

## INFORMATION PAPER

Army E&I  
8 June 2020

**SUBJECT:** Response to Defense Advisory Committee on Women in the Service (DACOWITS) request for information (RFI) on the Army Educational Outreach Program (AEOP).

1. Purpose: To respond to the Defense Advisory Committee on Women in the Service (DACOWITS) request for information (RFI) on the Army Educational Outreach Program (AEOP).

2. Facts:

a. Background.

- 1) The Department of the Army sponsors Science, Technology, Engineering, and Mathematics (STEM) education programs and outreach to shape a diverse, agile, and highly competent STEM talent pool representative of the nation's demographics for national STEM outreach initiatives. The Army established a single centralized STEM education program, the Army Educational Outreach Program (AEOP), executed under Title 10 U.S.C. § 2192. AEOP is comprised of twelve (12) centrally-coordinated programs that include STEM enrichment programs, competitions, and apprenticeships/internships.
- 2) This information paper (IP) is in response to the DACOWITS RFI for June 2020 regarding Fiscal Year 2019 (FY19) participation in AEOP's Junior Solar Sprint (JSS) competition; Science and Engineering Apprenticeship Program (SEAP); Research and Engineering Apprenticeship Program (REAP); and High School Apprenticeship Program (HSAP).
- 3) AEOP conducts annual evaluations, which can be found at <https://www.usaeop.com/about/our-impact/>. The annual evaluation reports publish historical trends, data points, and recommendations for program improvement, and impacts on the return on investment (ROI). AEOP only collects data on the number of students that participated and completed programs. AEOP does not collect data on the percentage of students that did not complete a program.
- 4) AEOP Return on investment: Across all programs, a majority of participants (56% in FY19) are from underserved backgrounds; specific program statistics include: JSS (68%), SEAP (32%), HSAP (66%), and REAP (99%). Participants are being prepared to be highly successful in a STEM literate society, as evidenced by statistically significant growth for HSAP and REAP participants in their creativity and innovation skills, critical thinking and problem-solving skills, and communication, collaboration, social and cross-cultural skills. Additionally,

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participants report they are more interested in pursuing a STEM career with the DoD after participating in the programs (REAP, 55%; JSS, 59%, HSAP, 72%; SEAP, 100%).

- 5) Program Impacts on Improving the Recruitment of Women: In FY19 women comprise the majority of participants in the AEOP apprenticeships including the SEAP (52%), REAP (67%), and HSAP (62%) programs. JSS has consistently recruited female students into the program. In FY19, JSS female participation increased to 44%. Further, the portion of female participants from underserved backgrounds ranges between 54% and 99% per program, meaning many participants are also coming from rural/urban/frontier areas, ethnic/racial minority groups, low socio-economic status, English language learners, and are potential future first generation college graduates.

b. JSS.

- 1) Type of Activity: JSS is a STEM competition program for 5th through 8th grade students with the goal of engineering the fastest and best designed solar-vehicle. Students design, build, and race solar powered cars using hands-on engineering skills and principles of science and math, develop teamwork and problem solving abilities, investigate environmental issues and gain hands-on STEM skills.
- 2) Financial Cost: The annual cost for JSS in FY19 was \$253,663.
- 3) Return on Investment: Refer to section 2, subsection A, paragraph 4 for overall AEOP return on investment.
- 4) Geographic Regions: In FY19 students participated from the following states: AL, CA, CO, DE, FL, GA, IL, IA, KS, KY, MD, MS, MO, ND, NJ, NY, NC, OH, OK, PA, SC, TN, TX, UT, VT, VA, WA, WV.
- 5) Percent of Women Participation: 44% participants in FY19 were female and 27% in 2015. No demographic data was collected prior to 2013.
- 6) Educational Outcome for Students: In FY19, 2,224 students participated in JSS with 353 participating schools.
- 7) Percentage of Students Who Completed the Program: Data not collected. AEOP only collects data on the number of students that participated and completed programs. AEOP does not collect data on the percentage of students that did not complete a program.
- 8) Program Impacts on Improving the Recruitment of Women: Refer to section 2, subsection A, paragraph 5 for overall AEOP impacts on improving the recruitment of women.

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c. SEAP.

