Committee on Equal Opportunities in Science and Engineering

1996 Biennial Report to Congress

An Advisory Committee of the National Science Foundation

Executive Summary

Our nation is preparing to enter the twenty-first century — a time when our society will be increasingly dependent on science and technology to meet the economic and social challenges of a global society. Yet significant portions of the American people are not full participants in science and technology, whether as professionals or by acceptable standards of scientific literacy. It is a shortcoming that does not bode well for our societal well-being or for sustaining U.S. leadership in global competition in coming years.

The U.S. Congress created and charged the Committee on Equal Opportunities in Science and Engineering (CEOSE) with providing advice concerning options that would enable all Americans to participate fully in our scientific and technological democracy. That task remains as relevant and important today as it was when Congress enacted the law over 15 years ago. Appropriately, CEOSE has expanded its considerations to include persons with disabilities and encourages the incorporation of such language in its mandate from Congress.

This report on progress toward achieving improved development of human resources in science and technology provides examples of successful programmatic outcomes and recommendations to further improve progress. Progress has been made in most of the areas targeted, including the participation and achievement in science and mathematics by ethnic minority and female students and those with disabilities from grade school through college. Attainment of science, engineering, and technology degrees and professions has also increased in many of the identified sectors.

The levels of participation, however, still fall far below the proportionate representation of the total U.S. population. In order to continue and perhaps accelerate progress toward more vigorous participation, CEOSE recommends the following goals:

- The National Science Foundation (NSF) should achieve equitable representation of minorities, women, and persons with disabilities at all management and staff levels throughout the Foundation.

- NSF should continue to work to remove barriers that limit the number of underrepresented individuals in the pool of successful principal investigators, possibly using strategies such as increasing the diversity of reviewers and panels for grants that NSF awards.

- NSF should work to improve the data available on persons with disabilities in science and engineering, including efforts with other federal agencies to compile comprehensive demographic data on persons with disabilities.

- NSF should promote the multi-directorate use of facilitation awards for students, scientists, and engineers with disabilities across all directorates.

Progress toward achieving these goals should be monitored using metrics and timetables that are appropriate. NSF leadership must determine the best path to achieving a fully engaged science and engineering enterprise. However, that endeavor should include continued review of demographic trends in participation, with ongoing analysis for accuracy and completeness. It would also be useful for NSF to consider collaborating with other federal agencies that participate in science and engineering to share science and engineering population data and strategies on achieving full participation.

Preamble

As our nation prepares to enter the twenty-first century, significant portions of the American people remain excluded from full participation in a world that is increasingly dependent on science and technology to meet the economic and social challenges of a global society. Women, who are 51 percent of the population, represent only 22.4 percent of the scientists and engineers in the labor force. African-American people constitute 12 percent of the population but are only 3.5 percent of the scientific and engineering labor force. The corresponding figures for Hispanic people are 10 percent and 2.8 percent, and, for American Indians, 0.7 percent and 0.2 percent. Persons with disabilities constitute approximately 20 percent of the population but only 5.4 percent of the scientific and engineering labor force.[1] Members of these underrepresented groups must have the option to participate to the fullest of their individual potential in the world of science, mathematics, engineering, and technology (SMET). Participation includes scientific and technological professions, and leadership in the pursuit of technological advances and scientific research. Providing those opportunities is in our national interest for fundamental economic, social, and scientific reasons.

We recognize, however, that increasing attention has been directed toward federally-supported programs focused on increasing the participation of underrepresented groups. The Committee on Equal Opportunities in Science and Engineering (CEOSE) helps the National Science Foundation (NSF) implement *The Science and Engineering Equal Opportunities Act* that gives the NSF standing authority "to encourage full participation of women, minorities, and other groups currently underrepresented in scientific, engineering, and professional fields." Congress created and charged CEOSE with providing advice concerning options that would enable all Americans to participate fully in our scientific and technological democracy. That task remains our central guideline — as it should — and CEOSE affirms that the goals and objectives of the 1981 act are as relevant and important today as they were when Congress enacted the law some 15 years ago. Appropriately, CEOSE has expanded its considerations to include persons with disabilities and encourages the incorporation of such language in its mandate from Congress.

This report relates several components of activities in equal opportunity. It provides an evaluation of NSF progress toward achieving the six goals for human resource development first delineated in the 1992 CEOSE Report to Congress. Further, it provides examples of successful programmatic outcomes and recommendations (with associated performance indicators) to increase success. The report also addresses NSF's accountability responsibilities, in support of achieving the goals in the 1992 Report.

