

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

A Sustainability Challenge: Food Security for All

Workshop 2: Exploring Sustainable Solutions for Increasing Global Food Supplies

Date: May 2–4, 2011

Location: Venable LLP Conference Center, Capitol Room
575 Seventh Street NW Washington, DC 20004

BRIEF BACKGROUND AND OBJECTIVE:

Individual and household food security depends on access to the food needed to meet food and nutritional needs, a condition strongly related to household income. Food availability is necessary, but not sufficient, to achieve food security. However, availability of sufficient food for current and future generations is critical and must be based on sustainable methods of production and distribution that is, using resources available now in such a way that their availability for production and distribution in the future is not compromised or precluded. Recent and current debate surrounding recent food price volatility and the impact of climate change on the future food supplies make the topic very timely and important.

While keeping in mind the critical importance of access to food, this workshop focuses on the question of sustainable food availability and the related natural resource constraints and policies. The overall objective is to identify (i) the major barriers to expanding food production to meet future food demand without damaging the future productive capacity and (ii) policy, technology and governance interventions that could reduce these barriers and promote sustainable food availability as a basic pillar of sustainable food security.

WORKSHOP STRUCTURE:

This workshop will build on the findings of a first workshop, in which expert participants explored the availability and quality of metrics that help us understand the concept of “sustainable food security.” On the theory that “you can’t manage what you can’t measure,” consideration was given to the metrics of: poverty; undernutrition or “hunger”; malnutrition; farm productivity; natural resource productivity (land, water, soil quality, etc.); and food supply chain efficiencies or losses. It was clear that there were different ways of understanding and measuring these concepts and relating them to each other (e.g., household poverty and childrens’ heights) in meaningful ways. The use of different geographic scales was particularly striking as relevant data on production and productivity, for example, related variously to: households, fields, farm, landscapes, river basins, nations, regions, or continents. By being “spatially explicit,” it was believed that data and information relevant at smaller scales could also be meaningfully aggregated to meso- and macro-scales.

Overall, however, experts in Workshop 1 concluded that:

- The quality of metrics is not as good as it needs to be for accurately understanding, monitoring, or predicting food security and the sustainability of food production processes given natural resource conditions, policies, and market incentives;
- Suites of metrics/indicators are needed to understand the phenomena associated with sustainable food security (both availability of food and access of poor populations to it), although even existing suites of metrics are rarely integrated adequately for decision makers today; and

- There are few integrated sets of relevant data that are widely accessible and allow analysts to work at sufficiently broad scales as well as at more local (including household) scales.

The first day of this second workshop will open with a recap of findings from Workshop 1, reflecting the availability and quality of data indicators and projections of both poverty/food security and resource use trends as they are currently understood, while also framing the potential of various factors to pose new opportunities, risks and vulnerabilities that will affect trends going forward. These presentations will enable workshop 2 participants to see what the existing evidence tells us regarding the magnitude of the problems and challenges and opportunities for their solutions.

Subsequent sessions on day one of Workshop 2 will then dig more deeply into the trends associated with natural resources that are believed to pose hard constraints to food supply and availability. The second day of this second workshop will then explore several of the policy, market, and governance approaches currently thought to be needed to resolve the constraints posed by natural resources to food availability at various scales: global, regional, and local. The third day will engage participants in consideration of what changes (in public policy and regulatory institutions, markets and other economic institutions dominated by the private sector, and social and cultural institutions) would be needed to raise the probabilities for ensuring that food availabilities in 2050 respond to global food demands and the nutritional needs of more than 9 billion people.

NOTES:

Presenters will be asked to prepare written papers to support their oral presentations. This workshop will involve a diverse set of participants: researchers, analysts, academics, and development leaders in a wide range of fields – food production, resource management, environmental conservation, climate, and others.

Monday, May 2, 2011

8:30 AM	Welcome and a Conceptual Framework for the Workshop Per Pinstrup-Andersen, Cornell University, Committee Chair <i>This presentation will be based on a conceptual model developed to show the links between sustainable food production/supply, food security and interventions by the public and private sector and civil society. The model will provide the framework for the content and organization of the workshop.</i>
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HOW SERIOUS IS THE CHALLENGE TO ACHIEVE SUSTAINABLE FOOD SECURITY?

