

Report on the

University of Nebraska–Lincoln

FOOD, WATER & ENERGY RESOURCES POLICY RETREAT & SYMPOSIUM

December 2010 and April 2011

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Harvey Perlman



FOREWORD

In my 2009 State of the University Address, I challenged our faculty and departments to reevaluate our efforts in public policy as it impacts agriculture, reflecting the many conversations I have had with farmers and ranchers across our state who worry not only about farm economics but also about the myriad of factors that influence national farm policy and global food security.

Agriculture is a major component of the Nebraska economy and generated more than \$23 billion in 2011. In 2010, Nebraska ranked first in the United States in commercial red meat production; second in cattle on feed; second in all cattle and calves; third in corn for grain production; third in sorghum receipts; fourth in soybean production; sixth in all hogs and pigs; seventh in winter wheat production; and seventh in alfalfa hay production. UNL has faculty expertise and strong research, education and extension programs to address production of all of these commodities.

Since 2009, the University of Nebraska has established the Robert B. Daugherty Water for Food Institute; the Nebraska Center for Energy Sciences Research has renewed its partnership with the Nebraska Public Power District for an additional five years; and UNL's successes in the life sciences continue, including food science and technology, animal and plant agriculture, renewable energy systems research

and education, and continued emphasis on understanding and protecting the state's water resources.

Since 2011, our campus-wide initiatives have been focused on growth and meeting our own and our peers' expectations as we participate in the Big Ten and build on our accomplishments. Our excellence stems from our experience in Nebraska and in the Great Plains, and our research, teaching and extension programs reflect that rich experience and our historic land-grant mission:

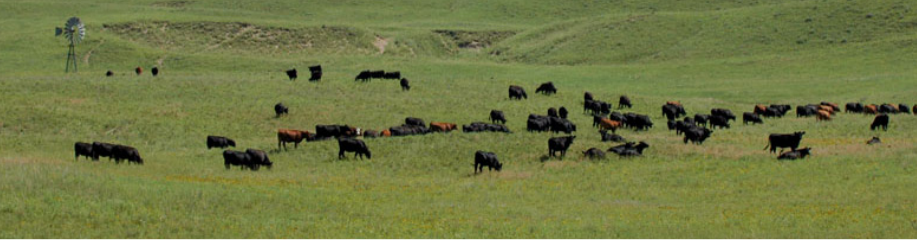
- Nowhere else but in Nebraska do 3,000 wells drilled into the High Plains aquifer yield such rich information about water resources and the challenges of integrated management of scarce surface and ground water resources, for the benefit not only of our state but also our region and water-scarce countries around the world.
- Nowhere else but in Nebraska do research efforts of one university span eight agro-ecological zones with multiple growing areas, multiple climates and multiple crops.
- Nowhere else but in Nebraska can evaluation of agricultural production systems be done from the petri dish to the landscape scale, including more than 43,000 acres in research farms.
- Nowhere else but in Nebraska does the life cycle analysis of critical biomass systems

intersect with large-scale commercial renewable energy production.

- Nowhere else but in Nebraska are multidisciplinary research scientists and extension specialists working with consumers and producers across the entire production chain to improve the quality, quantity and safety of Nebraska's food products.

The individual efforts of our faculty have been varied and successful. I encourage the ongoing effort to create an interdisciplinary framework for effective policy research to harness UNL's synergies, further the economic development of Nebraska and the region, and foster collaborations across departments, and campuses and with our Big Ten colleagues.

Harvey Perlman
Chancellor



Konstantinos Giannakas

INTRODUCTION

Providing sufficient, safe food, ensuring availability of an adequate supply of clean water, and delivering affordable energy in a way that minimizes environmental impacts are among the major challenges for a modern world with an expanding population. They also present key challenges for the State of Nebraska with its agricultural economy. The University of Nebraska-Lincoln (UNL) has responded by developing substantial initiatives in food, water and energy as signature areas for academic development, research investment and outreach programs. These initiatives focus on the technological challenges but also provide an opportunity for exploring the underlying policy considerations.

Competent evaluation of policy benefits from expertise in virtually all areas of scholarship, including the social sciences, law, and the relevant biological and physical sciences. UNL has an outstanding potential for increasing its contributions to agriculture in particular and to society in general through policy research and analyses related to food, water and energy resources. Throughout this report, *policy* is used in ways defined in the box at right, but distinguished from *policy advocacy*, which would not be an appropriate activity for a university.

