

STRATEGIC PLAN
for the
UNIVERSITY OF DELAWARE
WATER RESOURCES CENTER
Draft Dec 2016

Mission Statement

Established in 1965 as one of the 54 National Institutes for Water Resources (NIWR) in the U.S., the mission of the University of Delaware Water Resources Center (DWRC) is to provide water-science and policy assistance to governments and the public through the University's land-grant public service, education, and research role. The DWRC is a unit of the Institute for Public Administration within the School of Public Policy and Administration in the College of Arts and Sciences.

Water Resources Center

The University of Delaware Water Resources Center (DWRC) was established on campus in 1965 as one of the 54 National Institutes for Water Resources (NIWR) at land grant universities in the 50 states, District of Columbia, and three island territories of Guam, Puerto Rico, and U.S. Virgin Islands. The DWRC is supported through Section 104 of the Water Resources Research Act of 1984 administered by the U.S. Department of the Interior and U.S. Geological Survey. As part of the national NIWR network at land grant universities throughout the nation, the mission of the DWRC is to: (1) support research, education, and public outreach programs that focus on water supply, water management, and water quality issues of importance to Delaware citizens and (2) foster/support training and education programs for future water scientists, engineers, managers, and policy-makers who will lead the water resources research, planning, and management efforts in the First State.

Water Resources Agency

For 40 years, the Water Resources Agency has provided water assistance to governments in Delaware through the land-grant public engagement (service), learning (education), and scholarship (research) role of the University of Delaware. Since 1977 and amended in 1990/1997, the Water Resources Agency has been sponsored by a board of the State of Delaware, New Castle County, and Newark and Wilmington to provide for clean and plentiful water supplies in Delaware. A regional, intergovernmental approach is essential for water management since watersheds and aquifers cross many political jurisdictions. The Brandywine-Christina watershed in northern Delaware with headwaters in Maryland and Pennsylvania provides drinking water to a half million people and 2/3 of the population of Delaware, 3/4 of New Castle County, and all of Newark and Wilmington. Public/private water purveyors deliver drinking water from sole source aquifers to 1/3 of the State in southern New Castle, Kent, and Sussex counties. Delaware watersheds contribute \$6 billion annually to the First State economy and support 70,000 jobs and \$2 billion in wages.

Goals

The goal of the University of Delaware Water Resources Center is the one of the preeminent water resources institutes in America through contributions in the public engagement (public service), learning (education), and scholarship (research) role of a land grant university.

Goal #1 - Sharpen the Focus of Public Engagement (Public Service): Provide water-science and -policy assistance to governments and the public.

Significance

The DWRC is supported by governments and foundations to provide water-resources outreach and translate research to the public. This public service and engagement role is significant to the University's land-grant mission.

Challenges

Expand and diversify revenue sources to continue providing water-resources assistance to governments in Delaware, the Delaware Valley and along the Atlantic seaboard.

Future Steps

Seek opportunities to pursue more supported work with governments and foundations in the Delaware River and Chesapeake Bay watersheds in Delaware, Pennsylvania, New Jersey, New York, and Maryland. Expand the capacity of GIS laboratory (the first water resources-based GIS laboratory in the U.S., est. 1970s) to conduct more outreach with federal, nonprofit, and business partners.

Goal #2 – Enhance the Quality of Learning (Education): Offer courses, seminars, and forums with a water-resources focus and mentor undergraduate and graduate students with funded fellowships and assistantships.

Significance

The goal to provide water resources education opportunities at the University is significant to the DWRC interdisciplinary science and policy education mission. Education is a basic role of the University of Delaware. The DWRC strives to educate students who will thrive and build careers as future leaders in water resources with public-, private-, and nonprofit-sector partners.

Challenges

The challenge is to participate in water resources education opportunities on campus while expanding DWRC support from funding federal, state, and local government and foundation partners.

Future Steps

Strengthen courses for water-resources specializations in the undergraduate majors of environmental studies/science, civil/environmental engineering, geology, geography, environmental humanities, and natural resources management and graduate programs of the MPA and MA in Urban and Regional Planning graduate programs. Continue to build the Interdisciplinary Graduate Program in Water Science and Policy and partner with the graduate

programs of Water Resources Engineering, Geography, and Marine Science and Policy. Sponsor a course and seminar in water policy in the School of Public Administration and Public Policy.

Goal #3 - Strengthen Programs of Scholarship (Research): Seek opportunities to collaborate with University faculty, scientists, and students to fund, conduct, and publish supported water-resources research.