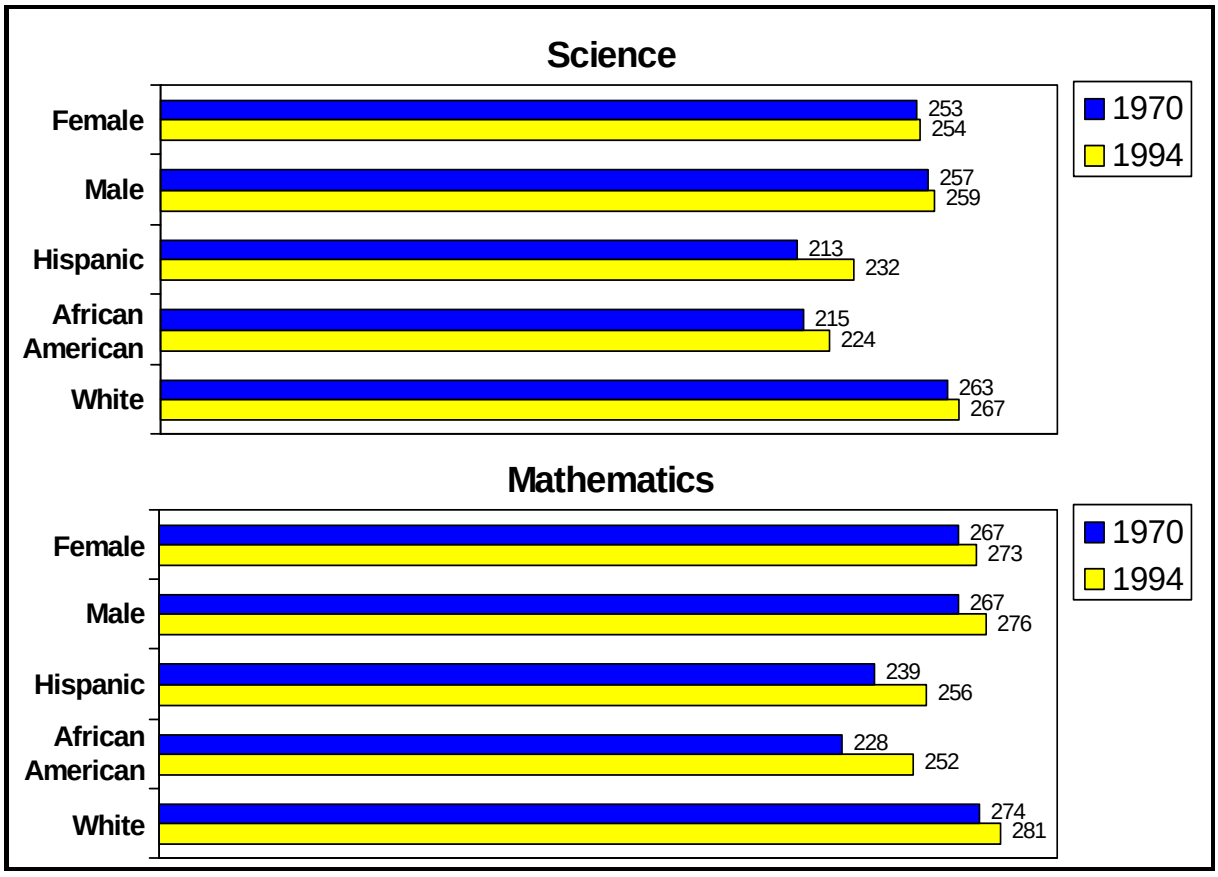
Evaluation of Progress

In its 1992 biennial report to Congress, CEOSE recommended that programs be developed by the Foundation to achieve the following six goals by the year 2000. Currently, the Committee is evaluating our nation's progress toward those goals to assess the diversity of the SMET workforce and to suggest steps that may measure progress more specifically. Recommendations provided in a subsequent section of this report may help the nation to reach these goals.

- **Achievement differences in science and mathematics across ethnic groups and between females and males will be reduced by one-half.**

Trends in the average test scores of students, aggregated by race/ethnicity as well as by sex, have shown limited improvement over the past 21 years in mathematics and over the past 24 years in science. The available data indicate that significant improvements have been made by Hispanic students (age 13) in narrowing the gap with whites for science and mathematics scores. The percentage reduction in the score differentials was 29 percent and 30 percent for science and mathematics, respectively. For African-Americans, the percentage reductions in the gap with white students were 10 percent in science and 37 percent in mathematics. Hispanic students increased 7 percent in mathematics and 9 percent in science, as shown in Figure 1. African-Americans' scores improved 4 percent in science (an increase that was not statistically significant) and 11 percent in mathematics. No discernible differences in science were observed for the scores distributed by gender.[2]

Figure 1. Trends in average scale scores in science and mathematics at age 13, by race/ethnicity and sex.



