



US-China Joint Symposium on the Nexus of Food, Energy, and Water Systems  
Nashville, Tennessee, USA

**Agenda**

**Wednesday, December 6, 2017**

6:00-9:00p	Social mixer (in hotel restaurant/bar and outside patio)
7:30	Informal meeting with Workshop Session Chairs (in bar)

**Thursday, December 7, 2017**

7:00- 8:00a	Continental Breakfast (Room: Salon 6) and Registration (outside Salon 7-10)
8:00- 8:30	<b>WELCOME AND OPENING REMARKS - Gary Saylor</b> , University of Tennessee (Moderator)
	<ul style="list-style-type: none"> <li>• <b>Ken Moore</b>, Mayor, City of Franklin, Tennessee</li> <li>• <b>Liyao Zou</b>, Deputy Director, Bureau of International Cooperation, NSF of China</li> <li>• <b>Jim Jones</b>, Program Director, National Science Foundation (US)</li> <li>• <b>Bill Brown</b>, Dean, University of Tennessee Institute of Agriculture (UTIA)</li> </ul>
8:30- 9:00	Welcome by US and Chinese Research Leaders <ul style="list-style-type: none"> <li>• <b>Frank Loeffler</b>, Governor’s Chair Professor, University of Tennessee/UTIA/Oak Ridge National Laboratory (Symposium Chair)</li> <li>• <b>Bojie Fu</b>, Academician, Chinese Academy of Sciences</li> </ul>
9:00-9:20	Group Picture & Coffee Break (in outside hallway)
	<b>KEYNOTE PRESENTATIONS –Tim Rials and Jie Zhuang</b> , UTIA (Moderators)
9:20- 10:00	<b>Virginia Dale</b> , Oak Ridge National Laboratory (ORNL) “Environmental Challenges and Opportunities in the Food-Energy-Water Nexus”
10:00-10:40	<b>Bojie Fu</b> , Chinese Academy of Sciences “Ecosystem Service Trade-off: Nexus of Food, Energy, and Water Systems”
10:40-11:20	<b>Klaus Hubacek</b> , University of Maryland “Local to Global: Economic and Environmental Trade-offs of the Food-Energy-Water-Ecosystem Nexus”
11:20-12:00	<b>Chao Wang</b> , Hohai University, China “The Influence of Anthropogenic Disturbances caused by River-Cascade Hydropower Development on Environmental Functions”
12:00-1:00p	Lunch ( <b>Room: Salon 6</b> ) – Introduction by <b>Gary Saylor</b> , University of Tennessee Welcome: <b>Jai Templeton</b> , Commissioner, Tennessee Department of Agriculture Speaker: <b>Laura Palombi</b> , National Sanitary Foundation International (NSF International) “The Importance of Standards for Managing Interconnected Supply Chain Risks”

