IB

Union Calendar No. 214

116TH CONGRESS
1ST SESSION

H. R. 4372

[Report No. 116–269]

To direct Federal science agencies and the Office of Science and Technology Policy to undertake activities to improve the quality of undergraduate STEM education and enhance the research capacity at the Nation's HBCUs, TCUs, and MSIs, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 18, 2019

Ms. JOHNSON of Texas (for herself and Mr. WALTZ) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

NOVEMBER 5, 2019

Additional sponsors: Mr. TONKO, Mr. FITZPATRICK, Mr. COHEN, Mr. FOSTER, Ms. JACKSON LEE, Miss GONZÁLEZ-COLÓN of Puerto Rico, Mr. BEYER, Mr. LUCAS, Ms. KENDRA S. HORN of Oklahoma, Mr. SWALWELL of California, and Mr. DIAZ-BALART

NOVEMBER 5, 2019

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

[Strike out all after the enacting clause and insert the part printed in italic]

[For text of introduced bill, see copy of bill as introduced on September 18, 2019]

A BILL

To direct Federal science agencies and the Office of Science and Technology Policy to undertake activities to improve the quality of undergraduate STEM education and enhance the research capacity at the Nation's HBCUs, TCUs, and MSIs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "MSI STEM Achievement Act".

SEC. 2. FINDINGS.

Congress makes the following findings:

(1) Evidence suggests that the supply of STEM workers is not keeping pace with the rapidly evolving needs of the public and private sector, resulting in a deficit often referred to as a STEM skills shortage.

(2) According to the Bureau of Labor Statistics, the United States will need one million additional STEM professionals than it is on track to produce in the coming decade.

(3) STEM occupations offer higher wages, more opportunities for advancement, and a higher degree of job security than non-STEM occupations.

(4) The composition of the STEM workforce does not reflect the current or projected diversity of the Nation, with Hispanics, African Americans, and other racial and ethnic minorities, significantly underrepresented in the STEM workforce compared to their presence in the workforce more generally.

(5) A stronger national commitment to increasing the diversity of the STEM workforce is needed to help address the STEM skills shortage.

(6) According to a 2019 National Academies of Sciences, Engineering, and Medicine report entitled "Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce", two- and four-year minority serving institutions enroll nearly 30 percent of all undergraduate students—a percentage that is expected to grow in the coming years—in the United States higher education system and play a critical role in providing important pathways to STEM-related education, training, and careers for students of color.

(7) HBCUs, TCUs, and MSIs are highly successful at educating underrepresented minority students in STEM fields and can serve as best practice models for other colleges and universities to further expand participation of underrepresented minorities in the STEM workforce.

(8) Increased investment in STEM infrastructure at HBCUs, TCUs, and MSIs has the potential to increase these institutions' ability to educate even more students in the STEM disciplines.

(9) With the demand for STEM skills exceeding the supply of STEM graduates, success of HBCUs, TCUs, and MSIs in educating and training science and engineering leaders is increasingly important for United States economic growth and competitiveness.

SEC. 3. GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.

Not later than 3 years after the date of enactment of this Act, the Comptroller General of the United States shall report to Congress—

(1) an inventory of competitive funding programs and initiatives carried out by Federal science agencies that are targeted to HBCUs, TCUs, and MSIs or partnerships with HBCUs, TCUs, and MSIs;

(2) an assessment of Federal science agency outreach activities to increase the participation and competitiveness of HBCUs, TCUs, and MSIs in the funding programs and initiatives identified in paragraph (1); and

(3) recommendations of the Comptroller General to increase the participation of and the rate of success of HBCUs, TCUs, and MSIs in competitive funding programs offered by Federal science agencies.

SEC. 4. RESEARCH AND CAPACITY BUILDING.

(a) IN GENERAL.—The Director of the National Science Foundation shall award grants, on a competitive

basis, to institutions of higher education or nonprofit organizations (or consortia thereof) to—

(1) conduct research described in subsection (b) with respect to HBCUs, TCUs, and MSIs;

(2) conduct activities described in subsection (c) to build the capacity of HBCUs, TCUs, and MSIs to graduate students who are competitive in attaining and advancing in the STEM workforce;

(3) build the research capacity and competitiveness of HBCUs, TCUs, and MSIs in STEM disciplines; and

(4) identify and broadly disseminate effective models for programs and practices at HBCUs, TCUs, and MSIs that promote the education and workforce preparation of minority students pursuing STEM studies and careers in which such students are underrepresented.