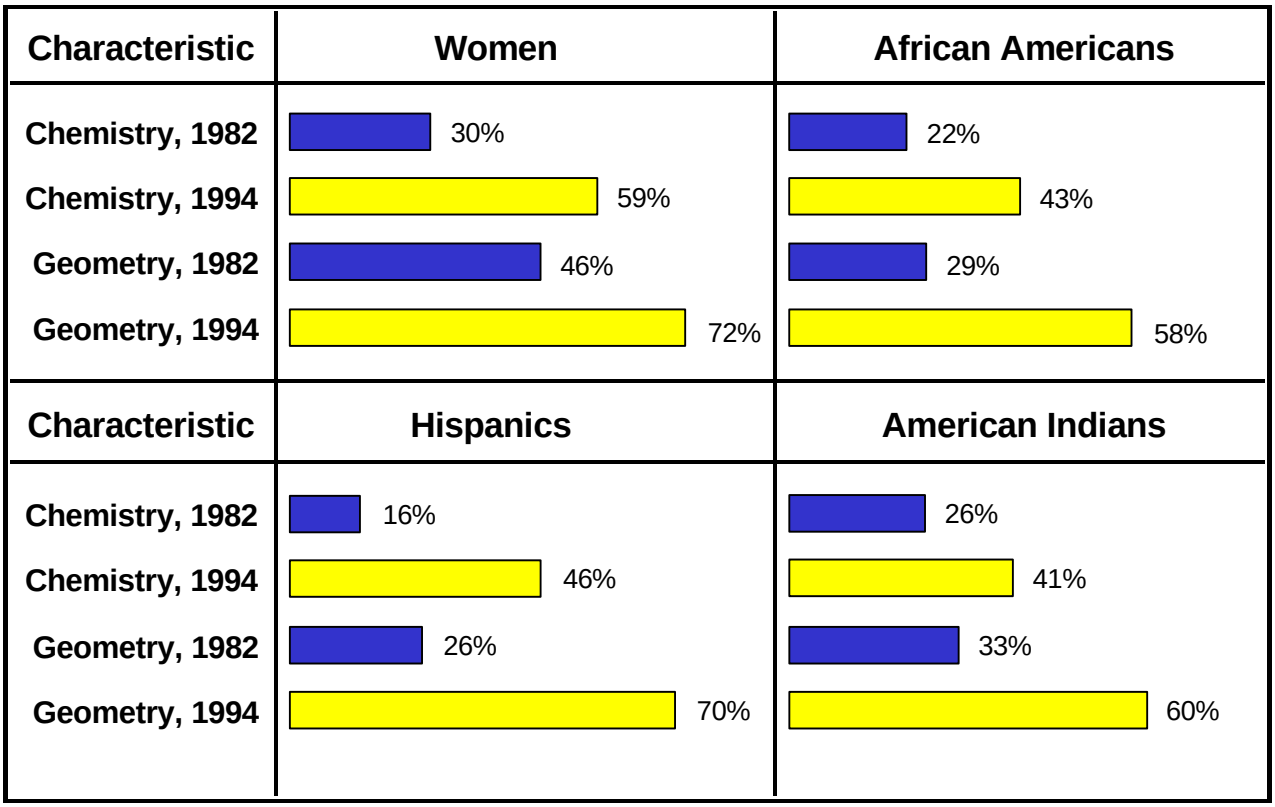
Source: U.S. Department of Education, National Center for Education Statistics.

- **Participation levels in science, mathematics, and engineering will be equalized across race/ethnicity and gender, as well as for students with disabilities.**

Participation in mathematics and science classes by female and ethnic-minority high school students has generally increased, reducing the gap with white and male students. For example, the proportion of high school students taking chemistry and geometry by race/ethnicity and sex has increased markedly since 1982, as shown in Figure 2. A higher percentage of women took chemistry and geometry in 1994 than men.[3]

The collection of data on students with disabilities is severely limited, in part by its dependence on self-identification by subjects. Until appropriate data are collected on persons with disabilities, progress in this area will be difficult to monitor.

Figure 2. Percentages of high school graduates who took chemistry and geometry, by race/ethnicity and sex: 1982 and 1994.