**Thursday, December 7, 2017 (continued)**

<b>Concurrent Workshops</b>		
<p><b>1:00-5:00</b></p> <p><b>Workshop 1 (Room: Salon 7-10):</b> Model developments, refinements, uncertainty, and scalable implementation in the food production, distribution, use and waste chain</p> <p>1:00-1:30p: <b>Jinhua Zhao</b>, Michigan State University—<i>“Modeling Farmer Decisions under Uncertainty in Linked Natural and Socioeconomic Systems”</i></p> <p>1:30-2:00: <b>Yan Zhu</b>, Nanjing Agricultural University—<i>“Model-based Prediction of Regional Productivity in Rice and Wheat Crops of China”</i></p> <p>2:00-2:15: <b>Laureline Josset</b>, Columbia University—<i>“Simulating and Optimizing FEWs across Continental US at the county scale”</i></p> <p>2:15-2:30: <b>Hui Lu</b>, Tsinghua University—<i>Simulation of Future Hydrologic Process by a Distributed Model and Climate Projections”</i></p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>3:20-4:00: Five-minute talks on background/research</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>Charles Sims</b> (University of Tennessee) &amp; <b>Yan Zhu</b> (Nanjing Agricultural University)</p>	<p><b>Workshop 2 (Room: Quarter Horse):</b> Implications of future food, feed and bio-feedstock production from degraded, fallow and non-arable lands</p> <p>1:00-1:30p: <b>Whendee Silver</b>, University of California, Berkeley—<i>“Climate Mitigation Potential across the Food-Energy-Water Nexus: The Role of Organic Waste Management”</i></p> <p>1:30-2:00: <b>Jie Bao</b>, East China University of Science &amp; Technology—<i>“Sustainable Feedstock Supply from Overloaded Land and Economic Conversion Technology for Biofuels Production in China”</i></p> <p>2:00-2:15: <b>Jingchun Tang</b>, Nankai University—<i>Biochar: Role in Water Cleaning, Food Security, and Energy Recovery”</i></p> <p>2:15-2:30: <b>Esther Parish</b>, Oak Ridge National Laboratory—<i>“Development of an Indicator Approach to Assessing Bioenergy Sustainability”</i></p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>3:20-4:00: Five-minute talks on background/research</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>Yuanhui Zhang</b> (University of Illinois) &amp; <b>Julie Carrier</b> (University of Tennessee Institute of Agriculture)</p>	<p><b>Workshop 3 (Room: Morgan):</b> Best practices and technology needs for sustainable food production in the built and urban environment</p> <p>1:00-1:30p: <b>Ming Xu</b>, University of Michigan—<i>“Urban Food-Energy-Water (FEW) Nexus: A Material and Energy Flow Perspective”</i></p> <p>1:30-2:00p: <b>Jun Bi</b>, Nanjing University—<i>“Managing Regional Health Risk from FEW Perspectives”</i></p> <p>2:00-2:15: <b>Brad Gaolach</b>, Washington State University—<i>“Promoting Urban Food, Energy, and Water Resource Resilience via the Regional Food System”</i></p> <p>2:15-2:30: <b>Douglas Hayes</b>, University of Tennessee—<i>“Biodegradable Plastic Mulches: Water Control for Specialty Crops”</i></p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>3:20-4:00: Five-minute talks on background/research</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>Brad Gaolach</b> (Washington State University) &amp; <b>Jun Bi</b> (Nanjing University)</p>
<p><b>Workshop 4 (Room: Highland):</b> Nutrient control and resource utilization and the need for scalable precision production</p> <p>1:00-1:30p: <b>George Garden</b>, TDEC—<i>“Level of Appreciation of the Food-Energy-Water Nexus in Tennessee Today”</i></p> <p>1:30-2:00p: <b>Xiaohu Dai</b>, Tongji University—<i>“Bioenergy and Resource Recovery from Sewage Sludge”</i></p> <p>2:00-2:15: <b>Bill Batchelor</b>, Auburn University—<i>“Trade-offs between Food Production, Water Use, and N Leaching in China”</i></p> <p>2:15-2:30: <b>Qiang He</b>, University of Tennessee—<i>“Integrated Application of Bauxite Residue in the Control of Air and Water Pollution”</i></p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>Andy Binford</b> (Tennessee Dept. of Environment &amp; Conservation) &amp; <b>Xiaohu Dai</b> (Tongji University)</p>	<p><b>Workshop 5 (Room: Saddle Bred):</b> Cost and efficiency of water and wastewater reuse and reclamation in safe food production</p> <p>1:00-1:30p: <b>Tong Zhang</b>, University of Hong Kong—<i>“Anaerobic Digestion as an Effective Strategy to Control ARGs in Animal Waste from Livestock and Recover Energy”</i></p> <p>1:30-2:00p: <b>Shuming Liu</b>, Tsinghua University—<i>“Understanding the Water-Energy Nexus in Urban Water Systems in China”</i></p> <p>2:00-2:15: <b>Hongwen Sun</b>, Nankai University—<i>“Plants Can be an Important Exposure Pathway for Human Beings to Organic Chemicals”</i></p> <p>2:15-2:30: <b>Wei Zhang</b>, Michigan State University—<i>“Pharmaceutical Residues in Treated Wastewater and Impact on Food Crops”</i></p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>3:20-4:00: Five-minute talks on background/research</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>David White</b> (University of Tennessee) &amp; <b>Tong Zhang</b> (The University of Hong Kong)</p>	<p><b>Workshop 6 (Room: Appaloosa):</b> Societal and economic acceptance of new technology, management practices and hidden cost transfers</p> <p>1:00-1:30p: <b>Julie Padowski</b>, Washington State University—<i>“Increasing Resilience Across the Food, Energy, and Water Sectors in the Columbia River Basin”</i></p> <p>1:30-2:00p: <b>Huangang Qiu</b>, Renmin University of China—<i>“Balancing Water Resource Conservation and Food Security in China”</i></p> <p>2:00-2:15: <b>David Griffith</b>, University of Idaho—<i>“Social Aspects of FEWS in Snake River Basin”</i></p> <p>2:15-2:30: <b>Mingzhou Jin</b>, University of Tennessee—</p> <p>2:30-3:00: Question and discussion</p> <p>3:00-3:20: Coffee Break</p> <p>3:20-4:00: Five-minute talks on background/research</p> <p>4:00-5:00: Discussion of FEWS research</p> <p>5:00-5:30: Break and Chairs meeting</p> <p>Chairs: <b>Dayton Lambert</b>, University of Tennessee &amp; <b>Huangang Qiu</b> (Remin University of China)</p>
<p><b>6:00-9:00p</b></p>	<p>Dinner on your own. Chinese guests will be transported by bus to <b>the Wildhorse Saloon</b> (120 Second Ave North Nashville, TN 37201) in downtown Nashville. The bus will load at 6:00p and leave at 6:15p</p>	

