Catalyzing Afghan Agricultural Innovation (CAAI)
A program at the Center for International Research, Education, and Development
Agriculture is the backbone of the Afghan economy with nearly two-thirds of Afghans engaged in the sector. Yet, decades of strife have had a devastating effect on the rural population, which depends largely on agriculture for income and subsistence. More than a third of crops are lost before processing because of inefficiencies in agricultural value chains, which reduces the profitability of agribusinesses and the availability of food. Furthermore, a disconnect between the skillset of graduates and the needs of the job market has led to low employment rates.

To address challenges that limit the capacity of the agricultural education system, Virginia Tech has partnered with USAID to implement the Catalyzing Afghan Agricultural Innovation (CAAI) project to catalyze innovation in agriculture by training a highly skilled, modern Afghan agricultural workforce. Virginia Tech’s Center for International Research, Education, and Development (CIRED) manages the project.

The project focuses on innovation in agricultural value chains and in particular on facilitating interactions between public and private sector value chain stakeholders. Traditionally, the public and private sectors have not worked well together and often the private sector has found that public research and education do not effectively address their needs for new or improved technologies and for skilled agricultural graduates. A team of Virginia Tech experts in agriculture and education is addressing these issues and backstopping the CAAI Afghan team as they deliver training to university researchers and educators, instructors at agricultural technical schools, and extension agents.

Component 1: Strengthen Afghan agricultural education institutions to participate in value chains

CAAI will deliver trainings to teaching staff at all levels in the AET system, including high school, vocational, and university instructors. Trainings will focus on improved content and innovative pedagogy. A special focus area addresses women’s participation in rural agriculture education.

Component 2: Strengthen research and extension actors

CAAI will form research teams and deliver training in effective collaborative research. Researchers will include educators across the AET system working together with stakeholders from the private sector. Trainings will prepare researchers to identify new agricultural technologies, practices, and approaches to solve practical problems.

Component 3: Coordinate effective information sharing among agricultural market systems actors

CAAI will catalyze and sustain mutually beneficial and enduring collaborative relationships between members of the AET system and private sector. Relationships will lead to effective information sharing among agricultural value chain actors and improve relevance and alignment of agricultural education to workforce needs.

The project has three focus areas implemented in a phased approach. Activities in Components 1 and 3 lay the groundwork for implementation of Component 2.
CAAI trainings focus on:

- Improving course content of existing standardized curricula, emphasizing the practical applications of how agriculture is practiced and how agriculture is changing
- Creating new lesson content in complementary programs in order to increase the value of existing classes. New material introduces concepts such as entrepreneurship and value chains into the curriculum
- Introducing new student-centered teaching approaches with proven effectiveness, such as experiential, collaborative, and inquiry-led learning

The goal of teacher training is to ensure that all graduating AET students have the skills and practical experiences necessary to participate effectively in modern agricultural value chains, as well as create, promote, and use new agricultural technologies and information-sharing platforms.

"This is the first time I am attending a Pedagogy training that is introducing us to the new methods of teaching, and I am very excited to implement this."

Herat AVI teacher

Planned outcomes of AET training include:

- Improved course content and curricula
- Teachers trained in improved teaching methods including experiential learning
- On-site teaching gardens, greenhouses, libraries, and technology demonstration platforms
- Increased participation of young women in agricultural education
- Lessons and activities that promote student entrepreneurial capabilities and perspectives with respect to value chains and agriculture as a business
- Student clubs that allow students to learn and practice soft skills recognized by employers
- Agriculture fairs, student clubs, mentoring, and internships that increase private sector employers’ appreciation of student skills
- School-run grant competitions to support entrepreneurship and graduate internships with public and private employers
- Merit-based scholarships for agricultural high school students