The interest in and importance of agricultural policy issues at UNL argues for the capacity to

provide forums for analysis to address state, national and international issues in the areas of food, water and energy. Already there is much interest and activity in policy analysis at UNL as evidenced by the workshops described in this report and the recent funding of a Policy Research Center at UNL by the National Institute of Food and Agriculture at the U.S. Department of Agriculture. However, more rapid progress in policy analysis could be attained by building a critical mass of faculty expertise in policy analysis and by coordination of efforts across disciplines, departments and colleges.

Many of the Big Ten Universities (Committee on Institutional Cooperation [CIC]) have substantial activities in public policy. However, UNL has the unique features of being able to deploy multidisciplinary expertise to address policy issues across the entire agricultural production chain in the water-scarce, western Corn Belt and High Plains region, including eight agro-ecological zones with diverse climates and crops, including water-scarce and water-abundant zones. There is therefore a niche for UNL that focuses on the analysis of specific policies (as defined in the box, right) in the signature areas of food, water and energy.

This report builds on discussions initiated at a December 2010 retreat and an April 2011 symposium, both held at UNL, to provide

Policy Definitions

Public Policy – Public policy includes those principles that underlie or guide decisions/interventions in matters of public concern. They are generally held by governments and their agencies and implemented through regulation, programs, or other actions designed to achieve a desired outcome.

Policy Relevance – Because matters of public concern can be very broad, almost all we do within a university will be relevant to some policy at some time.

Policy Analysis – Policy analysis includes instances where research critically applies natural and social sciences, including economics, to assess specific decisions/interventions, often comparatively, with a view to informing public policy development.

Policy Design – Research in the area of policy design is focused on the development of mechanisms and policy instruments necessary to achieve policy goals efficiently and consistently.

Policy Education – Policy education provides objective, science-based information to increase understanding of policy issues, alternatives, and consequences, while avoiding the realm of policy advocacy.

Policy Advocacy – Policy advocacy extends to the conduct of policy analysis or the use of policy-relevant research to advocate for public policy and is not an appropriate role for professionals and institutions dedicated to policy education.

a framework for more consolidated and coordinated policy analysis strategy. The report provides justification for new areas of potential growth and how UNL might address them.

OVERVIEW OF RETREAT PROCESS

On December 16, 2010, and April 13, 2011, the University of Nebraska-Lincoln Chancellor's Office, Office of Research and Economic Development, Institute of Agriculture and Natural Resources (IANR), and Office of Academic Affairs sponsored meetings to explore the formation of a **large-scale interdisciplinary research initiative in Food, Water and Energy Resources Policy**. The UNL faculty has a distinguished record of scholarship and impact in these areas, and more than 150 faculty and staff participated in the discussions to identify strategies to leverage these individual successes into a larger interdisciplinary effort. The focus of the December 2010 retreat and April 2011 symposium was identification of the key national issues in food, water and energy resources and the critical needs for policy research. Additionally, break-out groups and speed networking sessions focused on how to leverage UNL's strengths to face these challenges.

December 2010 Retreat

Stanley Johnson of the University of Nevada, Reno, and CEO of the National Center for Food and Agricultural Policy, gave the **keynote presentation** at the December workshop, focusing his remarks on areas of food, water and energy resources policy in which

Nebraska's experiences and UNL's expertise could become the foundation of an effective, regional initiative.

Richard Perrin of UNL's agricultural economics department provided an **overview on energy policy research** and a detailed (if partial) accounting of specific projects.

Konstantinos Giannakas of UNL's agricultural economics department provided an **overview of food policy research** and strengths at the university.

Anthony Schutz of the University of Nebraska's College of Law provided an overview of water policy research and initiatives at UNL.

Faculty and staff participated in three break-out groups to focus on major questions for food, water and energy priorities:

- 1) What key policy issues should be the focus for a large interdisciplinary policy research effort? That is, what can we do by organizing collectively and developing interdisciplinary approaches that we cannot do alone?
- 2) What unique strengths does UNL possess that position us to address these questions? Where do we have competitive advantages that set us apart from other universities?
- 3) What gaps do we need to fill to enable us to realize this vision? How do we fill them? (e.g., with whom can we partner? Are there specific hiring needs to enhance competitiveness?)