(b) RESEARCH.—Research described in this subsection is research on the contribution of HBCUs, TCUs, and MSIs to the education and training of underrepresented minority students in STEM fields and to the meeting of national STEM workforce needs, including—

(1) the diversity with respect to local context, cultural differences, and institutional structure

among HBCUs, TCUs, and MSIs and any associated impact on education and research endeavors;

(2) effective practices at HBCUs, TCUs, and MSIs and associated outcomes on student recruitment, retention, and advancement in STEM fields, including the ability for students to compete for fellowships, employment, and advancement in the workforce;

(3) contributions made by HBCUs, TCUs, and MSIs to local, regional, and national workforces;

(4) the unique challenges and opportunities for HBCUs, TCUs, and MSIs in attaining the resources needed for integrating effective practices in STEM education, including providing research experiences for underrepresented minority students;

(5) the access of students at HBCUs, TCUs, and MSIs to STEM infrastructure and any associated outcomes for STEM competency;

(6) models of STEM curriculum, learning, and teaching successful at HBCUs, TCUs, and MSIs for increasing participation, retention, and success of underrepresented minority students; and

(7) successful or promising partnerships between HBCUs, TCUs, and MSIs and other institutions of higher education, private sector and non-profit orga-

nizations, Federal laboratories, and international research institutions.

(c) CAPACITY BUILDING.—Activities described in this subsection include the design, development, implementation, expansion, and assessment of—

(1) metrics of success to best capture the achievements of HBCUs, TCUs, and MSIs and students of such institutions to account for institutional context and missions, faculty investment, student populations, student needs, and institutional resource constraints;

(2) enhancements to undergraduate STEM curriculum at HBCUs, TCUs, and MSIs to increase the participation, retention, degree completion, and success of underrepresented students;

(3) professional development programs to increase the numbers and the high-quality preparation of STEM faculty at HBCUs, TCUs, and MSIs, including programs to encourage STEM doctoral students to teach at HBCUs, TCUs, and MSIs; and

(4) mechanisms for institutions of higher education that are not HBCUs, TCUs, or MSIs to partner with HBCUs, TCUs, and MSIs on STEM education, including the facilitation of student transfer, mentoring programs for students and junior faculty,

joint research projects, and student access to graduate education.

(d) RESEARCH EXPERIENCES.—Grants under this section may fund the development or expansion of opportunities for the exchange of students and faculty to conduct research, including through partnerships with institutions of higher education that are not HBCUs, TCUs, or MSIs, private sector and non-profit organizations, Federal laboratories, and international research institutions.

(e) PARTNERSHIPS.—In awarding grants under this section, the Director of the National Science Foundation shall—

(1) encourage HBCUs, TCUs, and MSIs and consortia thereof and partnerships with one or more HBCU, TCU, or MSI, to submit proposals;

(2) require proposals submitted in partnership with one or more HBCU, TCU, or MSI include a plan for establishing a sustained partnership that is jointly developed and managed, draws from the capacities of each institution, and is mutually beneficial; and

(3) encourage proposals submitted in partnership with the private sector, non-profit organizations, Federal laboratories, and international research institutions, as appropriate.

(f) MSI CENTERS OF INNOVATION.—Grants under this section may fund the establishment of no more than five MSI Centers of Innovation to leverage successes of HBCUs, TCUs, and MSIs in STEM education and research training of underrepresented minority students as models for other institutions, including both HBCUs, TCUs, and MSIs and institutions of higher education that are not HBCUs, TCUs, or MSIs. Such centers will be located on campuses of selected institutions of higher education and serve as incubators to allow institutions of higher education to experiment, pilot, evaluate, and scale up promising practices.

(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $170,000,000 for fiscal year 2020, $175,000,000 for fiscal year 2021, $180,000,000 for fiscal year FY 2022, $185,000,000 for fiscal year 2023, and $190,000,000 fiscal year 2024 to carry out this section.

SEC. 5. AGENCY RESPONSIBILITIES.

(a) IN GENERAL.—In consultation with outside stakeholders and the heads of the Federal science agencies, the Director shall develop a uniform set of policy guidelines for Federal science agencies to carry out a sustained program of outreach activities to increase clarity, transparency, and accountability for Federal science agency investments in

STEM education and research activities at HBCUs, TCUs, and MSIs.

