

## **The Water for Food Institute**

*The global Water for Food Institute is a research institute committed to helping the world efficiently use its limited freshwater resources to ensure the food supply for current and future generations.*

### **The Challenge**

Lack of water is a constraint to producing food for millions of people in the world today. Dramatic increases in agricultural productivity over the past 50 years driven by improved crop varieties, fertilizer use and the doubling of irrigated land kept pace with population growth. Agriculture now consumes 75 percent of all freshwater withdrawals and 86 percent of human consumptive use, the vast majority used for irrigating crops. By 2050 the world's population is expected to increase 40 percent and the demand for food will double. This escalating need for agriculture to produce food, feed, fiber and fuel will exert intense pressure on our water resources.

Already, water shortages are occurring in many of the world's major food production areas and burgeoning municipal and industrial demands are shifting more water away from agriculture. At a time when agriculture must produce more food for a growing population, our water supplies are stretched to meet increasing demands and a changing global climate holds unknown risks. We face the possibility of global food scarcity if demand outstrips supply. We must grow more food with less water.

The daunting issues surrounding water for food – overuse, underuse and inefficient use, sustainability of the resource, degradation of supplies, distribution and demand conflicts, and legal and institutional barriers to management – are globally important. Although many organizations in government, academia and the private sector are working to address global water issues and to improve crop production systems, a need still exists for a focused global effort to bring together expertise from many disciplines to conduct research focused on producing more food per unit of water.

### **The Opportunity**

For more than a century the University of Nebraska has been a leader in research on water, agriculture and the management of critical natural resources. This leadership grew naturally from Nebraska's position as a steward of vast natural resources. The native grasslands and farmlands of Nebraska comprise one of the most productive agricultural areas in the world – a level of production made possible by a wealth of water resources that includes the Platte River and the High Plains Aquifer, one of the largest aquifers in the world. These resources enable the state's irrigated crop production, placing it first in the U.S. in irrigated crop acres and fourth in food production, and giving Nebraska global significance as a food producer.

Nebraska is a leader in innovative policies to manage and conserve surface and groundwater resources. This strong knowledge base developed by the public and private sectors, coupled with a long history of research, education and outreach focused on water and agriculture, positions the University and its partners to contribute innovative solutions to the global challenges of growing more food with less water and managing limited water resources in a hungry and thirsty world.

### **The Water for Food Institute**

The University of Nebraska recognizes that there is a critical need for an organization with a global perspective and diverse expertise to address the challenges and issues surrounding the use of water for agriculture. To meet this need, the Robert B. Daugherty Charitable Foundation has made a generous \$50 million founding gift to the University to establish the global Water for Food Institute, a research institute committed to helping the world efficiently use its limited fresh water resources to ensure the food supply for current and future generations. The Institute will:

- Conduct research, education and policy analysis on the efficiency and sustainability of water use in agriculture, the quantity and quality of water resources, and the human issues that affect the water decision-making process.
- Create strong partnerships and an extensive knowledge base to develop innovative, effective solutions to the global challenge of growing more food with less water.
- Increase water productivity in agriculture in both developed and developing nations through new technologies, novel and improved crops, innovative management practices and studies of the human dimensions of water use.
- Develop advanced decision-making tools and knowledge delivery systems to inform and guide policymakers, managers and the public in managing water resources.

The issues surrounding water for food have long been, and continue to be, the focus of University of Nebraska research, and the knowledge and capabilities developed in Nebraska can be shared and applied internationally. Nebraska can learn, in turn, from its regional, national and global partners.

***Institute Leadership.*** An *Executive Director* who can provide the visionary leadership, scientific expertise and administrative experience to establish the Institute as a global leader in water for food research will be recruited from among internationally recognized experts in the field. The Executive Director will develop a premier research capability by establishing the Institute and bringing it visibility in the international water and food communities, developing national and international partnerships in the public and private sectors, and pursuing opportunities. The Executive Director will have broad international experience and connectivity, strong drive and a sense of mission, and the ability to raise funds. Additional leadership will be provided by a *Director of Research* and *Director of Policy Analysis*.

***Objectives of the Institute.*** The Institute's work will focus on fundamental and applied research to provide the knowledge base for effective, practical solutions to the challenges of managing water quantity and quality and increasing food production in a world with rapidly increasing demands for water and finite resources. A major research emphasis will be improving the efficiency of water use in agriculture through the development of new technologies, innovative management practices and improved crops, both for the developed and developing world. Generating the information and building the tools needed to guide decision-making about management of water quantity and quality by managers, consumers, and the public and to inform policy-making at all levels also will be an important aspect of the Institute's work.

***Partnerships.*** Regional, national and international partnerships based on shared interests will be critical to the Institute's work. The Institute will build the capability to foster, promote and lead collaborations with other important institutions – both public and private – around the world. This will include seeking partnerships with developing countries whose economies depend on agriculture and water for survival. These partnerships will be key to developing the Institute's cooperative research programs.

***Research Fellows program.*** A Research Fellows program will bring the best minds in the world to the Institute as visiting faculty fellows, for periods of time ranging from several weeks to one year. Fellows will provide expertise not available at the University, help create resident cooperative research programs with other institutions and foster a flow of information and expertise among partners.

***Student Fellowships.*** Educating the next generation of scientists, engineers and policy- and decision-makers will be a key role for the Institute. A Graduate Fellows Program and Undergraduate Scholars Program will provide scholarships to highly qualified students pursuing studies that align with the Institute's mission.

***Other Institute Activities.*** In addition to supporting its major research mission, the Institute will provide funding for infrastructure that supports key research areas and support for conferences, workshops and education activities that disseminate research results.

***Facilities.*** The Water for Food Institute initially will be housed in the historic Whittier Building, with a location on the Nebraska Innovation Campus planned for the future.