The reports of the break-out groups are available online:

- [Break-out group #1](#)
- [Break-out group #2](#)
- [Break-out group #3](#)

April 2011 Symposium

About 90 people attended the second workshop on April 13, 2011. Two keynote speakers were featured:

Shenggen Fan, director general of the International Food Policy Research Institute, spoke on the topic of "**Global Food Security Challenges and Opportunities**."

Kathie L. Olsen of ScienceWorks LLC, former deputy director and chief operating officer of the National Science Foundation, spoke on "**Answering the Big Questions**."

Drs. Fan and Olsen challenged the symposium attendees to leverage their policy research expertise to focus on complex challenges to human prosperity, particularly critical needs for global food security and environmental sustainability, including food price volatility, energy/biofuels, population growth and demographic changes, land and water constraints (water availability and quality), climate change, disease, education, and political stability.

In his closing remarks, Stanley Johnson emphasized that any food, water or energy policy research initiative pursued by UNL faculty and staff should be multi-institutional, multi-state and regional in scope.

A speed networking session featured groups of three or four participants in a brainstorming discussion with 15 different subject matter experts to identify interdisciplinary strategies



Kathie Olsen



and opportunities for UNL in the areas of food, water and energy policy. [A transcript of comments from the speed networking session](#) is available online.

Richard Perrin summarized the speed networking [ideas related to energy](#).

Anthony Schutz summarized the speed networking [ideas related to water](#).

Konstantinos Giannakas summarized the speed networking [ideas related to food](#).

Stakeholder Input

Former State Senator Roger Wehrbein, Eugene Glock and Bob Bettger are members of the Agriculture Builders of Nebraska (ABN), an organization dedicated to the continual improvement and prosperity of agriculture in Nebraska. Wehrbein, Glock and Bettger, all experienced agricultural producers, participated in a panel discussion to provide feedback to the faculty, staff and administrators regarding high priority food, water and energy issues. Mark Gustafson of UNL moderated the panel. These stakeholders enthusiastically supported the ongoing research, education and extension efforts of UNL faculty that were discussed at the symposium. They also encouraged UNL faculty to expand their efforts on activities related to food, water and energy policy.

OPPORTUNITIES IN FOOD, WATER AND ENERGY POLICY

Food Challenge

The grand food challenge of the 21st century is to produce more, safe, and nutritious food without using more energy or harming the environment. As the global population grows from 7 billion to almost 9 billion by 2040, the world will need at least 50 percent more food, 30 percent more potable water and 45 percent more energy (1). In addition to these challenges, agriculture also must address numerous environmental concerns, including climate change, loss of biodiversity, degradation of land, pollution and diminished quality and quantity of freshwater. Although modern agriculture has experienced substantial gains in productivity, poverty and escalating food prices have left nearly 16 percent of the world's population in a state of chronic malnourishment or without access to sufficient food (2).

In this context, both the United States government and virtually every other nation across the globe has endorsed

policies facilitating the supply of and access to nutritious food, produced in an environmentally sustainable manner and offered at affordable prices, all of which are necessary for effectively addressing these growing challenges. Importantly, UNL's extensive research relevant to sustainable intensification of food production – the premier research priority identified by the Association of Public and Land-Grant Universities (APLU), the United States Department of Agriculture (USDA), and the United States Agency for International Development (USAID) – positions us to contribute not only to substantive food security policy (domestic and international), but also to science policy regarding the focus and allocation of federal and international research expenditures. UNL's research on the regulation of products of agricultural biotechnology, food nanotechnology, innovation policy and intellectual property rights can provide important insights on the appropriate policy responses to these new challenges facing the agri-food systems around the world.

At the same time that a major part of the world is facing malnutrition and hunger, the western world's industrialized agri-food system has been facing growing consumer demands for increased variety of high quality food products. Many of these demands reflect consumer concerns about potential health, environmental

and animal welfare effects of conventional production systems. Changing consumer demands have resulted in the significant growth of organic agriculture and the emergence of product concepts such as natural, sustainable, low-carbon, hormone-free, cage-free, dolphin-safe, functional foods and nutraceuticals. Given the nature of the differentiating attributes of these products, food policies (such as the introduction of standards, certification and labeling) are essential for: (a) ensuring the separation and co-existence of these products; (b) enabling consumers to make informed decisions; and (c) enabling producers to capture the price premium associated with these novel products. While UNL has significant expertise in food policy that can be utilized in effectively designing the optimal regulatory response to the introduction of these new products, the addition of expertise in behavioral and experimental economics would add significant breadth. Recognizing and understanding consumer behavioral patterns is a critical first step to identifying governmental actions that could influence these choices and improve policies. This research could reveal ways of influencing how people think about their decisions regarding food, water and energy, as well as the impacts of those decisions at the local and global scales.

