



KENAN INSTITUTE

ENGINEERING, TECHNOLOGY & SCIENCE

NC STATE UNIVERSITY



KENAN INSTITUTE GOALS AND ACCOMPLISHMENTS FISCAL YEAR 2025-2026

William R. Kenan, Jr. Institute for Engineering, Technology & Science
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A MESSAGE FROM THE EXECUTIVE DIRECTOR

Since its founding by Frank Hawkins Kenan in 1992, the William R. Kenan, Jr. Institute for Engineering, Technology and Science has remained faithful to its mission: *to develop programmatic partnerships in basic research, education, commercialization and public outreach with individuals and organizations dedicated to the advancement of science, engineering and technology as a force in improving the economic and social well-being of the nation and the world.*



We do this by supporting, encouraging, and sometimes helping to lead multi-disciplinary, multi-institutional teams involving government, university and corporate partners in four major areas: high technology research, K-12 to postgraduate education, technology commercialization, and public outreach. As we do this, we leverage the significant strengths of NC State University students, faculty, and staff while focusing on programs that are consistent with the university's strategic goals in research, education, and engagement. Most of the Institute projects evolve rapidly over time to keep up to date, not only with new technological, scientific and engineering advances, but with the world's rapidly changing needs.

We are extremely grateful to NC State University for all its help and support, and we welcome this opportunity to describe the programs we funded during the 2025-2026 fiscal year, and how they contribute to the university's overall goals and objectives. None of this would be possible without the steadfast support of our Chancellor, who heads our Board of Trustees, and the resources, support and advice of our major benefactor, the William R. Kenan, Jr. Fund for Engineering, Technology and Science. Your comments and suggestions are always welcome.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ruben G. Carbonell'.

Ruben G. Carbonell
Executive Director and Frank Hawkins Kenan Distinguished Professor

OVERVIEW OF GOALS

The Kenan Institute for Engineering, Technology & Science (KIETS) aligns its goals with NC State University strategic plan goals. KIETS also has focus areas of its own. Those goals and how KIETS has accomplished them through its support of varied programs and initiatives are outlined in this document.

GOAL 1: Empower Students for a Lifetime of Success and Impact

KIETS Goal: Identify and support NC State student focused initiatives and novel educational approaches to enhance undergraduate and graduate education.

ACCOMPLISHMENTS

KIETS Climate Leaders Program

The KIETS Climate Leaders Program (CLP) led by its Director Amanda Mueller, Program Coordinator Catherine Cole, and Senior Faculty Fellow Professor Jeremiah Johnson supports student scholars' engagement with leaders and



organizations working on climate change solutions to help empower, educate and inspire young people to embark on careers and become innovative leaders in mitigating climate change. FY 2025-26 spans two CLP cohorts. The 14 student/mentor teams for 2025 (3 undergraduate, 5 Master's, 6 Ph.D., representing seven NC State Colleges) completed their program in December 2025. The 15 CLP student/mentor teams for 2026 (5 undergraduate, 3 Master's, 7 Ph.D., representing seven NC State Colleges) are approaching climate change through improvements in textile waste reduction; health of coral reefs; resilience in education systems; sustainable batteries; economics of renewable energy; circular economies; microbial engineering; public policy; climate history; community relocation; communications, public perceptions and community engagement; and

extreme precipitation, supply chain resilience and carbon capture/sequestration in agriculture. The 2025 Annual Symposium took place on October 1-2, 2025 with over 360 attendees and the four-day Intensive Academy took place in Morehead City, NC on May 11-14, 2026. Of the 52 CLP alumni, 20 students are still completing their NC State degrees and 32 students have graduated or defended their thesis/dissertation from NC State University. 18 of the graduates currently hold positions across the United States in government, non-profit, academic, consulting and industry arenas. 10 graduates are pursuing graduate degrees or holding postdoc and fellowship positions.

Technology, Entrepreneurship and Commercialization (TEC) Program

In FY 25-26, KIETS actively engaged and advised *TEC program* graduate students regarding their potential initiation and launch of high-tech companies based on technology developed at NC State and other university, government, and industry partners. TEC teams worked on commercialization plans for a *Smart Menstrual Wrap* and *DuraBond* a structural nail gel. KIETS Managing Director Raj Narayan served as faculty advisor and executive in residence to these TEC teams.

NC State Social Entrepreneurship Initiative

KIETS collaborated with the *NC State Social Entrepreneurship* initiative to support students across NC State with opportunities to learn social entrepreneurship in North Carolina, nationally, and internationally. In FY 2025-26, KIETS Managing Director Raj Narayan served as one of the core faculty team mentors for the Social Innovation Fellows program. The SIF students and faculty traveled to Switzerland to research opportunities for *Enviracell* a biodegradable battery developed by KIETS Climate Leader Bhavya Jain. Other SIF teams traveled to El Salvador and the Dominican Republic to work on educational and health related projects.



NC State Science Olympiad Student Alumni Group Division B Invitational



KIETS supported the third annual Division B (middle school) Science Olympiad invitational on February 8th, 2026 at NC State. 165 undergraduate students were involved in the process of building and implementing the invitational including 30 event leaders who engaged throughout the months leading up to the competition by creating the tests and events, as well as leading events on the day of the invitational. 25 K-12 teachers were engaged as coaches during the event, guiding their students through their preparation for and participation in the invitational. 500 K-12 students participated in the invitational. Many of the volunteers were recruited through scholarship programs, including the Caldwell Fellows and the Goodnight Scholars. The group also coordinated with a number of clubs and student groups and included student volunteers from UNC and Duke.

Coastal Resilience and Sustainability Initiative Coastal Community Intensive Training (CCRIT) Program

The NC State Coastal Resilience and Sustainability Initiative (CRSI) led by Professor Erin Seekamp is part of the Provost's Office of University Interdisciplinary Programs (OUIP). The CRSI is leading the Coastal Community Resilience Immersive Training (C-CRIT) program in collaboration with the KIETS Climate Leaders Program led by Amanda Mueller. In FY 2025-2026, the C-CRIT program completed its partnership with Gates County, delivering a risk and vulnerability assessment report, a publicly available online story map conveying the report's findings, and a presentation to community leaders of the report findings. These products and activities inform decision making and support resilience project funding applications, ultimately fostering a more resilient Gates County. The C-CRIT program also hosted a symposium at NC State to share products and experiences with a broader audience including NC State faculty, staff, students, state government partners, NGO partners, and individuals contributing content to the program's training materials.



NC State Engineers Without Borders Student Chapter Program

In 2025-26, KIETS supported the NC State Chapter of Engineers Without Borders (EWB-NCSU) which seeks to empower communities and equip leaders internationally and locally to meet their needs through sustainable engineering projects, all while developing students into cross-cultural servant-leaders. The Sierra Leone Water (SLW) team completed an implementation trip at the Browndel School in Wellington, Sierra Leone. Their project included the addition of a pipe system wrapping the periphery of the school, a new, improved storage system for rain water, new toilet installation, hand washing station installation, and improved sanitation levels within the bathrooms. The Guatemala Water and Sanitation (GWS) project team worked on implementing the sanitation and health latrines and handwashing stations in the indigenous Guatemalan community of Caserio Las Victorias to provide the school community with sustained access to hygienic restrooms. The Sierra Leone Renewable Energy (SLRE) team had a successful implementation trip to Freetown in December 2025 to finish the implementation of a solar energy system providing the



Goshen Academy with reliable electricity. KIETS Managing Director Raj Narayan serves as a member of the EWB-NCSU advisory board.