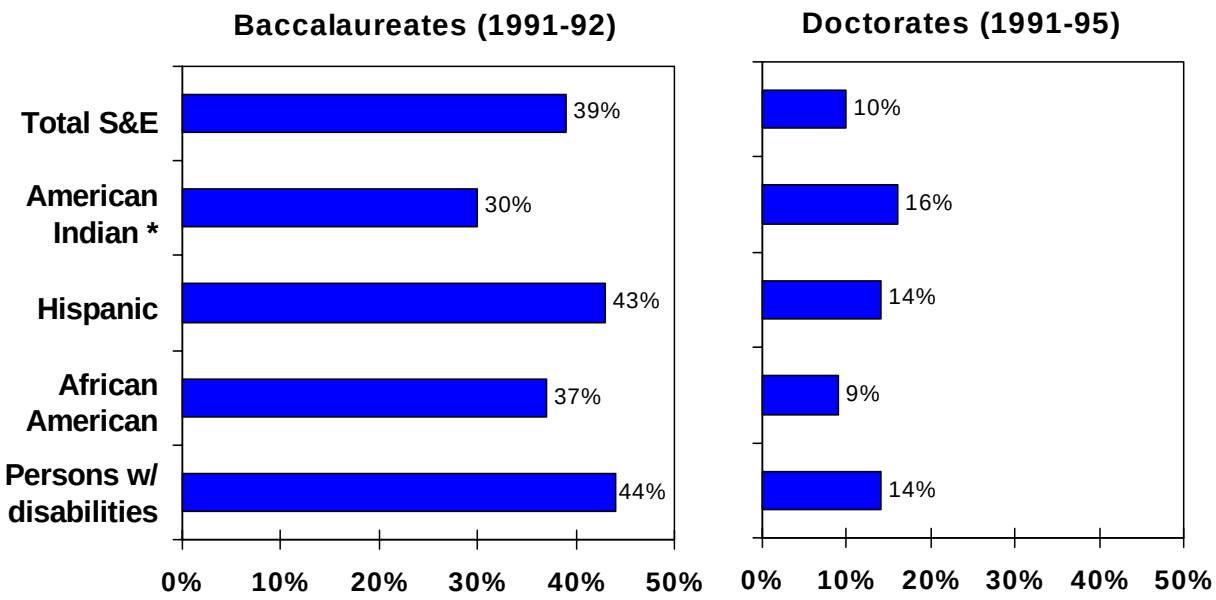


Source: U.S. Department of Education, National Center for Education Statistics.

- **The number of bachelor's degrees in science, mathematics, and engineering that are awarded to underrepresented students who enroll in two-year institutions will quadruple.**

Figure 3 presents the percentage of students from underrepresented groups and persons with disabilities receiving science and engineering baccalaureates and doctorates who have attended a two-year college. These data form a baseline from which to measure progress. It is noteworthy that students who have attended a two-year college are a significant part of the total group of students who receive baccalaureates and doctorates in scientific and technical fields.

Figure 3. Percentages of science and engineering baccalaureates and doctorates who attended a 2-year college, by race/ethnicity and disability status.



* Based on small sample size and, therefore, may be less reliable.

Note: The percentages of men and women who attended 2-year colleges were similar. Data for baccalaureates are the latest released. Baccalaureate data are grouped in 2-year cohorts and doctorate data are grouped in 5-year cohorts to provide sufficient numbers for reliable estimates by race/ethnicity.

Source: National Science Foundation, Division of Science Resource Studies.

- **The number of doctorate degrees awarded in science and engineering will double for women and persons with disabilities and will triple for underrepresented minorities.**

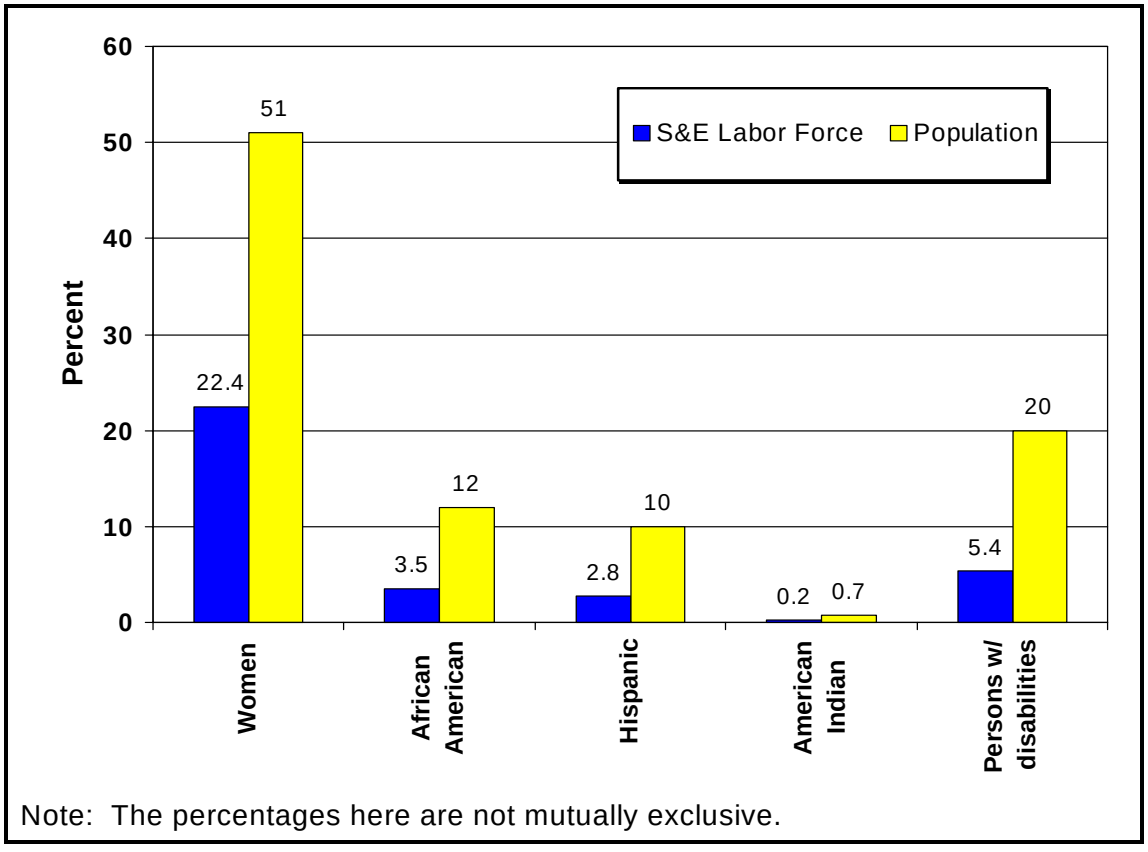
The proportion of underrepresented minorities receiving science and engineering doctoral degrees (compared to their proportion of the total U.S. population) remains low: 3.0 percent for African-Americans and Hispanics, and only 0.3 percent for American Indians. Women earned 31 percent of the total doctoral degrees in science and engineering issued in 1995. From 1992 to 1995, there was an increase of 17 percent in women receiving science and engineering doctorates. From 1992 to 1995, underrepresented minorities saw an increase of approximately 21 percent. Persons with disabilities earning science and engineering doctorates increased 26 percent in this period. While doubling or tripling the 1992 levels will be a major challenge, steady increases must continue to occur.[4]