- 1) Type of Activity: SEAP is an apprenticeship program for talented high school students. SEAP matches Army laboratory scientists and engineers (S&E) to apprentices creating a direct mentor-student relationship that provides students with training that is unparalleled at most high schools. SEAP participants receive first-hand research experience and exposure to Army Laboratories and Centers. SEAP fosters desire in its participants to pursue further training and careers in STEM.
- 2) Financial Cost: The annual cost for SEAP in FY19 was \$482,304.
- 3) Return on Investment: Refer to section 2, subsection A, paragraph 4 for overall AEOP return on investment.
- 4) Geographic Regions: In FY19 students were placed in SEAP apprenticeships in the following states: AL, CA, IL, MA, MD, MS, TX, VA.
- 5) Percentage of Women Participation: 52% of participants in FY19 were female and 36% in 2015. No demographic data was collected prior to 2013
- 6) Educational Outcomes for Students: In FY19, 108 students were selected for SEAP apprenticeships and placed at 15 Army Laboratories and Centers.
- 7) Percentage of Students Who Completed the Program: Data not collected. AEOP only collects data on the number of students that participated and completed programs. AEOP does not collect data on the percentage of students that did not complete a program.
- 8) Program Impacts on Improving the Recruitment of Women: Refer to section 2, subsection A, paragraph 5 for overall AEOP impacts on improving the recruitment of women.

d. REAP.

- 1) Type of Activity: REAP is a summer STEM program that places talented high school students, from groups historically underserved in STEM, in research apprenticeships at area colleges and universities. REAP apprentices work under the direct supervision of a mentor on a hands-on research project that is sponsored by the Army. REAP apprentices are exposed to the real world of research, gain valuable mentorship, and learn about education and career opportunities in STEM.
- 2) Financial Cost: The annual cost for REAP in FY19 was \$450,165.
- 3) Return on Investment: Refer to section 2, subsection A, paragraph 4 for overall AEOP return on investment.
- 4) Geographic Regions: In FY19 students were placed in REAP apprenticeships in the following states: CA, NV, AZ, NM, CO, TX, SD, IA, AR, MO, LA, MS, AL, GA, FL, IL, IN, MI, NC, VA, WV, MD, PA, NJ, DE, NY, CT, MA, VT, NH.
- 5) Percentage of Women Participation: 67% of participants in FY19 were female and 61% in 2015. No demographic data was collected prior to 2013.
- 6) Educational Outcomes for Students: In FY19, 165 students were selected for REAP apprenticeships and placed at 55 colleges and universities.

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- 7) Percentage of Students Who Completed the Program: Data not collected. AEOP only collects data on the number of students that participated and completed programs. AEOP does not collect data on the percentage of students that did not complete a program.
- 8) Program Impacts on Improving the Recruitment of Women: Refer to section 2, subsection A, paragraph 5 for overall AEOP impacts on improving the recruitment of women.

e. HSAP.

- 1) Type of Activity: HSAP is an apprenticeship program that provides current rising high school juniors and seniors with an authentic science and engineering research experience alongside university researchers sponsored by the Army Research Office. Through HSAP, students learn research methods and develop skills in critical Army research areas in a university lab setting, preparing them for the next steps of their educational and professional career.
- 2) Financial Cost: The annual cost for HSAP in FY19 was \$102,785.
- 3) Return on Investment: Refer to section 2, subsection A, paragraph 4 for overall AEOP return on investment.
- 4) Geographic Regions: In FY19 students were placed in HSAP apprenticeships in the following states: AL, AR, CA, CT, GA, FL, LA, MA, MI, MO, NC, NY, TN, TX, VA.
- 5) Percentage of Women Participation: 62% of participants in FY19 were female and 40% in 2015. No demographic data was collected prior to 2013
- 6) Educational Outcomes for Students: In FY19, 29 students were selected for HSAP apprenticeships and placed at 52 colleges and universities.
- 7) Percentage of Students Who Completed the Program: Data not collected. AEOP only collects data on the number of students that participated and completed programs. AEOP does not collect data on the percentage of students that did not complete a program.
- 8) Program Impacts on Improving the Recruitment of Women: Refer to section 2, subsection A, paragraph 5 for overall AEOP impacts on improving the recruitment of women.

Approved: Director for Lab Management  
Office of the Deputy Assistant Secretary of the Army  
(Research & Technology)

f. The United States Army Cadet Command (USACC) provided the response regarding the Junior Leadership Corps. This program was cancelled approximately in the 2011-2012 timeframe and data is not available for this RFI.

Approved: Training and Doctrine Command (TRADOC)