



Daugherty Water for Food Global Institute Strategic Plan FY18 – FY23

Every day, nearly a billion people in the world are food-insecure, without enough safe and nutritious food to lead healthy and active lives. Many of them are also water-insecure, without reliable access to an adequate amount of clean water to meet their needs. By 2050, our global food demand will double to meet the needs of nearly 10 billion people. To ensure sustainable food and water security in the face of population and income increases, a changing climate, and the growing demand for scarce water resources, it is imperative to improve water management in agricultural and food systems.

Nebraska is fortunate to have one of the most progressive and prosperous agricultural industries in the world thanks to the blessings of our natural resources, the ingenuity and hard work of our farmers and the research leadership of the University of Nebraska. The Robert B. Daugherty Foundation selected NU to harness this well-rounded combination for a new institute focused on ensuring water and food security for our growing world. The Robert B. Daugherty Water for Food Global Institute (DWFI) was founded in 2010 to leverage the university's expertise and extend it with strong state, national and international partnerships.

The institute's impact is achieved through the work of its talented staff of more than 100 faculty and global fellows, postdoctoral researchers, and students in a wide variety of fields pursuing projects focused on increasing water and agricultural productivity. Additionally, the institute includes the valuable assets of the Nebraska Water Center and the Water Sciences Laboratory, and benefits from the expertise of the National Drought Mitigation Center at the University of Nebraska-Lincoln. As a system-wide institute, DWFI taps the specialized resources available at all four NU campuses, including the College of Public Health within the University of Nebraska Medical Center in Omaha. DWFI also collaborates with other universities, businesses, non-governmental organizations, and government agencies around the world to address issues on a global scale.

Through research and policy development, education and communication, the institute is enhancing knowledge, fostering future water and food security leaders and developing effective techniques to sustainably manage water and increase food security. DWFI focuses its efforts in five areas of expertise and has identified key outcomes in each area to drive impact and measure success in the next five years, FY2018 to FY2023:

Closing Water & Agricultural Productivity Gaps:

- Develop and deploy global satellite-based decision support and monitoring tools based on daily evapotranspiration estimates in key agricultural areas in the US and selected countries.
- Improve knowledge of best practices to close water and agricultural productivity gaps for key irrigation decision-makers in the US and selected countries and regions (e.g. Iowa, Nebraska, Brazil, India, and the MENA region).
- Influence the adoption of technology and best practices to improve water productivity in key agricultural areas in Nebraska and participating countries.

Improving Groundwater Management for Agricultural Production:

- Identify and improve knowledge of best practices and cost effective groundwater management policies given local context, climate conditions and constraints in key areas in the US and selected countries.
- Influence groundwater governance and policy through education and pilot programs demonstrating best management practices and innovative technology and institutions in selected US states and countries. Establish and apply new methods to monitor improvements in groundwater conditions in selected areas that are currently degraded (e.g., quality, streamflow, depletion).

Enhancing High-productivity Irrigated Agriculture:

- Identify and improve knowledge of cost-effective practices for water and energy use in agriculture.
- Influence the adoption of technology and best practices to improve water and energy use in agriculture in the US and selected countries and regions. Document the improved use efficiency of water and energy resources in agricultural production as a result of DWFI activities, including DWFI faculty fellow activities and other partnerships.

Supporting Freshwater & Agriculture Ecosystems & Public Health:

- Develop new methods and facilitate the adoption of water quality management best practices
- Support agricultural practices that minimize negative impacts on water quality in Nebraska and selected countries. Influence the adoption of viable water markets in selected U.S. regions and countries. Develop new methods and facilitate the adoption of new knowledge about water re-use and other water conservation approaches in the dairy and other food processing industries.

Managing Agricultural Drought:

- Develop and disseminate information and tools to build resilience to drought in agricultural systems in selected countries and regions (e.g. MENA).
- Influence the adoption of tools and policies to reduce vulnerability and build agricultural resilience to drought in selected US regions and countries.

Crosscutting Efforts

Education & Engagement:

- Develop educational and engagement programs to increase knowledge of water for food issues for key stakeholders in the US and internationally (including NU students, agricultural producers, water managers, and other decision makers).
- Provide and support professional development to influence choice of water- and agriculture-related careers for students, researchers and other future water for food leaders.

Communication:

- Build and protect the institute's brand reputation through strategic and integrated communication with the institute's stakeholders at the regional, national and international levels.
- Enhance support for the institute by engaging stakeholders with two-way information sharing. Attract partners through successful conferences, projects and events. Increase the number of stakeholders through advertising, social media, news releases and other forms of outreach.

Through these efforts, the institute is building upon the solid foundation developed during its early years and accelerating its progress to fulfill its overall mission. We are working to ensure long-term sustainability with funding from cultivated donor gifts, grants and other revenue sources. Achieving global water and food security for future generations is an audacious goal. However, with the guidance of the strategic plan, adapting to opportunities, and growing and diversifying our revenue resources, the Daugherty Water for Food Global Institute will be known for its role in achieving this vision.