Significance

Research and scholarship, the search and quest for new knowledge, is central to the mission of the University of Delaware.

Challenges

The challenge is to obtain federal, state, private, and foundation support to carry out water-science and -policy research while maintaining a focus on the public service and education role of the DWRC.

Future Steps

Pursue funded research and partnerships in emerging water-resources areas of GIS-based watershed modeling, energy-water nexus, Impact of climate change on water resources, sustainable-watershed funding, economics, and finance, and watershed-ecosystem services and socioeconomic value of water.

UD Strategic Initiatives

The University of Delaware has made important strides forward guided by the 2008 *Path to Prominence* and now by the 2015 campus-driven *Delaware Will Shine* strategic planning process. The aim of the University of Delaware is to build on our progress and be a model of distinction in higher education with firm commitments to student success, affordability and access. Our goal is to be a pre-eminent learner-centered research university led by exceptional faculty and staff dedicated to excellence. Faculty effort, long defined in terms of teaching, research and service, will emphasize learning, scholarship and engagement, reaffirming that our work must have a meaningful impact for our students and the world. The University of Delaware Water Resources Center seek to contribute to these strategic initiatives as part of the *Delaware Will Shine* planning process.

Strategic Initiative 1: A Welcoming and Collaborative Campus Community

- Collaborate with the UD Environmental Institute (DENIN).
- Co-chair with the College of Agriculture & Natural Resources on the UD-WATER project.
- Develop a UD-business alliance with water-resources firms to conduct on-campus research at the STAR campus.
- Bring on board a DWRC Program Coordinator to provide administrative and budget assistance for the DWRC Director.
- Over the short term, renovate the DGS Annex Building to serve as modern offices of the University of Delaware Water Resources Center as one of the 54 National Institutes for Water Resources (NIWR).
- Over the longer term, develop a strategic plan to raise capital to construct a new building and laboratory for the DWRC as a center for innovation for the UD campus community.

Strategic Initiative 2: Innovative Education Design

- Teach multidisciplinary undergraduate courses based in the College of Agriculture and Natural Resources, College of Arts and Sciences, College of Engineering, and College of Earth, Ocean, and Environment:
 - CIEG 440 Water Resources Engineering
 - UAPP 411/611 Regional Watershed Management
 - UAPP 452 Natural Resources and Public Policy
 - GIS in Public Policy (UAPP 652)
 - GIS in Public Policy (UAPP 655)
 - GEOG and 432/632 Environmental Hydrology.
- Sponsor an annual Delaware water-science and -policy forum on campus.

Strategic Initiative 3: Multidisciplinary Research and Scholarship

- Utilizing USGS and NIWR funding with faculty advisors from colleges throughout the University of Delaware, support a cohort of 15-20 students per semester in undergraduate water research internship program.
- Advise and support graduate research students through DWRC research assistantship program. Fund graduate research fellowships through the DWRC, Institute for Public Administration, and MPA/MA programs in the School of Public Policy & Administration. Fund and advise graduate students in the interdisciplinary water-science and -policy graduate program.
- Partner on research with nonprofit organizations such as the William Penn Foundation.
- Develop a study-abroad program in water science and policy and advise international students interested in water resources (e.g., Uzbekistan, Kyrgyzstan, Brazil, Portugal, Germany, New Zealand, Russia, Georgia, Ukraine, China, and South Korea).
- Work with the International Joint Commission between the United States and Canada.

Strategic Initiative 5: Community Engagement

- Partner with the State of Delaware, New Castle County, City of Newark, and City of Wilmington in funded support to conduct regional water-resources planning and management.
- Serve as Delaware's Water Coordinator and technical advisor to the Delaware Water Supply Coordinating Council as required by state law.
- Served as watershed coordinator of the Christina Basin Clean Water Partnership among Delaware and Pennsylvania, Delaware River Basin Commission, and USEPA.
- Serve as watershed coordinator of the White Clay Creek Wild and Scenic River Committee with the National Park Service.
- Continue partnerships in Sussex County with the College of Earth, Oceans, and Environment at the UD Lewes campus.
- Partner with Delaware State chapter and UD student section of the American Water Resources Association (AWRA).
- Coordinate the Wilmington Green Jobs program for high school students. Provide service-based and problem-based learning opportunities for undergraduate students within the White Clay Creek National Wild and Scenic River watershed.