GOAL 2: Ensure Preeminence in Research, Scholarship, Innovation and Collaboration

KIETS Goal: Identify programs that support faculty research efforts, promote career development, and help enhance the research infrastructure at the university.

ACCOMPLISHMENTS

KIETS is supporting several research programs involving NC State faculty and students:

Bioseparations/Bioprocessing Development Center (BBDC)

KIETS supported the *Bioseparations/Bioprocessing Development Center* (BBDC) initiative led by KIETS Director Dr. Ruben Carbonell in partnership with BTEC. The BBDC funding provided by the Kenan Institute is helping BTEC staff, graduate and postdoctoral students participate in industry analytical and process development projects, which are not funded by the State. BTEC provides matching funds with more than \$4 million in facilities for this effort. In addition, BTEC is providing leverage in the amount of \$500,000 per year in staff salaries to support the analytical, process services

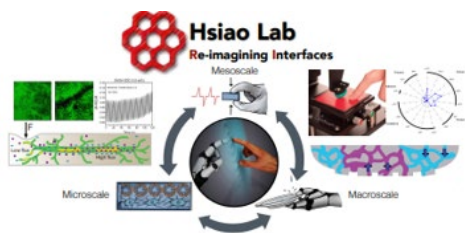


and research programs. BTEC manages close to \$1.5 M per year in bioprocess services projects for small and large companies in NC. BBDC also enabled BTEC to succeed in getting three major grants from the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL), and from the Clean Energy Smart Manufacturing Institute (CESSMI) and the Bio-industrial Manufacturing Institute (BioMADE). BTEC initiated a long-term contract with NIIMBL to develop a testbed for studies on adaptive process control methodologies to produce biopharmaceuticals and the development of process and raw materials data ontologies that can be disseminated to NIIMBL companies. This program provided BTEC with approximately \$1.3 million in new equipment, and several hundred thousand dollars for support of personnel, supplies, and other

related expenditures. The BBDC played a key role in helping develop the technology that led to the formation of a new start-up, MembraneWorks, Inc., to develop all-membrane processes to increase the productivity of biologics manufacturing up to 10-fold and reduce costs significantly, and to land a grant from the Gates Foundation for the large scale production of antibodies against malaria at very low costs. The KIETS funding is helping BTEC enter into totally new areas of biomanufacturing, including the transition from mammalian host cells for biologics to production, to hopefully more efficient and faster production of biotherapeutics in microbial cells such as yeast and fungi. BTEC Director Gary Gilleskie is playing a key role in the establishment of the Faculty Cluster in Biopharmaceutical Manufacturing and is providing key resources for the recruitment of new faculty members towards this effort.

Reimagining Soft Materials for Haptic Engineering Initiative

KIETS supported NC State Chemical and Biomolecular Engineering Professor Lilian Hsiao's research program centered around intelligent soft materials focused on enhancing virtual reality through haptic materials that can alter the sense of touch to the user. Dr. Hsiao's project addresses NC State's strategic research area in "Enriching the Human Experience" as well as in "Secure and Intelligent Systems". In FY 2025-26, Dr. Hsiao's group continued developing triboelectric elastomer

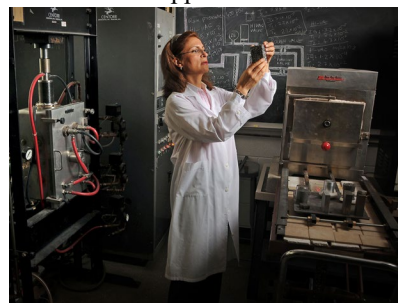


sensors for running shoe insoles, advancing the demonstration that porous structures inside these sensors generate measurable power during compression cycles, with ongoing discussions with Nike as a potential industry partner. Her research group also submitted a paper on multimodal wearable sensors that communicate via tactile signals for human and robotic applications, in collaboration with NC State Electrical and Computer Engineering Professor Amay Bandodkar. This work represents a direct translation of the haptic engineering principles

developed under this project into functional wearable devices with broad implications for assistive technology and robotics. Dr. Hsiao was also named a NC State University Faculty Scholar in 2025.

Metal Foams as Innovative Materials for Bioseparations

KIETS supported NC State Mechanical and Aerospace Engineering Professor Afsaneh Rabiei and Chemical Engineering Professor Cristiana Boi's research focused on the development and validation of metal foam-based filters as high-performance, chemically robust, and sustainable replacements for traditional filtration media used in applications such as protein separation and downstream processing of biomolecules. FY 2025–26 marks the second year of this project, during which the research transitioned from the permeability feasibility testing and initial computational fluid dynamics (CFD) validation conducted in Year 1 to a comprehensive integrated characterization of the 316L stainless-steel open-cell metal foam as a flow-through protein-binding material. A manuscript reporting these findings titled "316L Stainless-Steel Open-Cell Metal Foam: Correlating Morphology, Transport, and Dynamics of Protein Adsorption" was submitted to *Biomaterials Advances* in April 2026. The quantitative characterization and design framework developed in this project provides the scientific foundation necessary for translating this concept from laboratory demonstration to engineered bioseparation devices. KIETS funds support a PhD student and are leveraged with support from the Department of Chemical and Biomolecular Engineering as well as the Department of Mechanical and Aerospace Engineering.



Pilot Scale Upstream Bioprocessing of a Novel Filamentous Fungus for Expression and Characterization of Monoclonal Antibody Nivolumab

KIETS supported a project led by Dr. Kurt Selle with BTEC, on a research effort to produce larger quantities of Nivolumab leveraged by a Gates Foundation grant of approximately \$750,000 from July 1, 2025, to December 31, 2026: *Low Cost All*



Membrane Processes to Purify MAM01 Antibodies from C1 Cell Lines. The current phase of funding from the Gates Foundation is used to explore continuous downstream processing of C1 fermentation supernatant containing anti-malarial antibody. The expectations for a renewal of the Gates foundation proposal will require demonstration of up- and downstream processing of C1 produced Nivolumab and the work will directly support de-risking the process and generating preliminary data to support a follow-on proposal to phase 2 funding from the Gates Foundation. Significant progress has been made by BTEC on the understanding of the cell storage and fermentation conditions that lead to high titers of mAb production.

GOAL 3: Expand and Advance our Engagement with and Service to North Carolina and beyond, defining the standard for a 21st-century land-grant University

KIETS Goal: Support strategic partnership among industry, state government, federal agencies, and state school districts to enhance STEM education in our schools.