## Friday, December 8, 2017

7:00-8:00a	Continental Breakfast (Room: Carothers [behind restaurant]) and Registration (outside Salon 7)	
8:00-12:00	<b>Concurrent Workshops</b>	
<p><b>Workshop 1 (Room: Salon 7-10):</b> Model developments, refinements, uncertainty, and scalable implementation in the food production, distribution, use and waste chain</p> <p>8:00-8:30a: <b>John Antle</b>, Oregon State University—<i>“Next Generation Agricultural System Models for FEWS”</i></p> <p>8:30-9:00: <b>Liem Tran</b>, University of Tennessee—<i>“Exploring Ways for Integration of the Food-Energy-Water (FEW) Nexus Research with Life Cycle Assessment”</i></p> <p>9:00-9:15: <b>Michelle Ho</b>, Columbia University—<i>“Modeling Hydroclimate Uncertainty using Paleoclimate Streamflow to Inform FEWS”</i></p> <p>9:15-9:30: <b>Ying Zhang</b>, Johns Hopkins University—<i>“Modeling the Intersections of FEWS in Climate-Vulnerable Ethiopia: Small-Scale Irrigation”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>Charles Sims</b> (University of Tennessee) &amp; <b>Yan Zhu</b> (Nanjing Agricultural University)</p>	<p><b>Workshop 2 (Room: Franklin):</b> Implications of future food, feed and bio-feedstock production from degraded, fallow and non-arable lands</p> <p>8:00-8:30a: <b>Keith Kline</b>, Oak Ridge National Laboratory—<i>“Food AND Fuel: When does land matter?”</i></p> <p>8:30-9:00: <b>Jingkuang Wang</b>, Shenyang Agricultural University—<i>“Crop Residues Resource in China: Utilization, Potential, and Challenges”</i></p> <p>9:00-9:15: <b>Xiaohan Yang</b>, Oak Ridge National Laboratory—<i>“Genetic Improvement of Crop Water-Use Efficiency for Sustainable Production of Food and Biofuels on Degraded and Non-Arable Lands”</i></p> <p>9:15-9:30: <b>Shihui Yang</b>, Hubei University—<i>“Economic Lignocellulosic Biofuel Production”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>Yuanhui Zhang</b> (University of Illinois) &amp; <b>Julie Carrier</b> (University of Tennessee Institute of Agriculture)</p>	<p><b>Workshop 3 (Room: Morgan):</b> Best practices and technology needs for sustainable food production in the built and urban environment</p> <p>8:00-8:30a: <b>Elena Irwin</b>, Ohio State University—<i>“Human Adaptations in Food, Energy and Water Systems”</i></p> <p>8:30-9:00: <b>Qichang Yang</b>, Chinese Academy of Agricultural Sciences—<i>“Current Status and Development Prospect of the Protected Horticulture in China”</i></p> <p>9:00-9:15: <b>Brian Leib</b>, University of Tennessee—<i>“Rainwater Harvesting and Energy Management in High Tunnels”</i></p> <p>9:15-9:30: <b>Zhiting Tian</b>, Virginia Tech—<i>“Thermoelectric Energy Conversion”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>Brad Gaolach</b> (Washington State University) &amp; <b>Jun Bi</b> (Nanjing University)</p>
<p><b>Workshop 4 (Room: Highland):</b> Nutrient control and resource utilization and the need for scalable precision production</p> <p>8:00-8:30a: <b>Sean Schaefer</b>, University of Tennessee—<i>“Sustainable Agricultural Practices at the Nexus of Food, Energy and Water Systems”</i></p> <p>8:30-9:00: <b>Boqiang Qin</b>, Chinese Academy of Sciences—<i>“Ten Year Efforts in Eutrophication Control of Large Shallow Lake Taihu, China”</i></p> <p>9:00-9:15: <b>Guodi Zheng</b>, Chinese Academy of Sciences—<i>“Pollution Risk of Heavy Metals and Organic Pollutants to Soils and Crops after Sewage Sludge Land Application”</i></p> <p>9:15-9:30: <b>Yuguang Zhou</b>, China Agricultural University—<i>“Animal Waste Treatment and Utilization: Securing the Environment and Food Production”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>Andy Binford</b> (Tennessee Dept. of Environment &amp; Conservation) &amp; <b>Xiaohu Dai</b> (Tongji University)</p>	<p><b>Workshop 5 (Room: Saddle Bred):</b> Cost and efficiency of water and wastewater reuse and reclamation in safe food production</p> <p>8:00-8:30a: <b>Bernard Engle</b>, Purdue University—<i>“Opportunities to Capture Urban Stormwater Runoff for Food Production”</i></p> <p>8:30-9:00: <b>Bin Chen</b>, Beijing Normal University—<i>“Urban Water Resource Management in Metabolism-Nexus Perspective”</i></p> <p>9:00-9:15: <b>Steven Ripp</b>, University of Tennessee—<i>“Water and Wastewater Reuse: Water Quality Issues”</i></p> <p>9:15-9:30: <b>Ke Xu</b>, Nanjing University—<i>“New Technology of Advanced Treatment and Reuse of Industrial Waste Water”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>David White</b> (University of Tennessee) &amp; <b>Tong Zhang</b> (The University of Hong Kong)</p>	<p><b>Workshop 6 (Room: Appaloosa):</b> Societal and economic acceptance of new technology, management practices and hidden cost transfers</p> <p>8:00-8:30a: <b>Nada Assaf-Anid</b>, New York Institute of Technology</p> <p>8:30-9:00: <b>Lixiao Zhang</b>, Beijing Normal University—<i>“Food-Energy-Water Nexus for Urban Sustainability: Conceptual Framework and Real Challenges”</i></p> <p>9:00-9:15: <b>Dayton Lambert</b>, University of Tennessee—<i>“The Southeast’s Water Footprint and LCA: An Application using Multiregional IO Technology”</i></p> <p>9:15-9:30: <b>Jiafu Mao</b>, Oak Ridge National Laboratory—<i>“Improving the Representation of Human-Earth System Interactions”</i></p> <p>9:30-10:00: Question and discussion</p> <p>10:00-10:20: Coffee Break</p> <p>10:20-11:00: Five-minute talks on background/research</p> <p>11:00-12:00: Discussion of FEWS research</p> <p>Chairs: <b>Dayton Lambert</b> (University of Tennessee) &amp; <b>Huanguang Qiu</b> (Remin University of China)</p>

