

THE UNIVERSITY OF NEBRASKA

Global Water Institute

A LEADING CENTER FOR THE USE OF WATER FOR AGRICULTURE

THE CHALLENGE

Global agricultural productivity has increased dramatically over the past 50 years. Fueled by improved crop varieties, new irrigation technologies and advanced agricultural practices, the food supply has kept pace with a rapidly growing population. Yet, today we face the possibility of global food scarcity if demand outstrips supply.

The world's population is expected to increase 40 percent by 2050, vastly increasing the need for crops for food, feed and fuel. Meeting this demand will exert intense pressures on water resources. Worldwide, food production accounts for 86 percent of human fresh water consumption, mostly for irrigating crops.

Water shortages are already occurring in some major food production areas, and burgeoning industrial and municipal demands for water will shift more water from farms to cities. At a time when agriculture is being asked to produce more food for a growing population, water supplies are dwindling and a changing global climate holds unknown risks. We must grow more food with less water.

The daunting issues surrounding water – efficient use, balancing competing uses, distribution and demand conflicts, degradation of supplies, and legal and institutional barriers to management – are important nationally and globally.

The Global Water Institute is committed to helping the world efficiently use its limited fresh water resources to ensure the food supply.





THE OPPORTUNITY

Nebraska's economy has developed around the success of its irrigated agriculture. The state's groundwater reservoirs contain some 2 billion acre-feet of water, representing 65 percent of the water in the High Plains Aquifer, the largest in the U.S. Nebraska also ranks 10th in the nation in stream miles. This huge water supply enables the irrigated crop production that has made Nebraska a global food producer, ranking first nationally in the number of irrigated acres and fourth in food production.

Nebraska's unique position as steward of vast water resources and a major agricultural producer, coupled with the University of Nebraska's long-standing expertise in water research and strong public and private sector partnerships, offers both the environment to explore key water issues and a natural laboratory for possible solutions.

Over the past 150 years Nebraska has developed extensive expertise in irrigation, agriculture and the policies governing both. Center pivot irrigation systems were invented in Nebraska and the state is home to four of the world's largest pivot manufacturers. The state government is a leader in innovative policies to manage and conserve surface and groundwater resources.

As a land-grant institution, the University has long been a national leader in research on water, agriculture and the management of critical natural resources. NU also provides expertise in the many disciplines – from engineering to public policy to information technology – needed to address the complex interactions of our water and food systems.

THE GLOBAL WATER INSTITUTE

The Global Water Institute will be a world-class research center at the University of Nebraska addressing global issues. It will conduct research, education and policy analysis on the efficient use of water in agriculture, the quantity and quality of water resources and the human issues affecting water use.

The knowledge and capabilities developed at the Institute will be shared and applied nationally and internationally through partnerships, cooperative research programs and visiting faculty fellowships.

There is a critical need for an organization with a global perspective and expertise in many disciplines to conduct research focused on the management of water as the essential factor in ensuring a reliable food supply and sustainable quality of life.

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 water use efficiency in agriculture through the development of new technologies, innovative management practices and improved crops, both for the developed and developing world. Another impor-

tant aspect of the

Institute's work will be creating the information and tools needed to guide decision-making about the management of water quantity and quality by policy-makers, managers, consumers and the public.

The Global Water Institute will provide the strong partnerships and extensive knowledge base to develop innovative solutions to the global challenges of growing more food with less water and managing limited water resources in a thirsty world.

