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[Report No. 107-291]

[Report No. 107-317]

To authorize appropriations for fiscal years 2003, 2004, 2005, 2006, and 2007 for the National Science Foundation, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JULY 29, 2002

Mr. KENNEDY (for himself, Mr. HOLLINGS, Mr. BOND, and Ms. MIKULSKI) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

SEPTEMBER 18, 2002

Reported by Mr. KENNEDY, with an amendment

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

SEPTEMBER 18, 2002

Referred to the Committee on Commerce, Science, and Transportation, for a period not to exceed 30 days of session pursuant to the order of March 3, 1988

OCTOBER 16, 2002

Reported by Mr. HOLLINGS, with an amendment

[Insert the part in ***boldface italic***]

A BILL

To authorize appropriations for fiscal years 2003, 2004,

2005, 2006, and 2007 for the National Science Foundation, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “National Science
5 Foundation Doubling Act”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act:

8 (1) **BOARD.**—The term “Board” means the Na-
9 tional Science Board established under section 2 of
10 the National Science Foundation Act of 1950 (42
11 U.S.C. 1861).

12 (2) **DIRECTOR.**—The term “Director” means
13 the Director of the National Science Foundation es-
14 tablished under section 2 of the National Science
15 Foundation Act of 1950 (42 U.S.C. 1861).

16 (3) **ELIGIBLE APPLICANT.**—The term “eligible
17 applicant” means—

18 (A) an institution of higher education;

19 (B) consortia of institutions of higher edu-
20 cation;

21 (C)(i) an institution of higher education or
22 consortia of such institutions; and

23 (ii) a nonprofit organization with dem-
24 onstrated experience in delivering science;

1 mathematics, engineering, or technology edu-
2 cation; or

3 (D)(i) an institution of higher education or
4 consortia of such institutions;

5 (ii) a nonprofit organization with dem-
6 onstrated experience in delivering science,
7 mathematics, engineering, or technology edu-
8 cation; and

9 (iii) State governments, local governments,
10 or private companies.

11 (4) FOUNDATION.—The term “Foundation”
12 means the National Science Foundation established
13 under section 2 of the National Science Foundation
14 Act of 1950 (42 U.S.C. 1861).

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

19 (6) NATIONAL RESEARCH FACILITY.—The term
20 “national research facility” means a research facility
21 funded by the Foundation which is available, subject
22 to appropriate policies allocating access, for use by
23 all scientists and engineers affiliated with research
24 institutions located in the United States.

1 **SEC. 3. FINDINGS.**

2 Congress finds the following:

3 (1) The National Science Foundation has made
4 major contributions during the past 50 years to
5 strengthen and sustain the Nation's academic re-
6 search enterprise that is the envy of the world.

7 (2) The economic strength and national security
8 of the United States and the quality of life of all
9 Americans are grounded in the Nation's scientific
10 and technological capabilities.

11 (3) The National Science Foundation carries
12 out an important function in supporting basic re-
13 search in all science and engineering disciplines and
14 in supporting science, mathematics, engineering, and
15 technology education at all levels.

16 (4) The research and education activities of the
17 National Science Foundation promote the discovery,
18 integration, dissemination, and application of new
19 knowledge in service to society and prepare future
20 generations of scientists, mathematicians, and engi-
21 neers who will be necessary to ensure America's
22 leadership in the global marketplace.

23 (5) The National Science Foundation must be
24 provided with sufficient resources to enable it to
25 carry out its responsibilities to develop intellectual
26 capital, strengthen the scientific infrastructure, inte-

1 grate research and education, enhance the delivery
2 of mathematics and science education in the United
3 States, and improve the technological literacy of all
4 people in the United States.

5 (6) The emerging global economic, scientific,
6 and technical environment challenges long-standing
7 assumptions about the dichotomy between domestic
8 and international policy, requiring the National
9 Science Foundation to play a more proactive role in
10 sustaining the competitive advantage of the United
11 States through superior research capabilities.

12 **SEC. 4. POLICY OBJECTIVES.**

13 In allocating resources made available under section
14 5, the Foundation shall have the following policy objec-
15 tives:

16 (1) To strengthen the Nation's lead in science
17 and technology by—

18 (A) increasing the national investment in
19 research in strategic areas;

20 (B) balancing the Nation's research port-
21 folio among the life sciences and fundamental
22 disciplines that are important for the continued
23 development of enabling technologies necessary
24 for sustained international competitiveness;

1 (C) expanding the pool of scientists and
2 engineers in the United States;

3 (D) modernizing the Nation's research in-
4 frastructure; and

5 (E) establishing and maintaining coopera-
6 tive international relationships with premier re-
7 search institutions, with the goal of such rela-
8 tionships being the exchange of personnel, data,
9 and information in an effort to alleviate prob-
10 lems common to the global community.

11 (2) To increase overall workforce skills by—

12 (A) improving the quality of mathematics
13 and science education, particularly in kinder-
14 garten through grade 12;

15 (B) providing access to information tech-
16 nology for all students;

17 (C) raising postsecondary enrollment rates
18 for underrepresented minorities;

19 (D) increasing access to higher education
20 for students from low-income households; and

21 (E) expanding technical training opportu-
22 nities at institutions of higher education.