Traditional teacher-centered teaching methods do not facilitate a two-way dialogue between teachers and students. The CAAI project promotes a more participatory approach that gives both teachers and students the opportunity to share their thoughts and exchange views during the learning process. The effect of this transformative approach is to create a learning environment where participants can articulate perspectives and understandings in the classroom and beyond through extra-curricular activities. This student-centered learning approach develops critical thinking and problem-solving skills, as well as the teamwork and communication skills needed for success in the workplace.
Catalyzing Afghan Agricultural Innovation

CAAI is also helping to address challenges that affect women’s educational success. In some areas of Afghanistan, women’s ability to travel is significantly limited, and traveling to schools outside a woman’s village or town is a barrier to education. Moreover, female participation in agricultural technical education is concentrated in several provinces, with the majority of schools having no female students.

CAAI’s Education to Females (Edu2Fem) activity is a model for bringing formal agricultural high school education to women in rural areas where direct access to agricultural schools is not possible or schools are not staffed or equipped for female education.

CAAI will pilot the program to test the effectiveness and viability of a blended face-to-face and distance education approach that addresses the main obstacles that keep women from education. Through Edu2Fem, CAAI will identify and test a scalable model for female education that will lead to greater female participation in agricultural education.

Since CAAI launched, trainings conducted by Virginia Tech faculty have benefited more than 1,000 students and faculty members at agricultural and vocational high schools, including 30 percent female participation.

The CAAI program is committed to improving gender responsiveness throughout the AET system. Gendered dimensions of the project include:

1. Developing innovative approaches and methodologies to support increased high school education for women and young girls
2. Increasing competencies among faculty and students to identify the needs, priorities, constraints, and concerns of men and women along value chains
3. Implementing platforms where women and men participate in, contribute to, and benefit from, strengthened relations among AET actors to improve information dissemination of agricultural innovations

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EDU2FEM: FLEXIBLE BLENDED EDUCATIONAL APPROACH TO REACH MORE GIRLS IN AFGHANISTAN

1. **Distance materials & pedagogical methods developed in Kabul:**
   Textbooks and guidance for teaching AHS radio courses provided to female teachers.

2. **Weekly AHS School:** Twenty girls attend face-to-face teaching and practical training at a designated site central to the six villages, to be taught by female teachers.

3. **Secure transport:** Six days a week, the bus will pick up girls from one of six villages.

4. **Flexible learning from home:** Girls can listen to courses on the radio and use their textbooks — learning at home when it fits their schedules.

5. **Male training:** Once a month, male members of the family receive agricultural training to garner more support for female education.

Promotional activity used to inform women about the Edu2Fem approach
An important goal of CAAI is to promote, develop, and sustain relationships among AET networks and value chain stakeholders. These relationships are built on a common interest in solving problems in agricultural value chains and result in a range of benefits. Through improvements in applied research and extension services, the private sector begins to view researchers and extension workers as valuable partners in identifying innovative solutions to production and marketing constraints. Conversely, members of the agriculture education and research system gain valuable insights into the needs of producer communities, agri-business, and other value chain stakeholders.

To encourage collaboration among AET members and the private sector, CAAI launched an annual National Agricultural Education, Research, Extension and Economic (NAEREE) Conference to facilitate information sharing and discussion among researchers, educators, extension experts, government officials, and industry representatives. The NAEREE Conference has become an important national platform for a shared discourse towards the goal of strengthening the Afghan agriculture sector.
The Armenian International Center for Agribusiness Research and Education (ICARE) and CIRED conducted a study tour for twelve representatives of Afghanistan’s agriculture education and industry sectors. The study tour, arranged by CAAI and ICARE, introduced the Afghan delegation to ICARE’s successful model of agribusiness training and in particular its private sector engagement. Activities included facility tours and in-depth discussions with leadership and key stakeholders at the ICARE Agribusiness Teaching Center; a visit to the Armenian National Agrarian University (ANAU); meeting with the Center for Agribusiness and Rural Development (CARD); and visits to production and industry facilities such as Marianna Dairy and Green Lane Organic Farm and Training Center.

