

National Science Foundation
Report on Funding to Minority Serving Institutions
FY 2004

The National Science Foundation Authorization Act of 2002 (P.L. 107-368, Section 18), requires the National Science Foundation (NSF) to report annually on the funds awarded to minority-serving institutions (MSIs). Following the report is an update on NSF's strategies to improve funding to MSIs.

In FY 2004, NSF provided \$421.9M in funding to MSIs¹. This amount represents 10.12 percent of the \$4,170.2M awarded to all institutions of higher education (IHEs). Of NSF's top 200 IHEs receiving FY 2004 funding, \$255.7M was provided to MSIs. An additional \$1.6M of H-1B funds was awarded to MSIs that are not among the top 200 IHEs. Direct funding, regardless of ranking, to all Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), and Tribal Colleges and Universities (TCUs) totaled \$164.5M (3.95 percent of awards to IHEs). Text Table 1 provides a breakout of the funds.

Text Table 1

NSF Direct Funding to MSIs
(Millions of Dollars)

	EHR	MRE	R&RA	H-1B	Total	Funding to All IHEs	MSIs as Percent of IHE Funding
MSIs Among Top 200 IHEs *	\$ 48.7	\$0.4	\$204.8	\$1.9	\$255.8		
H-1B Funds to MSIs Not Among Top 200 IHEs *				\$1.6	\$ 1.6		
HBCUs, HSIs, & TCUs	\$ 92.5	\$0.0	\$ 66.3	\$5.7	\$164.5		
TOTAL	\$141.2	\$0.4	\$271.1	\$9.2	\$421.9	\$4,170.2	10.12%

* Excludes awards to HBCUs, HSIs, and TCUs.

As reported in previous years, Text Table 2 provides data on NSF's funding by budget category to HBCUs, HSIs, and TCUs in FY 2004 and the preceding 10 years. The funding to these institutions expressed as a percentage of funding to all IHEs is included. In FY 2004, NSF's \$164.5 million in direct awards to HBCUs, HSIs, and TCUs represents 3.95 percent of all funding to IHEs.

Text Table 2

NSF Direct Funding to HBCUs, HSIs, and TCUs

¹ 2004 U.S. Accredited Post Secondary Minority Institutions, U.S. Department of Education, Office of Civil Rights Data. A minority postsecondary institution is defined as an institution "whose enrollment of a single minority or a combination of minorities...exceeds 50 percent of all enrollment." 20 U.S.C. §1067k(3)

(Millions of Dollars)

Year	Funding to HBCUs, HSIs, and TCUs					Funding to All IHEs	HBCUs, HSIs & TCUs as a Percentage of All IHE Funding
	EHR	MRE	R&RA	H-1B	Total		
1994	\$39.8	N/A ²	\$19.9	N/A ³	\$ 59.7	\$1,964.2	3.04%
1995	\$50.1	\$0	\$26.9	N/A	\$ 77.0	\$2,149.2	3.58%
1996	\$42.6	\$0	\$30.2	N/A	\$ 72.8	\$2,160.0	3.37%
1997	\$50.7	\$0	\$33.8	N/A	\$ 84.4	\$2,227.5	3.79%
1998	\$56.4	\$0	\$41.2	N/A	\$ 97.6	\$2,395.6	4.07%
1999	\$56.3	\$0	\$42.3	N/A	\$ 98.6	\$2,614.9	3.77%
2000	\$52.5	\$0	\$41.9	\$ 5.3	\$ 99.7	\$2,779.6	3.59%
2001	\$63.9	\$0	\$46.2	\$12.4	\$122.5	\$3,286.6	3.73%
2002	\$80.8	\$0	\$50.8	\$ 7.4	\$138.9	\$3,484.3	3.99%
2003	\$89.3	\$0	\$59.6	\$ 8.5	\$157.4	\$3,952.7	3.98%
2004	\$92.5	\$0	\$66.3	\$ 5.7	\$164.5	\$4,170.2	3.95%
Percent Increase from 1994	232%	0%	333%	108%	276%	212%	

FY 2004 support to HBCUs, HSIs, and TCUs increased in both the Education and Human Resource (EHR) and Research and Related Activities (R&RA) categories over last year's appropriated levels. The 2004 decrease in support in NSF's non-discretionary H-1B account parallels the decreased allocation to NSF resulting from a lowered cap on the number of H-1B visas and NSF's allocation. This decline is expected to reverse as a result of the reauthorization of the H-1B legislation, along with an anticipated increase to \$100M in the total FY 2005 H-1B allocation. Appendix Table 1 provides the breakout by category of institution (HBCUs, HSIs, and TCUs) for the years 1994 – 2004 by appropriation account.