ACCOMPLISHMENTS

Kenan Fellows Program for Teacher Leadership (KFP)

The 2025-2026 Kenan Fellows Program cohort of 29 fellows experienced a successful program and are leading and making a difference in their communities. Some impact highlists are as follows:

- 21,371 students served
- 206 hours of professional development were provided to 1,494 other educators
- 18 presentations were given to 2,717 non-educator education stakeholders
- 14 conference presentations were given to 2,264 presentation attendees
- 20 grants were awarded totaling \$2.4M

In FY 2025-26 KFP continued to offer the Mountains to Sea Scholars program and two additional outreach initiatives, Not Your Average PD (NYAPD) and STEMwork. Not Your Average PD (NYAPD) leverages the instructional expertise of KFP alumni to provide one-hour, live streamed professional development (PD) sessions to anyone with an internet connection. In 2025, KFP worked with The Durham Public Schools Foundation and the Hawbridge School for the design and facilitation of unique versions of a revised STEMwork program.

In May 2026, KFP announced its newest cohort of 36 Fellows. These 36 Fellows hail from 28 North Carolina districts and two independent cities in Virginia (Hampton and Virginia Beach). This is KFP's most geographically diverse cohort, with the addition of four new NC counties (Hertford, Nash, Transylvania, Vance) and its first two out-of-state Fellows. Twenty one teachers serve in economically distressed (Tier 1 or Tier 2) counties. More than half of this cohort is from rural communities and the majority teach in high school or middle school. Twelve teach at the elementary level. The 2026-2027 Fellowships are being made possible through the generous support of KFP's corporate, education, government, and foundation partners including: Burroughs Wellcome Fund, Deborah Mangum, John Atkins, Department of the Navy, Duke Energy, Duke University Marine Lab, Goodnight Educational Foundation, Hampton Roads Workforce Council, FujiFilm Diosynth and the NC BioNetwork, KIETS, North Carolina Department of Environmental Quality, North Carolina Department of Public Instruction, North Carolina's Electric Cooperatives and Union County EMC, North Carolina Farm Bureau and Nash County Farm Bureau, North Carolina Teaching Fellows Program, NC State Electrical Engineering Lab, Meta, NSF grant



Dr. Greg McKenna of NC State, and Nutrien. A complete list of the universities, industries, and foundations that provide support for KFP through funding and/or hosting/mentoring Fellows can be found at <https://kenanfellows.org/partner/>

KIETS Goal: Seek and support efforts that will inform research, public policy and engagement for the benefit of North Carolina and the Nation.

ACCOMPLISHMENTS

NC Coastal Federation Newport River Estuary Protection and Restoration Strategic Plan



The NC Coastal Federation (NCCF) is working with key partners to develop a watershed action plan for the Newport River. During FY 2025-26, this program completed two retrofits in the Newport River watershed, addressing failing stormwater pond facilities at the Courtyard West neighborhood and Christopher Downs apartment complex in Havelock. These projects restored the treatment capabilities of the stormwater management facilities, reducing the volume of polluted stormwater runoff entering the Newport River. The NCCF partnered with the KIETS Climate Leaders Program to clean the shoreline along Gallants Channel in Beaufort and removed roughly 500 pounds of debris, helping keep those habitats healthy and thriving and reducing impacts on wildlife. In September 2025, the NCCF led a day-long

session for the Kenan Fellows Mountains to Sea Scholars program. Ten educators joined the NCCF and KFP staff for a day at Hammocks Beach State Park and at the Federation's future Center for Coastal Protection & Restoration. In Fall 2025, the Coastal Federation presented the Kenan Fellows Program for Teacher Leadership with a Pelican Award for their work to cultivate coastal collaboration and empower educators. The Federation's Pelican Awards are held annually to recognize people and organization who have demonstrated exemplary commitment and service to NC's coast and its communities.

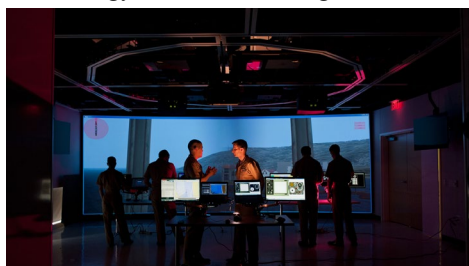
NC Sea Grant /WRI/ NC Space Grant Community Collaborative Research Grant Program

KIETS collaborated with the NC Sea Grant in support of the Community Collaborative Research Grant (CCRG) program to address priority coastal issues in the state through strategically linking local ecological knowledge (LEK) sources with academic experts in the field. For the FY 2025-26 solicitation, 36 applications were received proposing over \$1million worth of work. This remains the highest ever number of applications for the CCRG program. FY 2025-26 projects selected for funding include the following: Lisa Satterwhite, Duke University, *Community-led Data-driven Approaches to Reduce Exposure to Cyanobacterial Harmful Algal Blooms in the Chowan River and Tributaries to the Albemarle Sound*; Meredith Hovis, UNC-Wilmington, *A PFAS Investigation: Forensic Analysis of Sources and Understanding Risk Perception of an Impacted Community in Swepsonville, North Carolina*; Marae West, Sandbar Oyster Company, *Evaluating Nature-Based Solutions for American Oystercatcher Habitat Using High- Resolution Imagery in the Lower Cape Fear River*; Jackie MacDonald-Gibson, NC State University, *Community-Driven Solutions to Strengthen Private Drinking Water Systems in Western North Carolina After Hurricane Helene*. KIETS Managing Director Raj Narayan served on the CCRG review and selection committee.



Office of Research Innovation Defense and Security Institute (DSI)

KIETS collaborated with Dr. Krista Walton, NC State Vice Chancellor for Research and Innovation and Dr. Jacob Jones, Associate Vice Chancellor for Research Initiatives to support the Defense and Security Institute (DSI) which will serve as NC State's central hub for research, education, and partnerships that address critical U.S. defense and national security challenges while catalyzing economic growth. DSI will leverage NC State's strong track record in commercialization and entrepreneurship to convert defense-relevant innovations into dual-use technologies with civilian applications and will convene stakeholders from the U.S. military, federal laboratories, the NC Department of Commerce's Office of Science, Technology & Innovation, regional economic development organizations, and the DIB to align priorities and coordinate

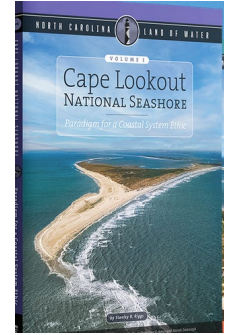


investments. and workforce programs, DSI will improve social wellbeing in several ways: it will create high-quality, mission-driven career pathways for North Carolinians; support veterans' transition to the civilian workforce; and ensure that national security technologies are developed with attention to ethics, resilience, and societal impacts. An Interim Executive Director, Dr. Stephen Lee, was recruited to begin leadership of the DSI and the DSI deployed a comprehensive interest survey to faculty and research staff, yielding 183 detailed responses from senior personnel. These insights are actively being used by the leadership council and working groups to map

institutional research strengths against national security gaps. Furthermore, the DSI is currently finalizing the formation of its External Advisory Board (EAB), with approximately 7 prominent defense and security leaders identified. DSI partners have committed in-kind contributions of over \$1M in personnel time, over \$600K in equipment investments that will become part of the broad university capabilities to support defense and security research. A proposal to fully establish the Institute will be submitted to the Chancellor and NC State Board of Trustees towards the end of calendar year 2026, anticipating it to be approved as a UNC System Institute by the Summer of 2027.