9:00 AM	Current and Expected Future Food and Nutrition Security Hartwig de Haen, Former FAO Assistant Director-General, Economic and Social Department <i>This presentation will set the stage for what needs to be accomplished. It will present scenarios for the future trends in food security based on the best evidence available and it will assess the quality of the evidence drawing on outcomes of the first workshop and other relevant projections. The nature of the dietary transition, the triple burden of malnutrition and other relevant issues should be included to provide the foundation for subsequent presentations.</i>
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9:30 AM	<p>Future Agricultural Productivity and Changes in the Endowment of Natural Resources</p> <p>Phil Pardey, University of Minnesota</p> <p><i>A brief description of the trends and challenges on the basis of the best evidence available and it will assess the quality of the evidence drawing on the outcomes and other relevant projections.</i></p>
10:00 AM	<p>Are New Agricultural Paradigms Needed to Facilitate Sustainable Food Security in the Context of Uncertainties and Risks</p> <p>Marco Ferroni, The Syngenta Foundation for Sustainable Agriculture</p> <p><i>Climate Change, Technology Choices, Biofuels, Energy Prices, and Shifting Markets for Resources</i></p>
10:30 AM	Q&A and Discussion with the Audience
11:00 AM	BREAK
11:20 AM	<p>The Natural Resource Constraints to Sustainable Increases in Food Production</p> <p>Moderator: Jason Clay, World Wildlife Fund</p> <p><i>These presentations should assess the constraints, the challenges and the opportunities for removing the constraints to achieve sustainability. Each presentation should make global and regional assessments and identify the regions where the constraints are most critical and where the challenges are the greatest. The importance of the food system in the demand for the particular resource and competing demands should be considered. Since a subsequent section will deal with possible interventions, these presentations should focus on an assessment of the problems and challenges but may also include suggestions for resource-specific interventions by the public and private sector and civil society. Findings from workshop 1 may be included as appropriate.</i></p> <ul style="list-style-type: none"> • Water David Molden, IWMI • Land and Forests Paul Vlek, University of Bonn • Marine Fisheries and Aquaculture Jason Clay, World Wildlife Fund
12:20 PM	LUNCH
1:20 PM	<ul style="list-style-type: none"> • Biodiversity and the Future Food Supplies Tim Benton, Leeds University • Soil Health of Tropical Africa: An Essential Element of Improved Agricultural Productivity Uzo Mokwunye, Development Strategy Consultant • Energy: Fossil Fuels, Biofuel and Alternatives Dan Kammen, The World Bank
2:50 PM	Q&A and Discussion with the Audience
3:20 PM	BREAK

3:40 PM	Dealing with Climate Change Moderator: Bert Drake, Smithsonian Environmental Research Center (ret.) <ul style="list-style-type: none">• Climate Change Projection and Potential Impact on the Food System Jerry Nelson, IFPRI• Risks and Vulnerabilities David Lobell, Stanford University
4:40 PM	Q&A and Discussion with Audience
5:00 PM	END of DAY ONE
6:00 PM	Working Dinner for Steering Committee and Invited Guests <i>Restaurant Nora Garden Room, 2132 Florida Avenue NW, Washington, DC</i> <ul style="list-style-type: none">• Presentation of Data Quality Monitoring: Prabhu Pingali, The Bill & Melinda Gates Foundation• Discussion

Tuesday, May 3, 2011

APPROACHES TO ACHIEVING SUSTAINABLE FOOD AVAILABILITY AT AFFORDABLE PRICES: THE ROAD TO SUSTAINABLE FOOD SECURITY FOR ALL FOR THE FORESEEABLE FUTURE

Several potential approaches to achieving sustainable food availability will be discussed. Most of these already have champions and many have undergone some pilot testing, providing some information on strengths and weaknesses. Presenters will take this learning and experience into account and provide subjective assessments as to scalability and broad impact, impact on affordability of food, and relative contributions to sustainability.