Achieving increased numbers of science and engineering doctorate degree recipients who are minority, female, or persons with disabilities is dependent on producing similar (or greater) numbers of baccalaureate degrees in these groups. From 1990 to 1994, the number of baccalaureate degree recipients in science and engineering increased 44 percent for African-Americans, 47 percent for Hispanics, and 58 percent for American Indians. The improvement by underrepresented minority groups was greater than that by white recipients (10 percent) and Asian recipients (36 percent). The increases in baccalaureates awarded to underrepresented minority groups ranged from a 6 percent increase in computer science to an increase of 67 percent in psychology. The gaps once found in the choice of a science and engineering major between underrepresented minorities and whites have virtually disappeared.[5]

- **Professional positions in science, mathematics, and engineering will triple for minorities and women and will double for persons will disabilities.**

Figure 4 shows that people of African-American and Hispanic descent are 3.5 percent and 2.8 percent respectively, while persons with disabilities are 5.4 percent of the science and engineering workforce.[6] These figures compare with the following percentages of each group in the total U.S. population: African-Americans, 12 percent; Hispanics, 10 percent; American Indians, 0.7 percent; women, 51 percent, and persons with disabilities, 20 percent of the total population. In the U.S. workforce, the percentage of each group is African Americans, 11 percent; Hispanics, 8 percent; women, 46 percent; and persons with disabilities, 13 percent. American Indians are included within the "Asian and other" category by the U.S. Bureau of Labor Statistics; this category constitutes 4 percent of the labor force. Data by race/ethnicity total more than 100 percent because Hispanic workers are included in multiple categories, including white and African-American.[7]

Figure 4. Women, minorities, and persons with disabilities as a percentage of the population and of scientists and engineers in the labor force: 1993.



Sources: U.S. Census Bureau and National Science Foundation, Division of Science Resource Studies.

- **Substantial gains will be made in the number of minorities (three-fold), women, and persons with disabilities (two-fold) who teach science, mathematics, and technical subjects in secondary schools or in institutions of higher education.**

African-Americans comprised only 4 percent of full-time science and engineering faculty in higher education in 1992, while Hispanics comprised only 1 percent, and American Indians only 0.3 percent.[8] For women, from 1987 to 1992, there has not been a significant change in the ratio of men to women serving as full-time faculty in science and engineering. Approximately five males are present in instructional faculty positions for each woman, although the number of women employed in faculty positions has increased by 2,280 from 1987 to 1992. Available information for persons with disabilities holding doctorates indicates 5 percent participation in academia (four-year colleges and universities), although the specific job function is not identified.

At the secondary-school level, the representation of minorities among science and mathematics teachers was slightly better. In 1991, African-Americans comprised 7 percent and Hispanics comprised 3 percent of science and mathematics teachers. For women in secondary schools, the proportion was 51 percent.[9]

Examples of Successful Programmatic Outcomes

NSF has initiated a number of programs whose outcomes address the concerns expressed in the previous two CEOSE reports to Congress. Examples are:

URBAN SYSTEMIC INITIATIVES

NSF's Urban Systemic Initiatives (USI) Program targets the 28 U. S. cities with the largest numbers of school-age children living in poverty. Taken together, these cities represent over 4.3 million children and 200,000 teachers. To date, three cohorts of awards have been made, the first group totaled nine cities; the second totaled seven cities; and the third totaled four cities. A large proportion of the students in these cities are underrepresented in science, mathematics, engineering and technology careers. The following successes have been reported after the first year of the initial USI cohort:

- Improvements in student achievement: test scores in mathematics and science rose in all nine USI cities. In Cincinnati, 68 percent of all students improved their mathematics test scores. In Baltimore, median scores in mathematics and science on the statewide assessment increased in the grades tested (grades 3, 5, and 8).