NC Land of Water (NC LOW) Cape Lookout Project

Led by ECU Professor Emeritus Dr. Stan Riggs in collaboration with Stanton Blakeslee and his team at Instigator Inc., the North Carolina Land of Water (NC LOW) organization is advancing science, education, and coastal resilience through publication and public engagement. In FY 2025-26, with KIETS support, NC LOW distributed over 1000 copies of the first book *Cape Lookout National Seashore: A Paradigm for a Coastal System Ethic*. The first volume on the Cape Lookout National Seashore explores the unique and precious coastal ecosystem on North Carolina's southern Outer Banks and is the first of a series of 10 books being published by Dr. Riggs. The second and third book are currently under development. In addition to the book publication, NC LOW continues to refine its website and digital archive of educational resources and assets and Dr. Riggs is a contributing author to the *Daily Reflector*, providing an ongoing series of articles,



with expanded distribution through Associated Press (AP) channels. In addition, Dr. Riggs conducted numerous public lectures and presentations in conjunction with book signings and outreach events, directly engaging communities across Eastern North Carolina. Dr. Riggs produced a two part series on the challenges Buxton, NC is facing due to sea level rise and the opportunities it presents for community engagement and empowerment. NC LOW's initiatives continue to increase the visibility and accessibility of coastal science to the public and stakeholders, while expanding NCLOW's reach through recurring

media presence and direct community engagement—reinforcing its role as a leading voice in coastal system science and public education.

GOAL 4: Champion a Culture of Equality, Belonging and Well-Being in All We Do

KIETS Goal: Seek opportunities for enabling equality, belonging and well-being, maximizing efficiency and effectiveness, enhancing resources for KIETS operations and continuously improving services for our stakeholders and partners.

ACCOMPLISHMENTS

Enabling Equality, Belonging and Wellbeing

The Kenan Fellows Program for Teacher Leadership (KFP) continued its longstanding commitment to inclusive classrooms, reflected in years of partnership with the Burroughs Wellcome Fund (BWF) and collaborations with



organizations such as the Dudley Flood Center for Educational Equity and Opportunity, LatinXEd, the Southern Appalachian Wilderness Stewards, and statewide initiatives including the Color of Education, Science for All, and DRIVE Summits. All Fellows in the 2025-26 cohort received professional development focused on building learning environments that honor grounded in the belief that inclusive classrooms raise outcomes for all learners. KFP also sustained its BWF partnership, with the 2026-27 cohort set to include three BWF-supported Fellows who will collaborate on a resource packet for teachers navigating school reopening after natural disasters. Drawing on perspectives from North Carolina's coast, mountains, and Piedmont, the packet will include

guidance for families accessing resources in the wake of a disaster and trauma-informed instructional tools to support students' return to learning.

The KIETS Climate Leaders Program (CLP) aims to build a network of Scholars comprised of committed, emerging, innovative leaders focused on finding solutions to mitigate or reverse the negative effects of climate change. In FY 2025-26, the CLP continued its outreach to the colleges and student programs that serve a diverse population across campus. The 2026 CLP cohort of 15 students includes three international students, students from seven of NC State's 10 Colleges and 11 women and four men. In preparation for the 2027 cohort applications, CLP will partner with additional groups on campus that work to provide equal access to all NC State students. In establishing the cohort each year, the selection committee seeks an interdisciplinary group with a variety of academic pursuits, lived experiences, and career goals and interests. The CLP annual symposium is free to all attendees and seeks to address aspects of belonging and wellbeing for everyone. In Fall 2025, our symposium keynote speaker engaged with the audience through a workshop and discussion, guiding everyone on how best to share their climate story. Case-based panel discussions on energy grids, hazard mitigation and disaster recovery, city design and tourism, and sustainable proteins allowed for dialogue around climate issues that have directly and/or indirectly impacted everyone. The CLP also collaborates with NC State University's Climate and Sustainability Academy to support rural and unincorporated communities in eastern North Carolina through interns who partner with local communities (Gates County in 2025, City of Rocky Mount in 2026) to provide vulnerability assessments and asset mapping for their communities..



Collaborating on University Wide Initiatives

KIETS collaborated with the Office of the Provost in support of the KIETS Climate Leaders Program as well as with the NC State Coastal Resilience and Sustainability Initiative. KIETS support for the Climate Leaders Program is leveraged with complementary support from the Office of the Provost. KIETS also continued to work collaboratively with the NC State Advancement including the NC State Day of Giving to identify and develop resources for priority initiative such as the Kenan Fellows Program and Climate Leaders Program. KIETS supported the Goodnight Scholars and Caldwell Scholars annual interviews providing space and organizational support. KIETS University Program Associate Tara Spivey helped organize and support the annual interviews, which were held at the Kenan Institute offices in Spring 2026. KIETS also collaborated with NC State Innovation and Entrepreneurship (TEC Program and Social Innovation Fellows), the Office of University Interdisciplinary Programs (A Longer View Initiative), Centennial Campus Partnerships Office (Daugherty Initiative) and Office of Research Commercialization (ICorps and Boost Fund) initiatives as well as with the Plant Sciences Initiative (PSI Multimodal Sensors in Agriculture) and Office of Research and Innovation Defense and Security Institute (DSI).

Improving Operational and Program Effectiveness, Outcomes and Impact and Empowering Strategic Partnerships

The Kenan Fellows Program (KFP) for Teacher Leadership continues to refine its processes and adapt novel strategies for improved program effectiveness, outcomes, and impact while implementing strategies for long-term sustainability. The NC State Friday Institute conducts the KFP annual program evaluation. In addition to this external evaluation, the KFP gathers data regarding the impact that the current cohort of Fellows is having on students, teachers, and other key stakeholders. With an eye towards celebrating KFP's 25 years of success, ensuring long-term program values alignment, and establishing KFP as an integral component of NC's education and STEM workforce development landscape, the KFP continues to assess the focus of KFP professional development offerings and trusted partnerships, and as needed, realign efforts to more effectively reflect values and maximize strengths. The CLP continues to collaborate with NC State University's new Climate and Sustainability Academy, Climate Solutions Collaborative, Coastal Resilience and Sustainability Initiative, Sustainable Futures Initiative, Sustainability Office, and the Office of Global Engagement's work with Fulbright Germany. Additional efforts have the CLP collaborating with the Consulate General of the Federal Republic of Germany – Atlanta, the Transatlantic Climate Bridge and Raleigh's Sister Cities program, the North Carolina State Climate Office, and the Southeast Climate Adaptation Science Center. KIETS continues to refine its operating efficiency aligning responsibilities and roles while effectively leveraging its core resources and maximizing program quality and impact.



