Impact of Federal Government Funding of an Internship Program at a Minority Institution

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Abstract:

Involving students in research has been recognized as a strategic method for developing and preparing undergraduate students to gain valuable insights into the workforce, particularly into science and engineering careers. Federal funding to minority institutions has proven to be one of the most strategic and successful vehicles used in achieving this goal. This paper reports on the impact of funding through a Memorandum of Understanding (MOU) Agreement, between the Environmental Protection Agency (EPA), a federal agency, and Morgan State University (MSU), a minority institution. Under the agreement, a grant was awarded to MSU allowing students to participate in research projects at various EPA facilities across the country. From 1991 to present over one hundred and sixty (160) students have participated in the program. The execution of the program and outcomes of this program are presented in this paper. As a result of the success of the program, the grant was recently renewed to continue the program for another three (3) years, with renewable options. The new Agreement has been expanded to include the following:

- Faculty fellowships
- Training and site visits to EPA facilities by MSU faculty and students
- Supply of surplus equipment from EPA to MSU, to help meet the needs of current and planned education, research, and training programs
- Seminars on opportunities for research grants, minority graduate/undergraduate fellowships,
- How to partner with small business and other institutions.

Introduction

Morgan State University (MSU) is one of the one hundred and fourteen (114) historically black colleges and Universities (HBCU) in the country. It is the designated urban university in Maryland charged with the mission of providing a comprehensive array of programs and services to the citizens and organizations of the Baltimore metropolitan area. Its three major mission components are (1) to educate citizens from diverse academic and socioeconomic backgrounds, (2) to carry out research, giving priority to what’s applicable to the problems of the region and its residents, and (3) to provide cultural opportunities for the region and offer programs of services to the community and the general public. MSU was founded in 1867, as a Centenary Biblical
Institution by the Conference of the Methodist Episcopal Church to train men for the ministry and became a public institution in 1939, when the state of Maryland acquired it for the purpose of providing its African-American citizens access to public higher education at a time when access to this population sector was limited. Over the years, under committed and dedicated leadership, the University has seized the opportunity to develop MSU into a highly competitive educational institution, which now possesses a national reputation for excellence in the areas of Science, Engineering, Liberal Arts and Business. Among its many achievements in support of this claim are that MSU

- Continues to graduate more African-American undergraduates in chemistry than all other State institutions combined.
- Awarded 10% of all the nation’s B.S. Degrees in Physics earned by African-American students, in the last 15 years.
- Enrolls over 60% of all the State’s African-American engineering students.
- Graduated 100% of the United States’ African-American majors in Physics.
- Largest producer of African-American engineers in Maryland and among the top ten Institutions graduating the highest number of Africa-American Engineers in the nation.
- Led all public institutions nationally (between 1986 -1990) in awarding bachelor’s degree to African-American students, who subsequently ultimately pursued doctorates in their chosen fields of study.

The school of engineering, which was founded in 1984, has a formal curriculum in civil, industrial, and electrical engineering and assists students in making the vital transition from academic training to the professional world. The school has graduated over nine hundred engineers in electrical, civil and industrial disciplines. In addition, Morgan State University engineering students engage in technical and informational workshops with their peers to stress broad-based interdisciplinary solutions to complex problems. Students are also involved in career counseling and professional development activities, such as research and internships to further enhance their careers. It has been noted, that involving students in research has been recognized as a strategic method for developing and preparing undergraduate students to gain valuable insights into the workforce, particularly into science and engineering careers. As a result, federal funding to minority institutions has proven to be one of the most strategic and successful vehicles used in achieving this goal. In pursuance of this goal, several relationships have been developed and maintained between Morgan State University and federal agencies including, the Department of Transportation (DOT), the Department of Defense (DOD), the Department of Energy (DOE), and the U.S. Environmental Protection Agency (EPA). One major component of all of the Agreements is to provide research opportunities for students through internship programs.

One of these programs, known as MSU/EPA Summer Internship Program, was developed in 1991, as a result of an MOU Agreement between MSU and the EPA. The relationship started in 1991 with the Division of Environmental Justice with annual funding provided to the University to support students to participate in three months summer internships at various EPA research facilities. As a result of the success of the program, an expanded Partnership Agreement was signed between MSU and EPA, Office of Solid Waste and Emergency Response (OSWER) in
June 2000. In addition to providing summer internships, this expanded Agreement include, faculty fellowships, classroom seminars provided by OSWER’s specialists, training and site visits to EPA facilities by MSU faculty and students, supply of surplus equipment from EPA to MSU, to help meet the needs of current and planned education, research, and training programs, seminars on opportunities for research grants and how to partner with small business and other institutions opportunities.

The goal of the MSU/EPA Summer Internship Program is to among other things, provide qualified and culturally diverse students with work related research experience, particularly in the areas of science and engineering, and to help increase the pool of students completing undergraduate and graduate degrees gain employment in environmental research fields. The MSU/EPA Summer Internship Program is part of a broader program here at Morgan State University, School of Engineering, called the Student Work Experience Program (SWEP). SWEP provide students with structured, paid work related experience that complements their academic work. The students benefit in the short and long run and gain valuable insights into the world of work, establish relationships, and build skills that will launch them into their careers before they graduate. SWEP, including the MSU/EPA Summer Internship Program in particular, is an integral part of MSU’s strategy for preparing tomorrow’s environmentalists today by enhancing competence, confidence, and careers. In addition, the experience gained by the students through these work related experiences would further encourage their exploration of career opportunities in the environmental field.