Over the 11-year period the increase in funding to HBCUs, HSIs, and TCUs exceeded the increase in funding to all IHEs, 276 percent and 212 percent respectively. The 333 percent increase in R&RA funds awarded is viewed as a positive indicator of these institution's increased participation and success in the R&RA programs.

NSF Strategies for Broadening Participation at Minority Serving Institutions

NSF's Strategic Plan (FY 2003-2008) (<http://www.nsf.gov/pubs/2004/nsf04201/FY2003-2008.pdf>) outlines the Foundation's goals and investment strategies. To achieve its mission to promote the progress of science and engineering, NSF invests in four strategic areas: People, Ideas, Tools, and Organizational Excellence. Woven into each strategic area is a

² MRE account was created in FY 1995.

³ H-1B account was created in FY 2000.

common thread, broadening participation. This unifying element strengthens and supports all NSF activities.

Multiple performance indicators have been identified for each strategic goal, and key indicators relevant to MSIs include:

- promoting greater diversity in the science and engineering workforce through increased participation of underrepresented groups and institutions in all NSF programs and activities (People);
- enabling people who work at the forefront of discovery to make important and significant contributions to science and engineering knowledge (Ideas);
- increasing opportunities for underrepresented individuals and institutions to conduct high-quality, competitive research and education (Ideas);
- expanding opportunities for U.S. researchers, educators, and students at all levels to access state-of-the-art science and engineering facilities, tools, databases, and other infrastructure (Tools), and
- operating a credible, efficient merit review system (Organizational Excellence).

NSF's direct support to HBCUs, HSIs, and TCUs is an integral component of an agency-wide effort at broadening participation of underrepresented groups in science and engineering. The targeted activities are aimed at building capacity so that an institution's competitive position is strengthened. Five programs target HBCUs, HSIs, and TCUs:

1. Minority Institutions Infrastructure
2. Minority Institutions for Excellence (MIE)
3. Historically Black Colleges and Universities – Research Infrastructure for Science and Engineering (HBCU-RISE), an activity of the Centers for Research Excellence in Science and Technology (CREST) program;
4. Historically Black Colleges and Universities – Undergraduate Program (HBCU-UP); and
5. Tribal Colleges and Universities Program (eligibility includes Alaska Native and Native-Hawaiian serving institutions).

NSF has extensive funding opportunities for which an institution may apply. These opportunities are developed in response to agency-identified priority areas, recognized needs of and requests from science and engineering communities, and congressional interests. NSF's primary strategy for broadening participation in the science and engineering enterprise is to embed diversity in all programmatic activities. This effort is supported by numerous Foundation-wide and discipline-centric program solicitations whose funding is derived primarily from R&RA and EHR accounts. Appendix Table 2 lists 27 NSF programs designed to broaden participation and funding levels (FY 2002 – FY 2006).

Currently, the majority of the programs developed specifically for HBCUs, HSIs, and TCUs are supported primarily by funds from the EHR account. The Foundation aims to leverage the progress made by EHR-account awardees. An objective of the targeted awards to HBCUs, HSIs, and TCUs is to build capacity so they become stronger and better able to compete for R&RA program support. The majority of NSF's programs are supported with

R&RA funds allocated to the science and engineering directorates. Their programs support research activities that range from single-investigator projects to major science and engineering centers. Also included are instrumentation and infrastructure programs aimed at building research capacity at an academic institution. Additionally, NSF wants to utilize R&RA awards as the basis for establishing inclusive partnerships that enhance the research and education capacity of HBCUs, HSIs, and TCUs. Currently, MSIs successfully compete for R&RA funding in all NSF's directorates.

In FY 2005, two new R&RA program solicitations were announced that focus on broadening participation of underrepresented groups in the biological sciences and computer and information science and engineering. Both programs provide opportunities to enhance the competitiveness of the awardee. They are (1) Research Initiation Grants and Career Advancement Awards to Broaden Participation in the Biological Sciences (\$3M) and (2) Broadening Participation in Computing (\$3.7M). In FY 2006, all of NSF's science and engineering directorates have agreed to reserve a cumulative total of \$8M for broadening participation activities.

An objective of NSF's Strategic Plan is to increase the participation of underrepresented groups and institutions in all NSF programs and activities, including merit review. Developing the untapped potential of underrepresented groups should lead to expanded individual opportunity and improved national competitiveness and prosperity. Participants gain greater insight into the merit review process and understanding about how a successful proposal is crafted. Consequently, NSF has on-going efforts to recruit reviewers from HBCUs, HSIs, and TCUs and provide them with the opportunity to be an active, integral part of the merit review process.