Leveraging KIETS Resources

In FY 2025-26, KIETS' core operating and program investments of \$1,977,948 were leveraged by approximately \$11,092,610 in complementary funding from NC State University and external partners. While only a portion of these

funds flow directly through KIETS, the resulting impact of the Institute's ability to enable leveraged support for its programs is significant and continues to grow annually. KIETS supported an active portfolio of 22 total projects representing a 62% turnover ratio and 13% new projects at the start of FY 25-26.

GOAL 5: Improve University Effectiveness Through Transformative Technologies, Cutting-Edge Processes and Actionable Data

KIETS Goal: Identify, develop, and foster new interdisciplinary approaches in research, education, outreach that address the Grand Challenges of Society.

ACCOMPLISHMENTS

National Institute for Innovation in Manufacturing Biopharmaceuticals

KIETS supported the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL). KIETS Director Ruben Carbonell serves as NIIMBL's Senior Technology Strategist. Since its inception in 2017, the State of NC has provided \$10 million in funding to be used as cost-share matches for NIIMBL projects being led by NC companies or academic institutions, and laboratory renovations necessary to carry out NIIMBL projects. 33 different NC entities participate in NIIMBL, including 5 universities (ECU, NCCU, NC State, UNC-CH, and UNC-W), 12 community colleges, 15 small- and medium-sized companies (4 in Wilmington, 10 in RTP and 1 in Charlotte), and 2 non-profit organizations. In the first six years of NIIMBL operations, NC members participated in projects totaling \$25.6 million (federal funds, state



Advance biopharmaceutical manufacturing innovation



Solve industry challenges



Develop the skilled workforce of the future

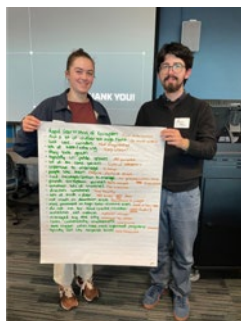
funds and other member cost share) including \$9.3M of federal funds received by NC entities. Of the \$9.3 million federal project support, \$7.8 million went to NC Universities, \$1.4 million went to small and medium sized enterprises, and \$100K went to NC non-profits. During the same six-year period, the \$10 million in State cost share funds were utilized as follows: \$5.5 million to NC Universities, \$3.3 million for membership dues, travel awards, and program management, and

\$1.2 million for small and medium enterprises, community colleges, and non-profits. From 2017-2023, NC State University has received approximately \$13.8 million in federal funding and \$11.2 million in State cost share for project and operational expenditures. The early support of the Kenan Institute for the BBDC program at BTEC played a key role in positioning BTEC to become a major player in biopharmaceutical manufacturing nationwide and taking a leadership position within NIIMBL. KIETS support is helping in the preparation of a new proposal to NIIMBL dealing with the manufacturing of complex biologics in fungal cells. This technology has the potential for significantly reducing the cost and increase the productivity of manufacturing of biopharmaceuticals. NIIMBL is scheduled for renewal in 2026 for another five years.

A Longer View: Campus-Wide Integration of Long View Innovations

Senior Vice Provost for University Interdisciplinary Programs Rob Dunn launched the *Long View Project* with support from KIETS. In FY 2025-26, as part of the Climate and Sustainability Academy, the Long View Project increased its visibility, grew its collaborations, and became more institutionalized. Significant accomplishments include the establishment of a community of practice, offering futures thinking training and mentorship for the Sustainable Futures Fellows, and launching the new Hopeful Futures series. Led by Professors Jory Weintraub and Christopher Galik, the Longer View initiative seeks to cross-pollinate innovations across the campus community. The annual Envisioning Urban

Futures event, organized in partnership with the Peter A. Pappas Real Estate Development Program, brought together scientists, artists, engineers, and other thought leaders from across the disciplines to explore positive urban futures. This year's event took place on Wednesday, January 28, 2026 in the James B. Hunt Library on NC State's Centennial Campus and was attended by over 240 students, educators, public officials, and community members from NC State and beyond. The Longer View Project also collaborated with the Sustainable Futures Fellows program to engage interdisciplinary student teams in a unique 15-week exploration of the sustainability challenges and opportunities across key sectors of the economy, such as energy, agriculture, forestry, manufacturing, transportation and more. In FY 2025-26, the program offered a futures thinking workshop for the cohort of 11 graduate and 9 undergraduate students.



Multimodal Sensors in Agriculture: Enhancing Sustainability through Graduate Student Support (PSI Connecting2Grow Initiative)

KIETS supported the NC State Plant Sciences Initiative (PSI) Multimodal Sensors in Agriculture program led by Adrian Percy (PSI Executive Director), Prof. Cranos Williams (PSI Platform Director) and Lauren Maynard (PSI Interdisciplinary Project Launch Director). This project extends and amplifies the collaboration and support between the PSI and the Institute for Connected Sensor Systems (IConS) to provide multimodal sensor solutions for monitoring agricultural systems that can contribute to advancing sustainable agriculture practices, improving yield, and reducing the negative impact of extreme environmental conditions. Projects supported include the following: (1) The *SWAMP (Subsurface Wireless Agricultural Monitoring Platform)* project developed a low-cost (\$3K–\$4K), non-invasive sensing platform using commodity RF signals to monitor underground tuber crops; (2) The



Agrivoltaics (Solar Splitting) project deployed two field-scale systems integrating dual-axis solar tracking with spectral beam splitting at the Castle Hayne research station. The projects have generated proposals for external funding including the following: 1.) *SWAMP*: NSF- Cyberinfrastructure for Sustained Scientific Innovation (CSSI) \$2,500,000 proposal submitted; USDA- Data Science for Food and Agricultural Systems (DSFAS) proposal submitted; and 2.) *Agrivoltaics*: Renewable Energy Wildlife Research Fund \$650,000 proposal submitted; and United States-Israel Binational Agricultural Research and Development Fund (BARD) proposal submitted.

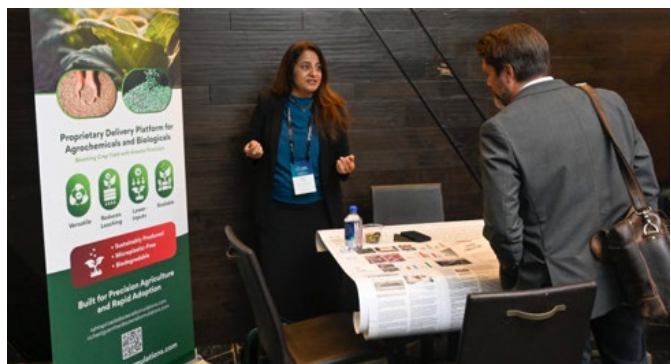
GOAL 6: Lead in Developing Innovative Partnerships, Entrepreneurial Thinking and Applied Problem-Solving

KIETS Goal: Support the launch of high technology start-ups based on NC State innovations and support technology commercialization programs at NC State, North Carolina and the Nation.