Water Challenge

The grand water challenge of the 21st century is to conserve water resources and preserve water quality while simultaneously increasing food and energy production to meet growing global demands. It is widely acknowledged that the water resources of most of the world, including the Great Plains, will be oversubscribed due to pressures to produce food for the burgeoning world population along with increased demand by local populations for water for household, industrial, recreational and aesthetic purposes. Public policies will determine how scarce water supplies will be allocated and may facilitate or retard the role of technologies in more

conservational uses. Expanding UNL's expertise in water law, water policy analysis and water technology will equip us to better undertake comprehensive research and analyses of policy options and to more effectively meet these challenges.

Energy Challenge

The grand energy challenge of the 21st century is to achieve a quick transition to sustainable energy, because the climate change problem is an energy problem, world security problems are substantially energy problems, and the world's poor will need a lot more energy to rise from poverty. The agricultural, wind and solar resources of the Great Plains can all contribute to this transition, but it is critical that their use does not endanger the sustainability of the food system, which is just as critical. Research is urgently needed to evaluate electricity generation and distribution policies, as they will have major impacts on consumers and various producer groups in the region. Energy research policies (which influence the choice of major research efforts to fund) would benefit from ex-ante evaluation of the impacts of new energy technologies, such as algae, energy conservation technologies and transportation technologies. In addition, the issue of federal energy subsidies for alternative fuels is not yet resolved, leaving the impacts of these massive expenditures on agriculture and resources of the region unresolved as well. Great Plains perspectives on the effectiveness, economic and behavioral impacts of such policies, together with distributive effects of the various policy alternatives will be essential if these new policies are to be effective and represent the interests of consumers as well as those of the agricultural, energy and other production sectors of the economy.

Future Directions

Future discussions of food, water and energy security must include the three pillars of sustainability: the social, economic and

environmental impacts. We must determine how to enhance local food security with safe, nutritious and affordable food that is produced in a manner that does not harm the environment. To achieve global food and energy security while maintaining environmental sustainability, new policies are needed to address the intersection of these challenges. Opportunities also exist to strengthen the interface between science and policy. For example, food, water and energy policies are rarely coordinated, not well integrated, and are usually based upon the assumption that these resources will remain relatively cheap and abundant. However, in the U.S., federal mandates for and subsidies of biofuels have increased demand for crop products, with little consideration of the impacts on food prices or water supply and quality.

COMPETITIVE ADVANTAGES FOR UNL

A number of UNL departments, research centers and other units have visions/missions with policy components that include or could include a focus on agricultural issues.

In the water arena, the **University of Nebraska's Robert B. Daugherty Water for Food Institute** is a research, policy analysis and educational institute. The Nebraska Water Center, which is part of the Daugherty Water for Food Institute, also implements and facilitates water and water-related research, teaching and public outreach. The National Drought Mitigation Center in the School of Natural Resources helps people and institutions develop and implement measures



Ronnie Green





to reduce societal vulnerability to drought, stressing preparedness and risk management rather than crisis management.

The **Nebraska Center for Energy Sciences Research** conducts energy research that produces new technology, processes and systems and, in its sixth request for research proposals (2011/2012), includes a framework for and/or analysis of policies relating to renewable energy in a way that informs interested parties.

Research in the **Center for Plant Science Innovation** puts UNL at the scientific cutting edge in the use of plants (including genetic modification) for food, biofuels and medicine, also providing an interface with the important policy challenges -- both local and global -- in these areas. Similarly, a range of research in IANR related to sustainable agricultural production interfaces with increasingly important national and international policy issues.

The **Public Policy Center** informs public policy by facilitating, developing and making available objective research and analyses of issues for parties who represent policy interests.

The **Center for Agricultural & Food Industrial Organization (CAFIO)** focuses on the analysis of competitive relationships

in the agri-food system, the economic effects of different government policies and firm strategies, and the design of mechanisms aimed at inducing socially desirable outcomes. CAFIO has significant expertise in the development of empirically relevant multi-market models including heterogeneous consumers and producers. This research is the foundation for the Policy Research Center funded by USDA's National Institute of Food and Agriculture.