NSF continues its practice of conducting regional workshops in an effort to expand interest in NSF's programs and develop proposal preparation skills. In addition, in FY 2004 the American Indian Higher Education Consortium and the Quality Education for Minorities Network received NSF awards to provide technical assistance, proposal development workshops, and leadership development workshops for the tribal colleges and universities community. In FY 2005 and beyond, NSF will be making efforts to increase the number of proposals submitted by and, following successful merit review, awards made to scientists and engineers from underrepresented groups and to continue its increased outreach effort to MSIs.

Examples of outreach activities in 2004 included:

- NSF Senior Advisor for Science and Engineering Workforce's visits to HBCUs, HSIs, and TCUs and a presentation to the National Sponsored Programs Administrators Alliance of HBCUs;
- Regional grants workshops for new faculty, researchers, and administrators at the University of Minnesota and Columbia University; and
- NSF Days at academic institutions around the country including two at MSIs - Paul Quinn College (HBCU) and University of Texas at San Antonio (HSI). Invitations to NSF Days are extended to colleges and universities within a several hundred-mile

radius. Workshops held at MSIs included presentations by current MSI researchers about their work and the merit review process.

Additionally, all NSF directorates and programs are actively engaged in outreach activities through their relevant science and engineering professional societies and conferences.

NSF continues to review and assess the following strategies presented in the previous MSI Report:

- NSF's large center programs continue their on-going efforts to broaden the participation of underrepresented groups in center activities. Increasingly, centers are identifying diversity directors as key members of their leadership teams. The Science and Technology Centers (STCs) program began actively reviewing each STC's diversity plan annually in 2002 and have been providing more specific guidance on what should be included in the plan for the new centers to be funded in FY 2005. In 2004, the Engineering Research Centers and the Material Research in Science and Engineering Centers programs instituted new diversity policies that include strategies for center outreach linkages and core partnerships with underrepresented MSIs. Centers supported by these programs are now required to develop a diversity plan, and the plan is evaluated annually.

There are on-going efforts to forge links between the Alliances for Graduate Education and the Professorate (AGEP) and other NSF programs. One of the primary goals of AGEP is to promote partnerships between academic institutions to catalyze institutional transformation at the graduate level. MSIs, especially HBCUs, HSIs, and TCUs, represent a critical source of undergraduate students for AGEP graduate recruitment. During 2004 substantial formal linkages existed between all AGEP sites with a Louis Stokes Alliances for Minority Participation (LSAMP) site. Additional substantive but informal linkages and partnerships also exist between the AGEP projects, MSIs including other HBCUs, HSIs, and TCUs, and other NSF programs such as Research Experiences for Undergraduate Sites, HBCU-UP, and CREST.

- On-going support continues for programs listed below targeting HBCUs, HSIs, or TCUs or programs in which these institutions play a significant role.

Program	Number of Active Awards	2004 Program Budget	2004 New Awards	2004 Funds for New Awards
Alliances for Graduate Education and the Professorate (AGEP)	24	\$15.9M	9	\$10.0M
Centers of Research Excellence in Science and Technology	14	\$ 9.8M	4	\$ 4.9M
CREST HBCU-Research Infrastructure for Science & Engineering (HBCU-RISE)	11	\$ 5.0M	2	\$ 5.9M
HBCU – Undergraduate Program	58	\$23.9M	26	\$17.3M

Louis Stokes Alliances for Minority Participation	32	\$34.3M	5	\$ 6.6M
LSAMP - Bridge to the Doctorate	16	(1)	16	\$15.8M
Tribal Colleges and Universities Program	27	\$ 9.9M	10	\$ 4.7M

(1) LSAMP and LSAMP-Bridge to the Doctorate operate from the same program budget. The Bridge to the Doctorate awards are two-year supplements to existing LSAMP awards.

- In FY 2004 the Model Institutions for Excellence (MIE) program began its Phase III institutionalization, dissemination, and outreach process. Phase III includes institutionalizing improvements made during the 10 years that NSF and NASA provided direct support to the six MIE projects.

The American Institutes for Research (AIR) conducted a short-term study to assess MIE program impact and collect evidence of project success. The study, released in March 2005, indicates that the MIE model is one that has proven to be successful for broadening participation and when used more widely, can make a significant contribution towards increasing the diversity in the science and engineering workforce. AIR states that the model is readily transportable.

Highlights of the study include:

- From 1997-98 to 2003-04, STEM enrollment tended to increase faster than overall institutional enrollment at each MIE institution.
- From 1997-98 to 2002-03, the number of undergraduate STEM degrees conferred and the proportion of all degrees awarded that were in STEM fields increased considerably in all MIE institutions.
- STEM degrees awarded tend to increase faster in the MIEs than they did in the HBCUs, HSIs, and in the group of non-funded MIE applicants.

Appendices

Table 1 Direct Funding to HBCUs, HSIs, and TCUs for Fiscal Years 1994-2004

Table 2 NSF Programs to Broaden Participation

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