THE DAUGHERTY WATER for FOOD GLOBAL INSTITUTE at the University of Nebraska

Nebraska's role in global food security: A strategic investment for the U.S.

The Daugherty Water for Food Global Institute at the University of Nebraska leads the **Feed the Future Innovation Lab for Irrigation and Mechanization Systems** (ILIMS). This initiative fosters scientific collaboration between U.S. agricultural expertise and organizations in low- and middle-income countries where irrigation and mechanization are priorities to achieve food security.

Enhancing global stability through food security

ILIMS partners with companies and institutions to engage in research and training that enables countries to transition to irrigated and mechanized agriculture. By better managing water and resources on farms, more food can be produced to meet local and national demand while avoiding crop loss and pest infestation caused by lack of water. In short, these countries can become more food and water secure, resulting in a more stable and peaceful world.

Expanding agricultural markets

Based in Nebraska, the heartland of the irrigation industry, the University of Nebraska leads groups of researchers to respond to the rapid growth of irrigation and mechanization in new and expanding markets, where farmers, U.S. companies and local collaborators are improving agricultural practices. Research bolsters private and public investment in the irrigation sector. For example, information on water resources and irrigation suitability enables companies to identify promising areas for markets. Data generated also reduces risk and supports decision-making, such as to increase farmer access to credit to invest in equipment, services and information tools.

The ILIMS advisory board includes irrigation equipment companies in the U.S. and Nebraska, who help guide research and training to align with the growth of the irrigation and agricultural equipment market globally.

American and Nebraskan companies and universities are also integrated into research efforts, bolstering important networks between industry, distributors and scientific research and development in low- and middle-income countries.

The work of ILIMS

ILIMS's work includes the following:

- **Site-Specific Solutions:** ILIMS analyzes local conditions to determine the most effective irrigation strategies and equipment for specific regions.

- **Workforce Development:** ILIMS works with universities and private companies to develop a skilled workforce needed for a strong irrigation and mechanization sector, as well as water resource management.
- **Market Development:** ILIMS assesses market potential to ensure that equipment is accessible and affordable.

For example, ILIMS maps areas suitable to produce crops using various irrigation equipment - from center-pivots to small-scale pumps, tractors and other agricultural equipment. Researchers identify water sources and management practices for crops ranging from cocoa and coffee to fodder and fruits. The lab analyzes equipment supply chains to understand affordability and market potential, including trade policy, financial systems, adapted business models, and potential clients. Based on skills needed for workforce development, ILIMS works with organizations that provide training in agricultural sciences and industry, introducing U.S.-designed water management tools and methods.

Lessons from Nebraska's successes in managing water, especially groundwater, are brought to other agricultural areas beginning to face similar challenges. Through these partnerships and training, ILIMS builds goodwill for the U.S. and counters threats of influence from other countries, like China, who are active in irrigation equipment markets and expanding into strategic, water scarce areas.

A high return on research investment

While a relatively small part of the USAID portfolio, international agricultural research programs show high returns on investment for the U.S. Authorized under Title XII of the Foreign Assistance Act of 1961, the ILIMS research project is one of more than 20 Feed the Future Innovation Labs hosted by 13 land grant universities spanning 29 states, which leverage the advanced capacities of U.S. land grant universities globally. The universities that lead the research are tasked to provide unbiased evidence to support the U.S. government in achieving agricultural-led economic growth and reducing global hunger and malnutrition.

Safeguarding U.S. agriculture

Agricultural research helps safeguard U.S. agriculture by addressing global challenges like pests and diseases and benefits U.S. companies and small businesses by supporting market growth for U.S. products. For example, one Nebraska business has collaborated with USAID to help farmers worldwide selectively breed poultry that are resistant to highly fatal diseases.

An edge on global competition for agricultural and scientific influence

Training students in the U.S. to become global leaders and innovators in agriculture, science and business generates goodwill and influence in both fragile and emerging economies. Agricultural research and Feed the Future Innovation Labs provide the U.S. with a crucial advantage in the global competition for influence, while promoting U.S. national security in keeping with U.S. interests and American values.