Friday, December 8, 2017 (continued)		
12:00-1:00	Working Lunch (Room: Carothers [behind restaurant]) Moderators: Gary Saylor and Frank Loeffler	
1:00-5:00	Collaborative Group Development (Room: Salon 7-10)	
	1:00-2:00	Plenary meeting of Committees and Chairs to Propose Collaborative Groups
	2:00-2:30	Participants Find Group Assignments
	2:30-4:00	Group Meeting to Discuss Research Proposals
	4:00-4:30	Coffee Break & Group Leaders Report to Steering Committee
	4:30-5:00	Reporting Results and Summary Remarks
5:30-10:00p	Banquet – General Jackson Showboat, 2812 Opryland Drive, Downtown Nashville 37214 (Bus loads at 5:30; bus leaves at 6:00p; board boat at 6:15p; leaves at 7:00p; returns at 10:00p)	

Saturday, December 9, 2017		
7:30-8:30a	Continental Breakfast ( <b>Room: Carothers</b> )	
8:30-11:30	Development of Draft White Paper and Report ( <b>Room: Franklin</b> ) (key participants including speakers and session chairs)	
11:30-1:00	Lunch ( <b>Room: Carothers</b> )	

#### SATURDAY MORNING

#### FIELD TRIP TO LEBANON WASTEWATER-ENERGY FACILITY AND SHOPPING IN NASHVILLE:

- 8:30 Bus loads outside hotel
- 9:00 Bus departs
- 10:00 Arrive at Wastewater-Energy Facility (321 Hartman Drive Lebanon Tn. 37087)
- 11:30 Leave for Gaylord Opryland
- 12:30 Arrive at Gaylord Opryland Resort for free time
- 3:30p Bus loads for return to hotel
- 3:45 Bus departs for hotel