ACCOMPLISHMENTS

Richard and Marlene Daugherty Centennial Campus Entrepreneurism Endowment

KIETS provided matching funds for the *Richard and Marlene Daugherty Centennial Campus Entrepreneurism Endowment* that supports startup companies initiated with university intellectual property. The Daugherty Initiative continued its collaboration with the NC State Innovation and Entrepreneurship to feature the selection of the Daugherty Initiative recipients as part of the NC State Venture Pack Challenge. The 2026 Daugherty Initiative track at the NC State Venture Pack Challenge supported three awards and took place on April 1, 2026. The 2026 Daugherty Initiative awardees are as follows: 1st Place – \$25,000 – *Intra Therapeutics* – Developed localized delivery systems that enhance exposure and retention of immunotherapies within the tumor microenvironment and overcome the dose limitations of current



systemically administered cancer immunotherapies; 2nd Place (tie) – \$20,000 – *PolyPV* - Provides lightweight, rugged and portable solar power solutions to ensure reliable energy for defense, disaster response and off-grid operators in the world's most demanding environments; 2nd Place (tie) – \$20,000 – *Rooted-in-Tech* - Developed a fully enclosed, autonomous crop propagation system that delivers high-quality, disease-free young plants through crop-specific “environmental recipes.” Since 2008, the Daugherty Initiative has invested \$753,847 in 57 companies and 5 research projects with 72% still active. Cumulative follow-on funding received by the awardees since 2008 is now \$95.9M. In addition, companies funded by the Daugherty

Endowment have gone on to create 166 jobs in the state of North Carolina and beyond. KIETS Director Ruben Carbonell and Managing Director Raj Narayan serve on the Daugherty Initiative Governance and Selection Committee.

NC State Office of Research Commercialization NSF ICorps Program

In FY 2025-26, KIETS collaborated with the NC State Office of Research Commercialization (ORC) on the NSF ICorps program in support of the Summer 2025, Fall 2025 and Spring 2026 cohorts. Total program participants included 47 teams and 116 total participants. Eight new startups were formed upon completion of the ICorps program including *NovaHeal*, *Illusttris*, *DalperAI*, *Aqceleration*, *Receptyx*, *Atlas Plasma*, *Alargara*, *WolfSky Sensing Systems*. ORC reported that 47 faculty members, 2 undergraduates, 41 graduate students, and 3 post docs participated in the ICorps Program. UNC-Chapel Hill, UNC Charlotte, UNC-Greensboro, and High Point University each had teams participating. Some notable accomplishments of prior NC State I-Corps Hub participants during FY 2025-26 include the following: NC State I-Corps graduate Elysia Creative Biology received its first dilutive investment of \$1M. The team was mentored by KIETS Managing Director Raj Narayan both during and after the I-Corps short course; NC State team Structeryx received a \$668,418 award from NC Innovation; UNC-Wilmington team Cyber-PARK received a \$335K award from NC Innovation. The team was mentored by KIETS Managing Director Raj Narayan both during and after the I-Corps short course. During FY 2025-26, graduates of NC State's I-Corps Program secured over \$2.9 million in follow-on funding. As of April 2026, teams completing the NC State Regional I-Corps Program have generated a cumulative \$78.3 million in follow-on funding from grant and investment sources. Startup company QuikCal (mentored by KIETS Managing Director Raj Narayan) an AI-powered software company born out of a freshman-year engineering course at Duke University, was acquired by MOCA Systems Inc. (MSI), the industry-leading construction planning platform. Participating I-Corps teams have gone on to form 54 new startup companies and have submitted 67 SBIR/STTR awards, 32 of which have been awarded. 18 total program graduates have also been accepted into NSF's National I-Corps Teams Program, totaling \$900,000 in follow-on NSF funding. KIETS Managing Director Raj Narayan serves as an NC State I-Corps ORC faculty instructor and advises the mentors and entrepreneurial leads in the NC State ICorps program.



Office of Research Commercialization Boost Fund Program (Boost)

In FY 2025-26, the NC State Office of Research Commercialization (ORC) led by Tim Martin, Interim Assistant Vice Chancellor of New Ventures and Investments, implemented the Boost Fund Program (Boost) in collaboration with KIETS.



Boost sponsors NC State commercialization projects and startup companies to provide answers to gaps in their business case to increase their chances of success in the market. Through an embedded entrepreneur, the Boost program supports short-term project-based engagements with seasoned professionals. NC State commercialization projects (pre-startups) are selected based on successful completion of an ORC program (ex: I-Corps, PackStart, Venture Day, Chancellor's Innovation Fund) and preference is given to projects who have also completed the Foundations program, a new ORC-created curriculum designed to help startups and pre-startups build on previous customer discovery work to develop a viable business model based on real market insights generated through continued customer discovery.

In FY 2025-26, four companies were selected for Boost Program

support including the following: (1) *Rooted in Tech* - Ag tech startup to deliver high-quality seedlings tailored to farmers' and gardeners' needs; (2) *VibraPower* - Powering electronic devices with vibration; (3) *Soteria Formulations* - Revolutionizing Agriculture with Sustainable Delivery and Extended Performance of Crop Protection Products; and (4) *10Kelvin* - A deep-tech start-up company focusing on chemistry-based patterning technology.

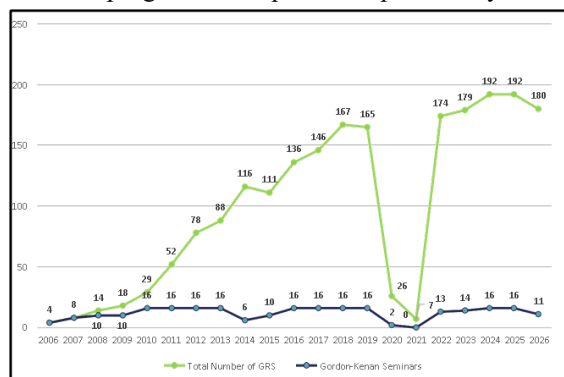
GOAL 7: Elevate the National and Global Reputation and Visibility of NC State

ACCOMPLISHMENTS

Gordon-Kenan Graduate Research Seminars (GKGRS)

A Gordon-Kenan Graduate Research Seminar (GKGRS) is a two-day meeting designed specifically for graduate students, post-doctoral students, and other scientists with comparable levels of experience. Gordon Research Conferences held a total of 189 research seminars between July 1, 2025, and June 30, 2026. Of those 189, the 11 new seminars added to the portfolio were provided with seed funding from KIETS. A total of 505 attendees participated in 11 Gordon-Kenan Graduate Research Seminars from July 1, 2025, to June 30, 2026. The majority of attendees were young investigators, including a

total of 274 graduate students and 175 postdocs. North Carolina was represented at the seminars during FY 2025-26: Duke University was represented 4 times, University of North Carolina at Chapel Hill was represented 8 times and North Carolina State University was represented 1 time by a participant. Since KIETS began collaborating with the GRC in 2001, the GRS program has expanded exponentially, from 1 GRS to the 362 seminars held in the portfolio today. Since the start

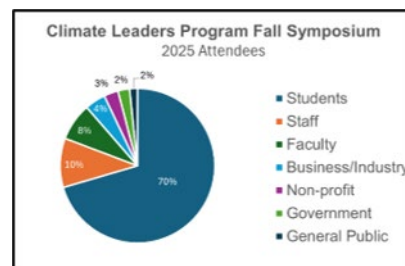


of the program, over 12,000 early career scientists have attended a Gordon-Kenan Research Seminar. The program has been so successful that as of 2024, all eligible GRCs were required by the GRC board to hold an associated GRS, institutionalizing the program in perpetuity. In 2026, GRC and KIETS expanded their partnership, supporting graduate students and post docs who attended a Gordon Research Conference and Seminar for the first time. This new initiative supported 11 graduate students and 3 postdocs across 14 Gordon Research Conferences. The conference chairs reviewed numerous applicants when considering this funding as over 1,200 participants at these meetings were first-time attendees. The program was a successful addition to the Gordon-Kenan Graduate Research Seminar funding to further leverage the partnership with Gordon

Research Conferences and support early career researchers..