The study tour represented synergies between two USAID projects implemented by Virginia Tech focused on agricultural education and training (AET) in both Armenia and Afghanistan through the USAID-funded InnovATE project. Since 2014, Virginia Tech has implemented InnovATE/Armenia, a partnership with ICARE to build human and institutional capacities in Armenia’s agriculture education sector and to support the center to become a sustainable and modern center of excellence for teaching and research.

To encourage and support agricultural students to create innovative solutions to post-harvest losses in high value crops, CAAI has partnered with the USAID-funded High Value Crops – Afghan Value Chain (HVC/AVC) project to launch the Young Innovators in Agriculture Competition (YIAC 2019).

Student participants undergo four months of training and coaching followed by an opportunity to pitch their proposed agricultural innovation to private-sector representatives, financial organizations, and development agencies.

As part of YIAC 2019, CAAI conducted post-harvest training for students in project provinces. This training introduced the key agricultural problems contributing to post-harvest losses in high-value crops. Subject matter experts with extensive experience in post-harvest handling of fresh fruits and vegetables conducted the two-day training. The training focused on post-harvest techniques, technologies required at each production stage, the current situation of post-harvest handling for the relevant crops, losses incurred at the different stages, and challenges and opportunities for improvements. As part of the YIAC, CAAI will continue to provide workshops focused on post-harvest losses in specific value chain crops.

YOUNG INNOVATORS IN AGRICULTURE COMPETITION

Herat AVI students present their saffron processing unit during the Young Innovators in Agriculture Competition.

AFGHANS REPRESENTING THE COUNTRY’S AGRICULTURAL SECTOR VISIT ARMENIA

Student participants undergo four months of training and coaching followed by an opportunity to pitch their proposed agricultural innovation to private-sector representatives, financial organizations, and development agencies.
CAAI A DOOR TO SUCCESS

NAHIDA GHULAMI

Nahida Ghulami, a graduate of the Agricultural and Vocational Institute of Balkh, is a 20-year-old woman working full-time as a teacher at the Agricultural High School in Dawlatabad District.

Coming from a poor family of three brothers and five sisters, she has struggled to complete her studies at the institute. She wanted to continue her studies, but could not due to financial constraints. This led Nahida to search for ways to generate income to improve her financial situation.

To augment her income, Nahida runs a household-based nursery growing fruit tree seedlings that she sells in the local market.

Using this revenue, Nahida financially supports her family and saves money to continue her education. In the past, she hired labor for fruit tree pruning and grafting because she lacked the needed skills. As a result, almost 50 percent of the income went to the cost of labor. After participating in a CAAI pruning and grafting course, she learned these and other new skills to improve her nursery. Now, she does not need to hire labor to do this work and her business is more profitable. She credits much of her new success to the CAAI training.

TAYEBA ABASI

Afghan women play a significant role in the development of the country. However, social, cultural, and professional barriers often prevent them from accomplishing their dreams. Yet, one young Afghan woman is overcoming these obstacles thanks to the CAAI program.

Tayeba Abasi, a 2016 graduate from the Department of Agriculture at Herat University with a bachelor’s degree in Food Technology, found it hard to find a job in her chosen field of study. As a result, her dream of becoming an agricultural professional began to fade.

However, Tayeba did not give up hope and continued to search for employment in her profession.

When she heard about a CAAI "linking event" for graduates from the university, she registered for the program and attended the pre-employment skills training course. That training equipped her with resume preparation and interview skills. Not long after the training, the CAAI Herat Provincial Team introduced her to a local company that produces saffron. She initially began working as an intern, but soon the company recognized her potential and Tayeba was offered a full-time job.

She is now applying her food technology skills to the company’s effort to expand its saffron production to the national market and even international markets. Tayeba is contributing to the financial support of her family and looking ahead to when she can realize her dream of starting her own agricultural business.