8:30 AM	Conclusion of Dinner Discussion and Recommendation for Follow-up Prabhu Pingali, The Bill & Melinda Gates Foundation
9:00 AM	Farm-level Sustainability Intensification Mike Bushell, Syngenta <i>Farm level sustainable intensification through farm-focused management improvements, supported by S&T.</i>
9:30 AM	Food Value Chains Leading to Sustainable Intensification Maximo Torero, IFPRI <i>Enable smallholder farmers to link into markets through commodity value chains, institutional innovations, incentives and credit to achieve sustainable intensification.</i>
10:00 AM	Ecosystem Management Jeffrey Milder, EcoAgriculture Partners <i>Taking an ecosystem conservation approach focused on conserving stored carbon in plants, encouraging more carbon sequestration and assuring sustainable management of natural resources while expanding food production, through agricultural and environmental regulation and best practices for sustainably intensified production. The role of organic production.</i>

10:30 AM	BREAK
10:50 AM	<p>Reduction of Yield Gaps to Increase Productivity Sustainability</p> <p>Jude Capper, Washington State University</p> <p><i>Address the yield gap; increase productivity of crops and animals for consumption by applying science and technology while achieving sustainable and more efficient use of natural resources. Are transgenics an option? Where do organic approaches come in?</i></p>
11:20 AM	<p>Energy Efficiency</p> <p>Amit Roy, IFDC (Presented by Donald Crane, IFDC)</p> <p><i>Since a key metric of food production is energy produced, a focus on increased energy efficiency of production systems (less energy inputs per unit of energy produced, using less fossil fuel, deploying alternative sources of energy for production) will contribute to a more sustainable food system.</i></p>
11:50 PM	Discussion of Morning's Presentations: Do they add up, offer complementary alternatives?
12:30 PM	LUNCH
1:30 PM	<p>Private Investment and Farm Size Issues</p> <p>Derek Byerlee, CGIAR</p> <p><i>Are there economies of scale in primary production? Are land tenure systems capable of supporting any needed changes in farm sizes without destabilizing inequities? What is the role of recent and on-going land acquisitions in low-income Africa? Will that lead to sustainable food production increases?</i></p>
2:00 PM	<p>Losses and Waste in the Supply Chain</p> <p>Adel Kader, University of California, Davis (Presented by James Gorny, U.S Food and Drug Administration)</p> <p><i>How large are the losses and wastes and how can they be reduced through better management (agribusiness role), new technologies (S&T role) or some other way?</i></p>
2:30 PM	Q&A and Discussion with the Audience
3:00 PM	BREAK
3:20 PM	<p>Global Public Goods: Natural Resources</p> <p>Nancy McCarthy, FAO</p> <p><i>Managing natural resources for sustainable food availability and food security must go beyond national boundaries. River basin organizations, organizations like the Congo Basin Initiative, provide some regional governance. Is a greater degree of global coordination needed? How might it be organized?</i></p>
3:50 PM	<p>Global Public Goods: Food Safety</p> <p>Laurian Unnevehr, Economic Research Service, U.S. Department of Agriculture</p> <p><i>Food safety is managed by both private sector market players and national governments. Food safety challenges may increase with globalization and</i></p>

climate change. Are there new approaches to managing food safety sustainably in global supply chains?

4:20 PM Discussion, Wrap Up and Summary

5:00 PM END of DAY TWO

Wednesday, May 4, 2011

TAKING ACTION: POLITICAL, ECONOMIC AND INSTITUTIONAL OPPORTUNITIES AND BARRIERS TO CHANGE

8:30 AM **Endogenize the Social Costs of Natural Resource Degradation and Climate Change**

Jason Clay, World Wildlife Fund

Introducing the concepts of full costing, PP, PES, multiple wins and application to natural resource management and climate change to strengthen the resource base and achieve a sustainable future food supply.

9:00 AM **Political Economy Issues, Priorities and Political Will**

Rob Paarlberg, Wellesley College

Consider both national and international issues including national and international agricultural and trade policies.

9:30 AM **Incentives and Limitations to Action by Civil Society**

Brian Greenberg, InterAction

10:00 AM **Incentives and Limitations to Action by the Private Sector**

Dennis Treacy, Smithfield Foods

10:30 AM BREAK

10:50 AM **Panel: Confront Trade-Offs, Remove National and International Externalities, Seek Multiple Wins, and Establish Coalitions and Partnerships**

Moderator: Laurian Unnevehr, U.S. Department of Agriculture

- Panelist 1: Carol Kramer-LeBlanc, U.S. Department of Agriculture
- Panelist 2: Emmy Simmons, U.S. Agency for International Development (ret.)
- Panelist 3: Melinda Kimble, United Nations Foundation

11:35 AM Q&A and Discussion with Audience

12:15 AM **Concluding Comments**

Per Pinstrup-Andersen, Cornell University, Committee Chair

12:30 PM ADJOURN for Public Session