The **North Central Risk Management Education Center** allocates federal funds for results-based, producer-focused, competitive grants to improve producer decision making.

The **Bureau of Business Research (BBR)** is an applied economic and business research entity of the College of Business Administration at the University of Nebraska-Lincoln with two primary purposes. First, it provides relevant information and insightful data on economic conditions in Nebraska, the Great Plains and the nation as a general service to individuals and businesses in the state. Second, the BBR provides economists with practical opportunities to conduct applied economic research and trains students of economics and business in the conduct of applied research on timely economic and business topics. Recently, the BBR prepared a report for a six-state consortium of labor departments that includes the Nebraska Department of Labor

and analyzed the supply and projected the demand for 16 specific "green" occupations -- from civil and environmental engineers to carpenters, truck drivers and electricians -- in the next two years. The analysis demonstrates that Nebraska's workforce is well-positioned for expected growth in "green" jobs, which the U.S. Bureau of Labor Statistics defines as "jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources" or "jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources."

The **Department of Agricultural Economics** has long included a policy component in its research and educational activities. Research and education have focused on policy development, policy alternatives, and policy implementation, all contributing to a better understanding of policy issues and choices and a more efficient implementation of policies as well as improved public and private management decisions impacted by policies.

Faculty in the **Department of Political Science** conduct research examining issues of vital interest to the nation and world. For example, one of the especially relevant research areas at the interface of science and public policy focuses on water resources policy and

governance. Other interdisciplinary areas of relevance involve biopolitics and political psychology and human rights and conflict.

The **Department of Biological Systems Engineering's** unique involvement in life cycle research (considering implications from cradle to grave: raw materials, production, use and disposal) also will add value to some aspects of policy analysis.

The **Nebraska College of Law** often produces work that involves public policy as it evaluates the principal means of implementing policy judgments: law. The college's faculty work in the areas of agricultural law, water law, natural resources law, land use regulation and food law, to name a few. More generally, its familiarity with governmental institutions, the scope of governmental power and the parameters of policy judgments embedded in law, as well as its history of assisting legislative actors and attention to their work, can play a key role in policy research, identification of policy-relevant research, and policy education.

Finally, the **Nebraska Innovation Campus** may provide a unique opportunity for policy research. For example, access to policy research could help entrepreneurs and existing businesses understand the policies affecting their operations. In turn, experience with these businesses could reveal important areas for new policy research.





Shenggen Fan

RECOMMENDATIONS

Creating a Framework for Collaboration and Policy Research

The previous section amply demonstrates that UNL has wide-ranging interests and involvement in public policy research. What is missing is a framework to coordinate activities so UNL can make substantial contributions to the area. We recommend creation of an interdisciplinary Policy Forum to review and analyze policy issues at all levels and to identify roles UNL can play in key policy areas, especially as they relate to food, water and energy.

Our recommendation is based on our recent experience of responding to a USDA-NIFA request for applications (RFA) to create Policy Research Centers. This RFA called for development of innovative and cross-disciplinary research teams. UNL was well poised to respond to this opportunity and was successful in obtaining funding. However, challenges like this illustrate the benefits of strategically enhancing UNL policy expertise so we are even better positioned to take advantage of funding opportunities that arise unexpectedly and require a rapid response (e.g., 6 weeks from release of the RFA to the deadline for submission of applications). Expansion of policy expertise also provides an infrastructure for the type of routine policy activities that will inform and extend UNL scholarship on food, water and energy. This need for a rapid-

response capability to address both funding opportunities and policy issues is likely to be very common in an area that is tightly coupled to political activity and public opinion.

We favor an approach that builds capacity in the general area of policy analysis in a way that can be applied to particular issues as they emerge. We also emphasize that it will be important to keep in mind the cross-disciplinary needs of policy work. Indeed, not only will many of the most interesting issues and challenges be cross-disciplinary, they also will cross UNL signature areas of excellence. For example, how does energy policy, driven by climate change policy, impact food and water? How do food, water and energy policies impact food price volatility?