- Mathematics and science graduation requirements have been raised in Baltimore, Chicago, Cincinnati, Dallas, El Paso, and Dade County, Florida. In Baltimore, low-level mathematics and science courses have been eliminated and all ninth grade students must enroll in biology. This action reflects the belief that all children can learn challenging science and mathematics.

- Federal and local resources have been reallocated and new resources have been generated to support a united effort to improve student achievement in mathematics and science. In Fresno, Detroit, and New Orleans, bond issues passed that will be used to upgrade the equipment and access to technology for science and mathematics instruction.

ALLIANCES FOR MINORITY PARTICIPATION (AMP)

Alliances for Minority Participation (AMP) is a multi-disciplinary, comprehensive undergraduate program with the following goals:

- To increase the quantity and quality of students receiving baccalaureate degrees in science, mathematics, engineering and technology;

- To increase the quality, quantity, and diversity of students receiving SMET degrees and entering the teacher workforce; and

- To increase the number of students entering graduate schools to attain the doctorate in SMET disciplines.

AMP focuses on individuals from groups who are underserved by our current educational system, those who are economically disadvantaged, and those who have low participation in the SMET enterprise and are in educational settings that do not encourage full use of their academic potential to succeed. The AMP program supports undergraduate systemic reform in all AMP projects by forming partners that include two- and four-year higher education institutions and the rest of the SMET community.

Twenty-six projects are currently funded. One impact of AMP is indicated by the increase in the number of bachelor's degrees awarded to SMET students from this group. The institutions of the six alliances funded in 1991 report a 49 percent increase in the number of SMET baccalaureate degrees awarded to individuals from groups currently underrepresented in the SMET workforce.

RESEARCH OPPORTUNITIES FOR UNDERGRADUATE STUDENTS

Research Experience for Undergraduates (REU) is a Foundation-wide program that supports active research experience for students at undergraduate research participation sites. Among the major goals of the program are to attract members of underrepresented groups and to involve students in research who might not otherwise have the opportunity, particularly those from institutions where research programs are limited. For example:

- Approximately 70 percent of the students supported by the REU Sites Program in the social and behavioral sciences are female and approximately 50 percent are underrepresented minorities. The Directorate for Social, Behavioral and Economic Sciences supports 15 sites per year, with an average of ten students per site, or approximately 150 students supported each summer (about 105 women and 75 underrepresented minorities). A very high proportion of these students go on to graduate school in the social and behavioral sciences.

- Native American and Alaska Native students at Oregon State University participate in a REU program in marine science that is supported by the Directorate for Geosciences. The program targets degree completion and development of career opportunities in science by providing students with research opportunities and mentoring. In 1995, twenty students participated in the

program. Of those twenty, four students earned bachelor's degrees and fifteen others are satisfactorily progressing toward undergraduate degrees.

- Cardiovascular biomedical engineering is the research focus of a three-year REU-supported program of the NSF Engineering Research Center at Duke University. In 1996, sixteen students participated in a nine-week summer session; five of the students were deaf or hearing impaired. In addition to the engineering focus, all students participating in this program received communications training in giving scientific presentations and studied engineering ethics.

The REU program seems to provide a highly effective and relatively inexpensive way to attract students from underrepresented populations into science and engineering careers and to foster science, mathematics, engineering and technology literacy among many undergraduate students.

With support from the Directorate for Mathematical and Physical Sciences, the National High Magnetic Field Laboratory (NHMFL) has completed its fourth consecutive year of a Minority/Women Research Summer Internship for undergraduate students majoring in science and engineering. The program has provided exciting opportunities for undergraduates to conduct research with leading scientists and engineers at a national laboratory and has been successful on many fronts. In 1996, through cooperation with the NSF Alliances for Minority Participation, the recruiting of students increased by 270% over the previous year. The applications came from 27 states, the U.S. Virgin Islands, Washington, D.C., and Puerto Rico. Also in 1996, eighteen undergraduates participated in the program at all three consortium sites at Florida State University, the University of Florida and Los Alamos National Laboratory. One of the 1996 participants was the second author on a paper that was presented at an international conference and will be published in "Application of High Magnetic Fields in Semiconductor Physics" by World Press in 1997. That participant, a senior majoring in engineering at the Florida Agricultural and Mechanical University, conducted research at the NHMFL that helped her to earn a National Science Foundation Graduate Fellowship.

With support from the Directorate for Computer and Information Science and Engineering (CISE), Smith College and the Computer Research Association Committee on the Status of Women in Computing Research have organized a project to match 20-30 female undergraduate students with female professors in the Directorate for Computer and Information Science and Engineering (CISE) research areas each year, to participate in a summer of research at the mentor's institution. Electronic links sustain these relationships as the students' careers develop.