(b) OUTREACH ACTIVITIES.—In developing policy guidelines under subsection (a) the Director shall include guidelines that require each Federal science agency—

(1) to designate a liaison for HBCUs, TCUs, and MSIs responsible for—

(A) enhancing direct communication with HBCUs, TCUs, and MSIs to increase the Federal science agency's understanding of the capacity and needs of such institutions and to raise awareness of available Federal funding opportunities at such institutions;

(B) coordinating programs, activities, and initiatives while accounting for the capacity and needs of HBCUs, TCUs, and MSIs;

(C) tracking Federal science agency investments in and engagement with HBCUs, TCUs, and MSIs; and

(D) reporting progress toward increasing participation of HBCUs, TCUs, and MSIs in grant programs;

(2) to publish annual forecasts of funding opportunities and proposal deadlines, including for grants, contracts, subcontracts, and cooperative agreements;

(3) to conduct on-site reviews of research facilities at HBCUs, TCUs, and MSIs, as practicable, and make recommendations regarding strategies for becoming more competitive in research;

(4) to hold geographically accessible or virtual workshops on research priorities of the Federal science agency and on how to write competitive grant proposals;

(5) to ensure opportunities for HBCUs, TCUs, and MSIs to directly communicate with Federal science agency officials responsible for managing competitive grant programs in order to receive feedback on research ideas and proposals, including guidance on the Federal science agency's peer review process;

(6) to foster mutually beneficial public-private collaboration among Federal science agencies, industry, Federal laboratories, academia, and nonprofit organizations to—

(A) identify alternative sources of funding for STEM education and research at HBCUs, TCUs, and MSIs;

(B) provide access to high-quality, relevant research experiences for students and faculty of HBCUs, TCUs, and MSIs;

(C) expand the professional networks of students and faculty of HBCUs, TCUs, and MSIs;

(D) broaden STEM educational opportunities for students and faculty of HBCUs, TCUs, and MSIs; and

(E) support the transition of students of HBCUs, TCUs, and MSIs into the STEM workforce; and

(7) to publish an annual report that provides an account of Federal science agency investments in HBCUs, TCUs, and MSIs, including data on the level of participation of HBCUs, TCUs, and MSIs as prime recipients/contractors or subrecipients/subcontractors.

(c) STRATEGIC PLAN.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Director, in collaboration with the head of each Federal science agency, shall submit to Congress a report containing a strategic plan for each Federal science agency to increase the capacity of HBCUs, TCUs, and MSIs to compete effectively for grants, contracts, or cooperative agreements and to encourage HBCUs, TCUs, and MSIs to participate in Federal programs.

(2) CONSIDERATIONS.—In developing a strategic plan under paragraph (1), the Director and each head of each Federal science agency shall consider—

(A) issuing new or expanding existing funding opportunities targeted to HBCUs, TCUs, and MSIs;

(B) modifying existing research and development program solicitations to incentivize effective partnerships with HBCUs, TCUs, and MSIs;

(C) offering planning grants for HBCUs, TCUs, and MSIs to develop or equip grant offices with the requisite depth of knowledge to submit competitive grant proposals and manage awarded grants;

(D) offering additional training programs and individualized and timely guidance to grant officers and faculty researchers at HBCUs, TCUs, and MSIs to ensure they understand the requirements for an effective grant proposal; and

(E) other approaches for making current competitive funding models more accessible for under-resourced HBCUs, TCUs, and MSIs.

(d) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, and every 5 years

thereafter, the Director shall report to Congress on the implementation by Federal science agencies of the policy guidelines developed under this section.

SEC. 6. DEFINITIONS.

In this Act:

(1) DIRECTOR.—The term "Director" means the Director of the Office of Science and Technology Policy.

(2) FEDERAL LABORATORY.—The term "Federal laboratory" has the meaning given such term in section 4 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3703).

(3) FEDERAL SCIENCE AGENCY.—The term "Federal science agency" means any Federal agency with an annual extramural research expenditure of over $100,000,000.

(4) HBCU.—The term "HBCU" has the meaning given the term "part B institution" in section 322 of the Higher Education Act of 1965 (20 U.S.C. 1061).

(5) INSTITUTION OF HIGHER EDUCATION.—The term "institution of higher education" has the meaning given such term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

(6) MINORITY SERVING INSTITUTION.—The term "minority serving institution" or "MSI" means Hispanic-Serving Institutions as defined in section 502 of the Higher Education Act of 1965 (20 U.S.C 1101a); Alaska Native Serving Institutions and Native Hawaiian-Serving Institutions as defined in section 317 of the Higher Education Act of 1965 (20 U.S.C. 1059d); and Predominantly Black Institutions, Asian American and Native American Pacific Islander-Serving Institutions, and Native American-Serving Nontribal Institutions as defined in section 371 of the Higher Education Act of 1965 (20 U.S.C. 1067q(c)).

(7) STEM.—The term "STEM" has the meaning given the term in the STEM Education Act of 2015 (42 U.S.C. 1861 et seq.).

(8) TCU.—The term "TCU" has the meaning given the term "Tribal College or University" in section 316 of the Higher Education Act of 1965 (20 U.S.C. 1059c).

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