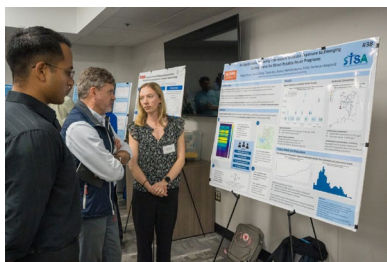
2025 KIETS Climate Leaders Symposium

The 4th Annual Climate Leaders Program Fall Symposium held October 1-2, 2025 was the most well attended to date, with over 360 attendees (70% students, 18% faculty/staff). For 2025, the four panels were case-based and discussed Energy Grids, City Design and Tourism, Sustainable Proteins, and Hazard Mitigation and Disaster Recovery. The 2025 symposium also included impactful keynote talks, a communications workshop with Georgann Eubanks and Donna Campbell, the student poster session and Innovation showcase. CLP scholars introduced speakers, facilitated table discussions and presented lightning talks and posters on their internships and/or their related research. Thanks to funding through NC State's Sustainability Fund, four CLP students created course content based on each of the panel themes.



2026 Environmental Water Resources and Coastal Engineering Graduate Research Symposium

The 2026 *Environmental, Water Resources and Coastal Engineering (EWC) Graduate Research Symposium* held by students and faculty from the Department of Civil, Construction and Environmental Engineering at NC State is a showcase for EWC research to the department and public and private-sector research and industry partners. This event offers a unique venue for students to present their work to a diverse technical audience, hone their presentation skills, network with potential collaborators and employers, and build relationships with other EWC students and faculty while assembling the program and running the event. Kichul Bae, a PhD student in the EWC group and KIETS CLP Scholar, served as the student chair for the symposium and led the organization and implementation of the symposium. Over 110 individuals participated in the event including 47 graduate students, 18 faculty, 12 prospective students, and 32 professionals representing over 20 local engineering / research organizations.



2026 Recovery of Biological Products XXI Conference

KIETS supported the 2026 *Recovery of Biological Products Conference Series* which is the premier international forum for the presentation and discussion of recent advances in the operations used to recover biological products of therapeutic, diagnostic and industrial value to society. The RXXI conference took place in April 2026 with 289 attendees representing industry, academia and government agencies. 76 posters were presented at the conference which included topics such as harvest technology, mechanistic and mixed models, cell and gene therapy development and manufacturing, chromatographic separations, advances in vaccine development, and continuous unit operations.



**Recovery of
Biological Products**
Conference Series

Staff Leadership

KIETS staff also served in leadership and advisory roles in several initiatives at NC State and with external groups.

ACCOMPLISHMENTS

- Dr. Ruben Carbonell served on the IEI National Advisory Board, the Daugherty Endowment Governance Committee, the Advisory Board for the FSU-FAMU Chemical Engineering Department, the National Academy of Engineering's Audit Committee, and he is in the NAE Peer Review Committee for Section 3 (Chemical Engineering). He also serves as Senior Technology Strategist for the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) and he is a member of the National Academy of Sciences Board of Chemical Sciences and Technology, helping to guide the future of the nation's educational and technical priorities in chemistry and chemical engineering. Dr. Carbonell was one of the leaders in the AIM-Bio Program, supported by the Novo Nordisk Foundation (NNF). He serves as a member of its Advisory Board and Steering Committee, and is one of the lead principal investigators on the Single Use Devices (SUD) workstream, where he heads a research group on the development of new membrane technologies for high productivity bioseparations. His group received support from the Chancellor's Innovation Fund (CIF) and 2ndF to commercialize the technology. Dr. Carbonell lead the charge on the development of a new proposal to the NNF that builds on the knowledge generated through the AIM-Bio Program. He also maintains a close working relationship with BTEC and has been instrumental in gathering funding for BTEC from NIIMBL, AIM-Bio and other sources. Dr. Carbonell initiated an effort to establish the NC Facility for Advanced Biomanufacturing (NCFAB) on Centennial Campus, and is currently working with a small group of NC State faculty and staff to win the support of the NC Biotechnology Center, the NC Life Sciences Organization and major biomanufacturers in NC to make this facility a reality for the benefit of the state of NC, and the university. Dr. Carbonell and his group have published 6 refereed publications in international journals, and has given several oral and poster presentations at international meetings on bioseparations. In FY 2025-26, Dr. Carbonell was named the Executive Director of KIETS.
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- Raj Narayan served as a Professor of the Practice of Entrepreneurship and Executive in Residence in the TEC Program within the Poole College of Management. Mr. Narayan served as a mentor for the NC State Social Innovation Fellows program, the NC Sea Grant CCRG Review Committee, the Daugherty Endowment Governance Committee, the RISF selection committee, and the Wolfpack Investor Network (WIN) Steering Committee. Mr. Narayan was an instructor with the NC State Office of Research Commercialization ICORP program. Mr. Narayan also served on Board of Advisors of the UNC School of Law Institute for Innovation, NC State Engineers Without Borders, and NC State Innovation and Entrepreneurship. He was also an active participant in the NC Eisenhower Fellows Alumni Chapter. In FY 2025-26, Mr. Narayan was named the Managing Director of KIETS.
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- Cordella Rashid served on the HR Connections Committee, Business Connections Committee, African American Faculty & Staff Organization Committee, the Society for Human Resource Management, and the National Council of University Research Administrators. Ms. Rashid also continued her service on the NC State Staff Senate as a representative of the Chancellor's Unit. In FY 2025-26, Ms. Rashid was named the Director of Finance and Research Administration of KIETS.
- Tara Spivey served as the Hunt Library building liaison team on behalf of the tenants in our Hunt Library office suite. Ms. Spivey also participated on the following committees: NC State Event Planners Council, Hunt Library Partners Meeting Committee, TSS LanTech Meeting Committee, Facilities Liaison Briefing Meetings Committee, Chancellor's Unit Awards for Excellence, and African American Faculty & Staff Organization. Ms. Spivey is also an alumnus of the William C. Friday Fellows program which is a highly respected cross sector leadership program focused on adaptive leadership and impact on our communities statewide. In FY 2025-26, Ms. Spivey was named the University Program Specialist of KIETS.