MINORITY POSTDOCTORAL FELLOWSHIPS

The Minority Postdoctoral Research Fellowship Program is an activity of the Directorate for Biological Sciences and the Directorate for Social, Behavioral, and Economic Sciences. The goal of the program is to prepare minority scientists for positions of scientific leadership in academia and industry. Because so few scientists from underrepresented minority groups are in academic faculty and industry positions, the program was initiated to provide the leverage of NSF fellowships to assist members of these groups in obtaining these extremely competitive positions and, ultimately, in applying for NSF grants. The program also offers travel awards to meet prospective sponsoring scientists, and starter research grants at the end of the postdoctoral period to assist in the initiation of an independent research program.

Started in 1990, the Minority Postdoctoral Program has awarded 90 fellowships (78 in biology and 12 in the social and behavioral sciences). Although it is rather early to assess the success of this program, there are encouraging indicators that the program is working:

- Six out of twelve Fellows in the social and behavioral sciences have completed their fellowships. Five of the six Fellows who have completed the program have taken tenure-track assistant professorships, and one (who just completed her fellowship in August, 1996) has accepted a second postdoctoral position.

- In the Directorate for Biological Sciences, forty Minority Postdoctoral Fellows have completed their fellowships. Twenty-eight of those Fellows have accepted tenure-track appointments or similar positions in industry or government. A number of the Fellows have recently received research or career development grants from NSF, and two have received supplemental awards for scientists with disabilities.

PROGRAMS FOR PERSONS WITH DISABILITIES (PPD)

Ten Programs for Persons with Disabilities-supported projects have provided students with disabilities hands-on experience in science experimentation, both in summer programs and in conjunction with academic-year schedules. The value of such experience is indicated by data from the University of Washington's "DO-IT" project in which high school students have participated in enrichment programs for the past four years. Of the twenty-one students who graduated from high school as of 1995, nineteen are in college, and all have declared majors in some area of science or engineering.

Negative attitudes held by teachers, counselors, and parents continue to be a major barrier to participation of students with disabilities in SMET education. Eight projects aimed at overcoming the attitudinal barrier have been funded, and several thousand individuals have participated in these training programs. Project evaluations indicate that the information has been useful in changing attitudes and in fostering improved learning environments.

Another successful venture is the establishment of partnerships between PPD-supported projects and local entities — business, education, and community organizations. It is a high priority for PPD because partnerships will be important in fostering development of local infrastructures that can lead to systemic reform in these regions. One example of broad-based community support is illustrated by the "DREAMS" project, located at the University of North Dakota. The program fosters broad-based community support for American Indian children with disabilities. This is a partnership of Tribal colleges, Tribal Councils, local schools and businesses, and parent groups from several locations in North Dakota.

Recommendations

CEOSE is supportive of NSF's dedicated pursuit of its core mission and purpose "to promote the progress of science..." and its commitment in "ensuring the Nation's supply of scientists, engineers, and science educators." The Committee is also committed to the goals of its 1992 Report that facilitate full participation in the scientific and technological workforce, so that our nation can sustain long-term economic growth and provide improved quality of life for all of its citizens.

The goals of the 1992 Report are meaningless without specific plans for obtaining quantitative gains. As in the 1994 Report, this report provides a number of recommendations for achieving those goals along with appropriate performance indicators:

- NSF should achieve representation of minorities, women and persons with disabilities at all management and staff levels throughout the Foundation. This goal recognizes that effective programs require effective leadership and such leadership includes achieving diverse representation of opinions and ideas.

  Indicator: NSF staff profiles (demographics)

- NSF should continue to work to remove barriers that limit the number of underrepresented individuals in the pool of successful principal investigators. Among the strategies for accomplishing this objective are including persons with disabilities, minorities, and women on review panels and among mail reviewers for grants that NSF awards; increasing the opportunities for faculty at less well-known institutions to collaborate with and be mentored by well-known members of the science and engineering community; and encouraging more partnerships between two-year and four-year higher education institutions. Current NSF data on reviewers include information on gender, but not minority or disability status. Those data should be included in the NSF database.

  Indicators: NSF reviewer databases; programs that support institutional collaborations and partnerships

- Recognizing that national data on persons with disabilities is woefully deficient, and that without these data it is impossible to establish effective plans for the full participation of the disabled in the science and technology workforce, NSF has made a concerted effort to compile comprehensive demographic data on persons with disabilities, including standardizing old data to the extent possible. As NSF uses many external data sets in its compilations, the Committee recommends that the Foundation encourage other federal agencies to perform similarly thorough data collection and analyses on persons with disabilities.

  Indicators: All NSF databases, especially as reflected in reports such as Women, Minorities and Persons with Disabilities in Science and Engineering

- NSF should promote the use of facilitation awards for students, scientists, and engineers with disabilities across all directorates. This recognizes the need to encourage and support scientists with disabilities. NSF should also require descriptive video (DV), in addition to closed-captioning, with all video materials.

