, that food policies will need to respond and change in order to address the challenges and take advantage of the opportunities provided by changing food systems. Food policies, and food policy research, have traditionally focused on ways to enhance agricultural productivity and to keep food prices at levels that balance (farm-level) producer and consumer interests. Specifically, policymakers have aimed to stimulate productivity at the farm level while protecting consumer interests through agriculture and food price subsidies and social protection mechanisms. However, the challenges posed by today's food system require policy approaches that take account of what happens beyond the farmgate. Pre- and post-farmgate activities have important impacts on employment and prices and therefore on food security for both urban and rural populations. These activities are also reshaping farm systems and technologies. The traditional approach to food policy must be expanded to include new, food-system-wide approaches that promote inclusive and sustainable development of agri-food systems and steer consumer behavior and food preferences toward healthier diets.

### What do we mean by the agri-food industry?

In this research program, the “food industry” comprises key input markets (seeds, fertilizers, pesticides, animal genetics, machinery, etc.) and the long downstream chain of food storage, processing, distribution, transport, associated logistics, retailing, preparation, restaurants, promotion, e-commerce, and other services. Food system transformations reflect changes in each of these key areas. Vertical integration occurs across the entire food chain, but the degree of market concentration varies across the different up- and downstream parts of agri-food chains (see Figure 1), ranging (globally) from very high concentration in key input markets, intermediate concentration spread between small and large agri-food businesses in the processing and handling stages, and low concentration (on average) in farming stage, at one end, and the food services and waste and recycling stages, at the other end.

**Figure: The agri-food industry**



### What will the new research program do?

*The International Food Policy Research Institute’s (IFPRI) new research program on “Food industries for people and planet” (FIPP) will expand traditional ways of thinking about the global food system and will provide evidence-based policy assessments* aimed at making agri-food industries and food systems more inclusive in terms of employment and income opportunities, more efficient in terms of meeting global food needs, and conducive to the promotion of healthy diets and environmentally sound production and distribution systems.

Building on its comparative advantages, IFPRI and its partners will focus on three interrelated areas of research:

- (1) **Improving agri-food market efficiency and access:** This research area will focus on understanding the impact that the changing agri-food industry has on market access, food prices, technology adoption, and market interlinkages (e.g. land, credit, and output markets), as well as the role that policymakers can play in influencing these changes.
- (2) **Innovation for inclusive agri-food value chains development:** In the context of changing food markets, this research area will assess the effectiveness of policy options to create more inclusive, well-developed food value chains that can also help meet global food security and sustainability targets, as defined through the Sustainable Development Goals.
- (3) **Incentives for safer, healthier and sustainable food:** This research area will focus on understanding the risks posed by food system developments to food safety, the environment, and nutrition and on assessing the potential of innovative policy approaches to mitigate these risks and leverage change for better nutrition and health and food system sustainability.



***To address the challenges posed by changing global food systems, researchers and policymakers need to undertake an integrated evaluation of agri-food industry developments.***

The FIPP program aims provide answers to a range of key policy research questions (specified in the following sections) for each of the three research modules. Most of these questions are strongly interconnected, however. Therefore, the research program will address these mostly through integrated country-, value chain-, and company-specific studies that will look across the wider spectrum of the agri-food industry.

### **(1) Improving agri-food market efficiency and access**

Food systems are seeing significant horizontal and vertical restructuring, leading to an unprecedented consolidation in key input markets (seeds, fertilizer, animal genetics, and farm machinery) and, in many contexts, key output markets for food processing, wholesale, and retail. This increased integration has also led to fundamental changes in the procurement of food products, with individual distributors and spot markets being largely taken over by large-scale, vertically integrated distribution mechanisms. In addition, private sector actors now take a leading role in setting food quality standards, and new data technologies are driving the consolidation of food system activities. For instance, vertical integration allows companies to bring a range of services, such as input provision, farm-level genomic information, farm machinery, and market information under one roof, thereby transforming agriculture in the process.

Trade in agricultural commodities remains dominated by a handful of actors, including new actors from emerging markets. In addition, trading, shipping, and processing are becoming increasingly integrated, and demand for biofuels is driving production decisions in a number of countries. In this context, independent grain traders find it increasingly difficult to compete, while food processors, wholesalers, and retailers seek to expand market shares and capture new markets using marketing strategies designed to both meet and drive changing consumer demands. For example, food businesses may aim to improve their reputations by creating or acquiring seemingly healthier and more sustainable brands or by sourcing inputs or products from small-scale farmers or food producers. However, as large-scale processors and distributors move upstream to better oversee supply chains and ensure quality, their interests often clash with those of the world's numerous smallholder producers.