- Amanda Mueller, Director of the KIETS Climate Leaders Program, was named the Director of Interdisciplinary Climate Engagement of NC State's Climate and Sustainability Academy in May 2026. She was also nominated for the Chancellor's Unit Award for Excellence. Ms. Mueller continues to serve on the steering committee of the Office of University Interdisciplinary Programs' (OUIP) Interdisciplinary Community of Graduate Scholars. She also completed the University's High Impact Experience training and earned the CLP a Packways Recognized High-Impact Experience status. The Climate Leaders Program was also nominated this year for the Provost's Award for High Impact Experiential Learning.



- Catherine Cole completed her first year as the Program Coordinator for the KIETS Climate Leaders Program. In addition to her role with the KIETS Climate Leaders Program, Ms. Cole also served on the Office of University Interdisciplinary Programs (OUIP) Interdisciplinary Community of Undergraduate Scholars Committee and served on the Blue Economy Innovation Program Advisory Committee which advances sustainable ocean and coastal solutions through education, research, and entrepreneurship. Ms. Cole earned a B.S. in Environmental Science and Conservation from the University of North Carolina Wilmington in 2019. Ms. Cole earned a Graduate Certificate in Policy Analysis in 2024, and a Master of Public Administration (MPA) in 2026, both from NC State University's School of Public and International Affairs.



- Professor Jeremiah Johnson (Department of Civil, Construction and Environmental Engineering) continued his service as Senior Faculty Fellow of the KIETS Climate Leaders Program and was promoted to the rank of Professor by his department in 2026.

- Vance Kite continued as Director of the Kenan Fellows Program. Over the past year, Dr. Kite taught a course in the College of Education *EMS 375 – Introduction to Science Teaching Methods I*. Dr. Kite also submitted a research paper under review with the *International Journal of STEM Education*. In addition, he was recognized as a top cited author in the *Journal of Research in Science Teaching* for 2024-25. Dr. Kite served on the doctoral committee of Jesus Esquibal, a doctoral student in the Department of Science Education at Texas Tech University. Dr. Kite was nominated for the Chancellor's Unit Award for Excellence in Spring 2026.



- Mark Townley, Associate Director of the Kenan Fellows Program served on the Governor's Teacher Advisory Committee and on the Board of Directors for the Exploris School in Raleigh, NC.
- Amneris Solano, Assistant Director for Communications for the Kenan Fellows Program continued to assist KIETS with supporting KIETS website improvements and social media presence. Ms. Solano served on EdNC's Strategic Council and as a judge for the CASE Circle of Excellence Awards in the Video: Fundraising and Stewardship category. The Circle of Excellence Awards showcase outstanding work in advancement services, alumni relations, communications, fundraising, and marketing. In Spring 2026, Ms. Solano was elected to the NC Staff Senate representing the Chancellor's Unit.

- Carrie Horton, Program Manager for the Kenan Fellows Program completed a Graduate Certificate program for Nonprofit Management at NC State. Ms. Horton also volunteers as a co-leader for the NC Coastal Pines Girl Scout Troop #11 in Johnston County. Ms. Horton was elected as the Secretary of the PTA for the Innovation Academy in Johnston County for a two-year term. Ms. Horton also led the planning for the 2025 KFP Anniversary Conference.



- Ms. Linda Dion served as program coordinator for the Kenan Fellows Program. Mrs. Dion was a 2017-18 Kenan Fellow and has served on the Kenan Fellow Program faculty since 2018. Ms. Dion is working towards completing the Equal Opportunity Essentials Certificate offered by the Office of Equal Opportunity (OIED) at NCSU.

- Randy Pinion continued his service as the Logistics and Data Manager for the Kenan Fellows Program.

Recommendations and Future Concerns

To build on its past successes, the Kenan Institute requires continued commitment and financial support from its partners including NC State University, the Kenan Fund for Engineering, Technology & Science, and other universities, foundations, and government partners.

In FY 2025-26, KIETS remained responsive to stakeholder needs and continued to identify high impact investment opportunities while remaining vigilant of potential impacts to available funding for key initiatives. Among the key priorities for KIETS moving forward remains a focus on grand challenges in global health and climate change. These areas of focus for KIETS amplify the strategic interests and capabilities of NC State University and its partners toward developing innovative solutions addressing enduring problems in our State, Nation, and the World. KIETS looks forward to building this work in collaboration with key partners including the Provost, Vice Chancellor for Research, and leadership of NC State University's Colleges.

We anticipate that two flagship programs, the Kenan Fellows Program for Teacher Leadership (KFP) and the KIETS Climate Leaders Program (CLP) will continue to experience impacts based on reductions in available federal funding and corporate support. There have also been changes to the research budgets of federal agencies including the NSF, NIH, FDA, and DOE. These changes will have a negative impact on the number of opportunities for NC State researchers to pursue proposals and will make federal grants even more competitive. It remains essential for leadership from within the University, Kenan Fund, and industry to work closely with the Institute's leadership to serve as high-level advocates on behalf of Institute programs such as the Kenan Fellows Program and Climate Leaders Program. This strategic advocacy will help the Institute promote the impact of its programs and build its reputation as an honest broker of best practices in research, education, entrepreneurship, and public policy.

The KFP will continue leveraging its portfolio of programming to establish a physical footprint in each of the state's 100 counties and a virtual footprint nationwide. KFP continues to engage with school districts, local and national industries, and other partners to build inroads into new geographic locales. The KFP currently receives a small portion of its annual operating budget from a recurring state appropriation. With an eye towards further expanding our services to serve more teachers, KFP is currently working through approved University channels to seek expansion of its resources to cover the program's operating costs. The KFP has established an endowment fund and will seek to continue to grow that fund to provide long-term support for KFP's operational needs.

The CLP has obtained significant support for its operations from the Office of the Executive Vice Chancellor and Provost and continues to provide valuable internship opportunities for undergraduate and graduate students throughout the university. The CLP is closely linked with other groups and organizations focused on the coastal resilience and sustainability, and in due course, KIETS will consider how the CLP should be integrated more formally as a university-wide initiative. While both the CLP and KFP are important KIETS investments, they make up a considerable percentage of the KIETS programmatic budget each year. KIETS would like to identify additional fundraising opportunities to lower the percentage of these programs on the KIETS budget to fund a wider range of programs at NC State.

In addition to financial support, the Institute will need continued in-kind support from the University such as the office space provided in the Hunt Library and support from units such as the Office of Advancement, Office of Communications, and Office of Sponsored Programs' Integrated Support Services Center. KIETS continues to maintain very efficient operations with a small staff which poses challenges in managing large-scale events. As KIETS continues to develop its programs, it seeks to leverage and complement its resources from university partners including Special Events and the McKimmon Center to help manage event planning and program implementation. KIETS will also continue to work closely with University Advancement as it seeks resources to leverage its investment in core programs and operations. Ultimately, these are issues related to the sustainability of the Institute and its programs and how the Kenan Institute is regarded in terms of University fundraising priorities.

In consideration of leadership transitions at NC State University and at the Kenan Fund for Engineering, Technology and Science, the leadership of KIETS will do everything it can to advise the new university and Kenan Fund leadership regarding the role and objectives of KIETS, and how it hopes to serve the university community, and the world at large, in years to come.