We therefore recommend the establishment of a framework at UNL that would give faculty the flexibility and capability of responding to policy issues and funding initiatives as they arise. We recommend the development of a Policy Forum comprised of representatives from all relevant units (centers and departments) across UNL. The Policy Forum would meet regularly (e.g., quarterly) to maintain momentum without overburdening faculty and would be specifically charged with:

1. Carrying out a comprehensive review of public policy interests at UNL that builds on those listed in the previous section and leads to

a list of faculty experts and ongoing activities.

2. Providing an opportunity for networking and team-building activities.

3. Establishing a way of gathering intelligence on policy issues that are of developing interest in local, national and international arenas, and ensuring that these are brought to the attention of faculty in a timely manner.

4. Forming think tanks (from UNL faculty and outside experts), if necessary at short notice, that center on the issues identified in #3 with a view to developing white papers that can be circulated to interested parties. This would be an effective way of establishing UNL's presence in key policy areas.

5. Developing an interdisciplinary seminar program that strengthens the interface between science and policy.

6. Publishing co-authored review articles or research papers to provide evidence of collaborative and interdisciplinary team activities.

7. Providing means of responding rapidly to funding opportunities as they arise.

The long-term sustainability of the Forum will depend on the extent to which it adds value to

the policy analysis activity and to the funding opportunities for faculty involved. It also will depend on the process of support and delivery, and, like other activities that are critical to a large organization, it needs leadership, coordination and investment. In the short-to medium-term we will develop adequate infrastructure and activities to establish not just the idea of an interdisciplinary framework but an actual Forum for effective policy research to harness UNL's synergies, further the economic development of Nebraska and the region, and foster collaborations across departments, campuses, and with our Big Ten colleagues. Dr. Peter Calow (Research Professor, Office of Research and Economic Development) will commit 25% effort to providing overall leadership for establishing the Forum and coordinating activities. Faculty from the Ag Workshop Planning Committee (Appendix A) and representatives from the Robert B. Daugherty Water for Food Institute, the Center for Agricultural & Food Industrial Organization, the Nebraska Center for Energy Sciences Research, and Nebraska Innovation Campus will serve on a steering committee for the Forum to lead various activities and make decisions related to the future priorities of the Forum. The Forum would be responsible for developing and implementing the interdisciplinary, organizational framework, including but not limited to: building a database of appropriate faculty and research expertise; organizing regular events; scanning the policy arena; bringing working groups together for academic enhancement and to allow coordination at short notice; bringing in outside experts; and the many other activities that allow the Chancellor's interdisciplinary, agricultural policy framework idea to become a reality at UNL. Seed funding in the amount of \$20,000 per year is requested to support seminar speakers, development of white papers, and establishment of the database. After three years, the Forum will undergo an internal review to assess progress in building faculty

teams, interfacing with policy or decision makers, and competitiveness for extramural funding.

Capacity Building

As well as identifying the need for the Forum, we also have identified areas in which UNL should consider building capacity to provide an even stronger basis for policy analysis in the agricultural sector. Expertise and skill sets from the general disciplines related to policy analysis will be applied to a variety of issues in the agricultural sector in Nebraska, the nation, and the world.

The first area is generic and relates to the development of more capacity in the field of behavioral economics. Added strength in this area would enhance the empirical basis of our policy work and enable us to effectively address critical emerging issues such as the market acceptance and success of consumer-orientated food product innovations, water markets, emission trading and the effects of biofuels on the agri-food marketing system. The Department of Agricultural Economics plans to hire an Endowed Chair in Social Impacts of Technology Adoption to address these issues. The need for this capacity became obvious in developing the USDA Policy Research Center proposal mentioned above.

Additional expertise at UNL is needed in water, food, and environmental resources policy to complement existing expertise in law, business, economics, political science, sociology, and physical and biological sciences. The Department of Agricultural Economics has proposed a cluster of hires, including an Endowed Chair in Water Resource Policy; an Environmental Economist with Specialization in Non-Market Valuation; and a Natural Resource and Ag Systems Economist. The Endowed Chair in Water Resource Policy could also serve as Policy Director in the Daugherty Water for Food Institute at the University of

Nebraska and will have an important role in integrating efforts to address policy issues associated with effective and efficient utilization of water for food. The Environmental Economist with Specialization in Non-Market Valuation will be important in evaluating the economics of water use with the broader social and economic policies such as the non-market values associated with recreational use of water when assessing sustainable water use. The Natural Resource and Ag Systems Economist will examine water allocation issues in the region and will provide a bridge between natural resources and food and agricultural production systems.