It is crucial for researchers and policymakers to better understand the consequences of these changes for farmers' input use and market access, rural livelihoods, and food and nutrition security. This first research area will explore to what extent and under what conditions the transformation of food markets "includes" or "excludes" small-scale farmers and producers and whether inclusion in effect helps raise incomes and modernize technologies for these producers.

The following key questions will guide this part of the research program:

- Are changes in agri-food markets happening uniformly? What opportunities do these changes create? What concerns do these changes raise, and how important are those concerns?
- Do changes to the global food system affect market efficiency? If so, can policies designed to stimulate competition help reduce market inefficiencies?
- How and where are investments and innovations in R&D for agriculture and food technologies taking place? What should we expect from disruptive technologies (such as new food technologies, blockchain technology in marketing; etc.)? How will these technologies affect farming systems? Will they accelerate dietary changes?
- What policies are needed to reduce the vast food loss and waste that exists both upstream and downstream in the agri-food industry?

## **(2) Innovation for inclusive agri-food value chain development**

The food industry encompasses many different activities and a relatively large share of jobs in the manufacturing and services sectors in developing countries, as well as in several developed countries.<sup>1</sup> With growth in both urban populations and overall income, food markets are likely to expand significantly in the coming decades, particularly in lower-income countries in South Asia and Africa. The same trends are expected to change dietary preferences, driving increased demand for high-value foods such as vegetables, fruits, dairy, meat, fish, and processed food items. For many farmers in developing countries, urban food markets represent the most important end destination for their produce. Branded and packaged foods are also expanding rapidly in these urban markets, as is the demand for food consumed away from home. In response to these trends, modern retail (including supermarkets run by cooperatives and large-scale private sector chains) has emerged rapidly in developing countries. In addition, the increasing importance of high-value foods has produced new marketing system structures, such as modern cold storage facilities. These trends are creating new opportunities for farmers and other producers in the food industry.

This second research area will address a range of research questions related to how the food system can fully tap into the employment- and income-generating potential of well-developed food chains while still allowing for the achievement of global food security and sustainability objectives. As countries (and regions within countries) are in different stages of agri-food system development, policy questions will be tailored to the country and value chain context. The related research questions in this area include:

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<sup>1</sup> The share of farming (or agriculture) in total employment still dominates in many countries, accounting for about 60 percent of total employment in Africa south of the Sahara and for almost 70 percent of total employment in low-income countries globally. These shares would be even larger when considering employment in the broader food system. For example, in Malawi and Tanzania, food and beverages account for more than 40 percent of total manufacturing employment. Even in some high-income countries, such as New Zealand, share of food and beverages in total manufacturing employment is more than 35 percent, driven primarily by exports. In the European Union, the food and beverages industry provides a larger share of employment than other manufacturing sectors. (Source: IFPRI *Global Food Policy Report*, 2017).

- Do effective and inclusive business models exist to help smallholder farmers and small-scale food processors and distributors gain from connections to large players in the modern agri-food industry?
- Can agri-food business development play a role in solving Africa's and South Asia's youth employment challenges? How can agri-food business development economically empower rural women?
- How can disruptive IT technologies be used to drive inclusive agri-food value chain development? What should public policies do to enable such technological contributions?
- Can product certification and labelling for food safety and quality, smallholder origin, and/or environmental sustainability promote inclusive value chain development?
- Can weather and income-risk insurance help create greater resilience along agri-food value chains?

### **(3) Incentives for safer, healthier, and more sustainable food**

Changes in the structure of the modern food industry also bring impacts on human health and the environment, both with potentially substantial economic cost. People's health may suffer through a lack of access to adequate food at all times, the consumption of unhealthy diets, the consumption of unsafe or contaminated foods, or exposure to contaminants in water, soil, and air. As global diets shift to include more and more processed foods, populations are experiencing a triple burden of malnutrition: undernourishment, overweight and obesity, and micronutrient deficiency. In addition, these changes to the food system place ever-increasing pressures on the environment and the availability of natural resources. This area of the research program will build on IFPRI's expertise in food safety, nutrition and environmental issues to explore the following research questions:

- What drives people's food choice in developing countries? What role does marketing by the private sector, as well as taxes and incentives and larger macroeconomic policies established by the public sector, play in the creation of consumer demand?
- How can traceability and technology use support food safety? What is the potential for public-private partnerships (PPPs) for nutrition and food safety?
- What factors pose constraints to the uptake of biofortified foods by both producers and consumers? How can such constraints be addressed?
- What are the macroeconomic costs, both global and national, of the health impacts of food safety risks and the triple burden of malnutrition and of the environmental impacts of shifting demand toward processed foods and agricultural commodities?