23 (3) To strengthen innovation by—

1 (A) expanding the focus of competitiveness
2 and innovation policy at the regional and local
3 level;

4 (B) supporting initiatives and organiza-
5 tions that enhance and mobilize regional inno-
6 vation; and

7 (C) identifying best policy practices in fos-
8 tering innovation at the State, regional, and
9 local levels.

10 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

11 (a) FISCAL YEAR 2003.—

12 (1) IN GENERAL.—There are authorized to be
13 appropriated to the National Science Foundation
14 \$5,536,390,000 for fiscal year 2003.

15 (2) SPECIFIC ALLOCATIONS.—Of the amount
16 authorized under paragraph (1)—

17 (A) \$4,174,840,000 shall be made avail-
18 able to carry out research and related activities;

19 (B) \$1,006,250,000 shall be made avail-
20 able for education and human resources;

21 (C) \$152,900,000 shall be made available
22 for major research equipment and facilities con-
23 struction;

24 (D) \$194,700,000 shall be made available
25 for salaries and expenses; and

1 (E) \$7,700,000 shall be made available for
2 the Office of Inspector General.

3 (b) FISCAL YEAR 2004.—

4 (1) IN GENERAL.—There are authorized to be
5 appropriated to the National Science Foundation
6 \$6,390,832,000 for fiscal year 2004.

7 (2) SPECIFIC ALLOCATIONS.—Of the amount
8 authorized under paragraph (1)—

9 (A) \$4,842,814,000 shall be made avail-
10 able to carry out research and related activities;

11 (B) \$1,157,188,000 shall be made avail-
12 able for education and human resources;

13 (C) \$168,190,000 shall be made available
14 for major research equipment and facilities con-
15 struction;

16 (D) \$214,170,000 shall be made available
17 for salaries and expenses; and

18 (E) \$8,470,000 shall be made available for
19 the Office of Inspector General.

20 (c) FISCAL YEAR 2005.—

21 (1) IN GENERAL.—There are authorized to be
22 appropriated to the National Science Foundation
23 \$7,378,343,000 for fiscal year 2005.

24 (2) SPECIFIC ALLOCATIONS.—Of the amount
25 authorized under paragraph (1)—

1 (A) \$5,617,665,000 shall be made avail-
2 able to carry out research and related activities;

3 (B) \$1,330,766,000 shall be made avail-
4 able to carry out education and human re-
5 sources;

6 (C) \$185,009,000 shall be made available
7 for major research equipment and facilities con-
8 struction;

9 (D) \$235,587,000 shall be made available
10 for salaries and expenses; and

11 (E) \$9,317,000 shall be made available for
12 the Office of Inspector General.

13 (d) FISCAL YEAR 2006.—

14 (1) IN GENERAL.—There are authorized to be
15 appropriated to the National Science Foundation
16 \$8,519,776,000 for fiscal year 2006.

17 (2) SPECIFIC ALLOCATIONS.—Of the amount
18 authorized under paragraph (1)—

19 (A) \$6,516,491,000 shall be made avail-
20 able to carry out research and related activities;

21 (B) \$1,530,380,000 shall be made avail-
22 able to carry out education and human re-
23 sources;

1 (C) ~~\$203,509,900~~ shall be made available
2 for major research equipment and facilities con-
3 struction;

4 (D) ~~\$259,145,700~~ shall be made available
5 for salaries and expenses; and

6 (E) ~~\$10,248,700~~ shall be made available
7 for the Office of Inspector General.

8 (e) FISCAL YEAR 2007.—

9 (1) IN GENERAL.—There are authorized to be
10 appropriated to the National Science Foundation
11 ~~\$9,839,262,000~~ for fiscal year 2007.

12 (2) SPECIFIC ALLOCATIONS.—Of the amount
13 authorized under paragraph (1)—

14 (A) ~~\$7,559,130,000~~ shall be made avail-
15 able to carry out research and related activities;

16 (B) ~~\$1,759,938,000~~ shall be made avail-
17 able to carry out education and human re-
18 sources;

19 (C) ~~\$223,860,900~~ shall be made available
20 for major research equipment and facilities con-
21 struction;

22 (D) ~~\$285,060,300~~ shall be made available
23 for salaries and expenses; and

24 (E) ~~\$11,273,570~~ shall be made available
25 for the Office of Inspector General.

1 **SEC. 6. SPECIFIC PROGRAM AUTHORIZATIONS.**

2 From amounts authorized to be appropriated under
3 section 5, the Director shall continue the following initia-
4 tives:

5 (1) **INFORMATION TECHNOLOGY.**—An informa-
6 tion technology research program to support com-
7 petitive, merit-based proposals for research, edu-
8 cation, and infrastructure support in areas related to
9 cybersecurity, terascale computing systems, soft-
10 ware, networking, scalability, communications, and
11 data management.