ACKNOWLEDGMENTS

This report is the result of the collective effort of many at the University of Nebraska – Lincoln from 2010 to early 2012, and I want to recognize several UNL faculty for their innovation, energy, and enthusiasm in tackling the broad topic of agricultural policy: Dr. Tala Awada, of the School of Natural Resources; Dr. Konstantinos Giannakas, of the Agricultural Economics Department; and Dr. Richard Perrin, of the Agricultural Economics Department. Their extensive knowledge, creativity and skillful engagement of their colleagues across many disciplines was the beginning of a nearly two-year conversation that responded to Chancellor Perlman's State of the University Address in 2009, which identified agricultural policy as an area critical to Nebraskans and an opportunity for UNL faculty.

In early 2012, prior to the release of the report's recommendations, UNL was successful in competing for U.S. Department of Agriculture funds to establish a policy research center at UNL with support for a major project that combines economic research, behavioral economics, economic modeling, and their application to current agricultural

policy problems. The interdisciplinary project team includes UNL faculty from Agricultural Economics, the College of Business Administration, the School of Natural Resources, with leadership provided by Dr. Giannakas and Dr. Peter Calow. I am optimistic that this substantial grant is the first of many that can help university faculty strengthen their expertise in the important areas of food, water, and energy policy. In addition, Dr. Kim Espy, Associate Vice Chancellor for Research, Dr. Deb Hamernik, interim Associate Vice Chancellor for Research, Dr. Peter Calow, Research Professor, and Ms. Maureen Moseman, Consultant (Office of Research and Economic Development) facilitated many interactions to identify opportunities in food, water and energy policy as well as the competitive advantages of UNL. The appendix includes a complete listing of all participants in a retreat in 2010 and a symposium in 2011, as well as all planning committee members and contributors to this report.

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APPENDIX

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Stanley R. Johnson is assistant to the dean for special projects in the College of Agriculture, Biotechnology and Natural Resources at the University of Nevada, Reno. He is also board chair and CEO of the National Center for Food and Agricultural Policy, a Washington D.C.-based policy think tank.

He has served internationally as a project coordinator and consultant in a variety of countries in the Middle East, Asia, Europe and Africa. Johnson has held leadership positions with the National Association of State Universities and Land-Grant Colleges (NASULGC) and directed Iowa State University's Center for Agricultural and Rural Development (CARD), a research center that focuses on agricultural, food and nutrition, rural development and environmental policy. Johnson is a Fellow of the American Agricultural Economics Association, a member of the Academy of Sciences in China and Hungary, and the Academy of Agricultural Sciences in the former USSR, Russia, Ukraine, Kazakhstan and other states of the former Soviet Union. He is the recipient of the Charles A. Black Award of the Council for Agricultural Science and Technology of the USA.



Kathie L. Olsen, ScienceWorks LLC

Kathie L. Olsen is founder and managing director of ScienceWorks LLC, a consulting firm that helps people and organizations succeed in science and engineering research. Dr. Olsen previously held a variety of administrative and scientific leadership positions with the National Science Foundation, most recently as deputy director and chief operating officer. She also served NSF as a senior adviser in the Office of Information and Resource Management, where she advised senior management on opportunities for NSF-wide.

She has been associate director and deputy director for science in the Office of Science and Technology Policy in the Executive Office of the President. She also was a NASA chief scientist and acting associate administrator for biological and physical research.



Shenggen Fan, International Food Policy Research Institute

Shenggen Fan was appointed director general of the International Food Policy Research Institute (IFPRI) in December 2009. Previously he served as IFPRI's program leader on public investment and later became the director of IFPRI's Development Strategy and Governance Division. Fan has conducted extensive research on pro-poor development strategies in developing countries in Africa, Asia and the Middle East. His work has helped identify which kinds of public spending are most effective in reducing poverty and generating agricultural growth.

He also has held positions at the International Service for National Agricultural Research in the Netherlands and the Department of Agricultural Economics and Rural Sociology at the University of Arkansas.

Fan is currently an executive committee member of the International Association of Agricultural Economists. He also has received many awards, including the Distinguished Professional Contribution Award from the Southern Agricultural Economics Association and the Outstanding Alumni Award in Applied Economics from the University of Minnesota.



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