  Indicators: Number of awards and amount of financial support; DV requirement policy

Summary

America wants and needs more scientific and engineering talent — participation in SMET fields should be based only on ability and willingness to serve. Setting goals and developing plans to achieve full-participation targets, as implied in the NSF strategic plan, is a task that must be embraced by the total leadership team, with responsibility delegated appropriately throughout NSF. Although the responsibility for NSF's performance and outcomes resides with its chief administrator, the desired outcomes cannot be achieved without the collective commitment of the entire management team. The leadership role that NSF has demonstrated in improving participation and dissemination in several NSF programs can and must be distributed throughout the Foundation.

Progress toward meeting the established goals should continue to be monitored. Appropriate metrics must be determined as part of the goal-setting, with a timetable for review and correction as needed. While recognizing that NSF leadership must determine the best path to achieve a fully accessible science and engineering enterprise, CEOSE offers several summary recommendations:

- **Continue to review demographic trends in participation to identify and track those population sectors underparticipating in science and engineering relative to parity with U.S. demographic figures.** The NSF/SRS report, *Women, Minorities, and Persons with Disabilities in Science and Engineering, 1996* (NSF 96-329), provides a substantial resource for information on the status of participation by underrepresented populations including employment and compensation levels of professionals as well as for students in K-12 grades and college. Continued data collection and timely publication of the NSF report should be supported.

- **Analyze the accuracy and thoroughness of internally and nationally collected data** on distribution of participants' gender, race/ethnicity, and persons with disabilities, and on degree achievement from associate through doctorate degrees, including those data that are provided by applicants for funding.

- **Improve the extent and coverage of data on persons with disabilities,** including data on science and mathematics achievement in grades K-12 by children with disabilities, and employment data on teachers of SMET, K-16, who are persons with disabilities.

- **Meet with other federal agencies that participate in science and engineering to share data on the science and engineering population and strategies on achieving full participation.** Consider the potential for developing new partnerships on joint initiatives to improve our resources in human capital through leveraging multi-institutional and multi-sector alliances.

COMMITTEE ON EQUAL OPPORTUNITIES IN SCIENCE AND ENGINEERING (42 U.S.C. §1885c)

SEC. 36. (a) There is established within the Foundation a Committee on Equal Opportunities in Science and Engineering (hereinafter referred to as the "Committee"). The Committee shall provide advice to the Foundation concerning (1) the implementation of the provisions of this Act and (2) other policies and activities of the Foundation to encourage full participation of women, minorities, and other groups currently underrepresented in scientific, engineering, and professional fields.

(b) Each member of the Committee shall be appointed by the Director with the concurrence of the National Science Board. The Chairperson of the National Science Board Committee on Minorities and Women shall be an ex officio member of the Committee. Members of the Committee shall be appointed to serve for a three-year term, and may be reappointed to serve one additional term of three years.

(c) There shall be a subcommittee of the Committee which shall be known as the Subcommittee on Women in Science and Engineering. The Subcommittee on Women in Science and Engineering shall have responsibility for all Committee matters relating to (1) the participation in and opportunities for the education, training, and research of women in science and engineering and (2) the impact of science and engineering on women. The Subcommittee shall be composed of all the women members of the Committee and such other members of the Committee as the Committee may designate.

(d) There shall be a subcommittee of the Committee which shall be known as the Subcommittee on Minorities in Science and Engineering. The Subcommittee on Minorities in Science and Engineering shall have responsibility for all Committee matters relating to (1) the participation in and opportunities for education, training, and research for minorities in science and engineering and (2) the impact of science and engineering on minorities. The Subcommittee shall be composed of all minority members of the Committee and such other members of the Committee as the Committee may designate.

(e) The Committee may organize such additional standing or ad hoc subcommittees as the Committee finds appropriate.

(f) Every two years, the Committee shall prepare and transmit to the Director a report on its activities during the previous two years and proposed activities for the next two years. The Director shall transmit to Congress the report, unaltered, together with such comments as the Director deems appropriate.

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Endnotes

[1] National Science Foundation, Division of Science Resource Studies, *Women, Minorities, and Persons With Disabilities in Science and Engineering: 1996*. Appendix table 5-1.

[2] U.S. Department of Education, National Center for Education Statistics, *Report in Brief: NAEP 1994 Trends in Academic Progress*, 1996, NCES 96-583.

[3] U.S. Department of Education, National Center for Education Statistics, *The Condition of Education, 1996* (The 1994 High School Transcript Study Tabulations: Comparative Data on Credits Earned and Demographics for 1994, 1990, 1987, and 1982 High School Graduates).

[4] National Science Foundation, Division of Science Resource Studies, *NSF/SRS Selected Data on Science and Engineering Doctorate Awards: 1995*, 1996, NSF 96-303 (Arlington, VA) and unpublished tabulations.

[5] National Science Foundation, Division of Science Resource Studies, *NSF/SRS Data Brief*, NSF 96-314, August 19, 1996.

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