Methodology/Operation of the program

The program is managed by an administrative director at MSU, Annette George, located in the school of engineering and a project officer at the EPA. The Director at MSU issues announcements about the program in February of each year throughout the entire the University and encourages both undergraduate and graduate students in all areas to apply.

Eligibility

Candidates for this research program are undergraduate and graduate students with a GPA of 3.0 and above. Students’ interest in an environmental career, and compatibility with the sponsoring organization's summer’s projects are also considered. In addition, each student is requested to submit an application package including, academic and personal information, an updated resume, two faculty recommendations, a letter of interest completed by the student, and previous employer recommendations.

Project Recruitment

EPA research directors, who agree to participate in the program, submit potential research projects for consideration. The projects are selected on the basis of the student’s interests and qualification to handle the particular project. Upon receipt of several resumes provided by Ms. George, coordinated telephone and face-to-face interviews between the students and the sponsoring offices are conducted. Students are then selected based on work experience, interests
and enthusiasm for the project. Projects selected by the students are usually reviewed to insure that they are appropriate and feasible relative to the qualifications and interests of the interns. A research mentor is then identified for each student selected and is committed to the interns’ experience. The director then notifies applicants of their selections. Once all the students have been selected, an orientation meeting is held at MSU before leaving for their assignments. Career counseling are also provided to students on request.

Examples of Projects

Some of the projects worked on by the students during the 2002 program are as follows:

- Collect water samples from a helicopter and/or boat and analyze samples for bacteria, phytoplankton and/or dissolved oxygen; monitor the NY/NJ Harbor Complex from a helicopter for floating debris for the New York Bight Helicopter Monitoring Program in Edison, NJ.
- 5-Year Review Guidance Data Input.
- Web Team Support – Corrective Action Program.
- Hazardous Waste Data Analysis.
- Information Management Assistance.
- Organizational Improvement Initiatives in the Office of Solid Waste.
- Workforce Development Strategy Implementation.
- Follow-up projects highlighted in past “Tech Trends” and “Groundwater Currents” newsletter.
- Hazardous Waste Mismanagement Research.

Project Administration and Support

Morgan State provides support services to make each project educationally valuable to the intern and as productive as possible to the sponsor. The MSU director manages and disburses all financial assistance to the interns, including stipends and relocation fees. Depending on the project location, MSU offers inter-disciplinary workshops and meetings to encourage interaction between the interns and other professionals. Site visits to each project location, are conducted by MSU’s director, to monitor progress, discuss problems, opportunities, accomplishments, and future plans for the program. In addition, periodic phone calls are made to the interns and sponsors throughout the duration of the program. Currently, academic credits are not awarded to the students for participation in the program, however, MSU faculty are exploring the option of working closely with the students and monitoring their projects to determine if academic credit can be awarded.

A program action plan and manual are prepared and distributed to each supervisor to ensure the smooth operation of the program. Each intern is required to prepare and submit a scientific report addressing the critical areas of his/her assigned research at the end of the summer project period. Copies of these reports are turned in to the MSU’s program director’s office and also each sponsoring office.
Evaluation Criteria

Morgan State University set up an evaluation and reporting system, which made the operation an effective research experience by using information gained from participants. Interns and sponsors are required to submit a detailed evaluation report at the conclusion of each project. These reports concentrate on three areas: the effectiveness of the program, the performance of the interns, and the value of the overall experience. A final report is submitted to EPA at the conclusion of the grant period. Format and content is discussed with the EPA project officer.

Results/Outcomes

As a result of the funding provided by the Agency for this program, forty five percent (45%) of the students who have participated in the program have gone on and pursued graduate degrees in the areas of engineering and/or science with an environmental focus. Additional efforts, with the continued commitment and support by MSU faculty and EPA officials are constantly being made to increase this number. In 2001, the faculty fellowship component of the Agreement was awarded to Dr. G.B. Oguntimein, in the Civil Engineer department. Dr. Oguntimein participated in an Intergovernmental Personal Act (IPA) assignment with the EPA working on two major projects; the first involved Assessing data on treatment of groundwater contaminated with MTBE at the Technology Innovation Office (TIO), in Arlington, VA and the second involved Literature Research and Analysis of the Impact of Biological Agents in the Environment, at the Chemical Emergency Prevention and Preparedness Office (CEPPO) in Washington, DC. The latter project assisted the EPA and its employees with adequate information in response to the Anthrax incidents in the Washington, DC, Maryland and Virginia areas. In addition, Dr. Oguntimein is mentoring one of the senior students at MSU working on a senior project related to his research at the EPA.

Conclusion

Several other successful programs are offered at MSU and certainly at other minority institutions as a result of federally funded grants, however, this program was highlighted because of its success and the continual funding. The program has satisfied its first objective of providing qualified and culturally diverse students with work related research experience, particularly in the areas of science and engineering with opportunities to conduct research on actual problems in the environmental field. However, because of the pay scales of government jobs, most students are selecting to pursue career positions in the private industry instead of federal government because of higher salaries. This trend has made it difficult to fulfill the program’s goal of satisfying full-time positions at EPA facilities and other federal agencies upon graduation. None-the-less, the valuable experience afforded to MSU students as a result of this federally funded program is a wonderful example of one of the opportunities made available through federal funding to minority institutions. There is no doubt that this opportunity would not otherwise be available if the interests, commitment and funding from the Agency was not available.

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Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition
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