12 (2) **NANOSCALE SCIENCE AND ENGINEERING.**—
13 A nanoscale science and engineering research and
14 education program to support competitive, merit-
15 based proposals that emphasize research aimed at—

16 (A) discovering novel phenomena, proe-
17 cesses, materials, and tools that address grand
18 challenges in materials, electronics,
19 optoelectronics and magnetics, manufacturing,
20 the environment, and healthcare; and

21 (B) supporting new interdisciplinary cen-
22 ters and networks of excellence, including
23 shared national user facilities, infrastructure,
24 research, and education activities on the soci-
25 etal implications of advances in nanoscale
26 science and engineering.

1 (3) PLANT GENOME RESEARCH.—A plant ge-
2 nome research program to support competitive,
3 merit-based proposals—

4 (A) that advance our understanding of the
5 structure, organization, and function of plant
6 genomes; and

7 (B) that accelerate the use of new knowl-
8 edge and innovative technologies toward a more
9 complete understanding of basic biological proc-
10 esses in plants, especially in economically im-
11 portant plants such as corn and soybeans.

12 (4) INNOVATION PARTNERSHIPS.—An innova-
13 tion partnerships program with the purpose of pro-
14 viding competitive, merit-based support for proposals
15 that seek to stimulate innovation at the regional
16 level through partnerships involving States, regional
17 governmental entities, local governmental entities,
18 industry, academic institutions, and other related or-
19 ganizations in strategically important fields of
20 science and technology.

21 (5) MATHEMATICS AND SCIENCE PARTNER-
22 SHIPS.—An education improvement initiative for
23 current teachers that provides eligible partnerships
24 with grants to model ways in which to enhance the
25 capacity of elementary schools and secondary

1 schools, particularly those in high-poverty urban and
2 rural areas, to provide challenging mathematics and
3 science curricula to all students through—

4 (A) the use of professional mathemati-
5 cians, scientists, and engineers both in and out-
6 side the classroom;

7 (B) the provision of stipends and techno-
8 logical materials (including computers, training,
9 and other support) for individuals identified by
10 local educational agencies as potential master
11 teachers, who such agencies assure shall—

12 (i) mentor and systematically assist
13 other teachers in mathematics and science
14 instruction and the use of technology; and

15 (ii) be provided with paid, sufficient
16 time to participate in eligible partnership
17 supported activities and those activities de-
18 scribed in clause (i);

19 (C) implementation of summer and aca-
20 demic year professional development institutes
21 that train teachers in mathematics and science
22 content areas and promising pedagogical tech-
23 niques;

24 (D) support for distance learning programs
25 in mathematics and science; and

1 (E) other activities the Director determines
2 will accomplish the goals of this paragraph.

3 (6) ROBERT C. NOYCE SCHOLARSHIP.—

4 (A) IN GENERAL.—Multi-year awards to
5 institutions of higher education to provide fu-
6 ture teachers who have not less than 2 years of
7 completed work toward a baccalaureate degree
8 in a mathematics or science area with scholar-
9 ships, stipends, and training toward teacher
10 certification or alternative certification.

11 (B) SELECTION.—An institution of higher
12 education that receives an award under this
13 paragraph shall provide scholarships, stipends,
14 and training to future teachers based on aca-
15 demic merit, with consideration given to the fi-
16 nancial need of such future teachers and the
17 goal of promoting participation of women, mi-
18 norities, and persons with disabilities.

19 (C) AMOUNT.—Scholarships and stipends
20 awarded pursuant to this paragraph shall be
21 equal to the lesser of \$7,500, or the cost of at-
22 tendance at the institution of higher education.

23 (D) SERVICE OBLIGATION.—Not later than
24 3 years after receiving a scholarship or stipend
25 under this paragraph, an individual shall—

1 (i) begin to undertake 2 years of
2 teaching mathematics or science in a high
3 poverty school;

4 (ii) provide the institution of higher
5 education attended by the individual with 2
6 years of certification of completed full time
7 employment as a mathematics or science
8 teacher in a high poverty school; and

9 (iii) if necessary return all relevant
10 funds, including interest, awarded pursu-
11 ant to this paragraph in the event of non-
12 compliance with the terms of this para-
13 graph, unless the Director provides for
14 partial or total waiver of the terms of this
15 subparagraph for individuals due to ex-
16 treme hardship.

17 (7) ~~SCIENCE, MATHEMATICS, ENGINEERING~~
18 ~~AND TECHNOLOGY TALENT EXPANSION PROGRAM.—~~

19 (A) ~~IN GENERAL.—~~A merit-based, multi-
20 year, competitive grant program for eligible ap-
21 plicants to increase the number of students
22 studying toward and receiving associate's or
23 bachelor's degrees in science, mathematics, en-
24 gineering, and technology.

1 (B) TYPES OF PROJECTS.—The types of
2 projects the Foundation may support under this
3 paragraph include those that promote high
4 quality—

5 (i) interdisciplinary teaching;

6 (ii) undergraduate-conducted re-
7 search;

8 (iii) mentor relationships for students
9 in underrepresented groups;

10 (iv) bridge programs that enable stu-
11 dents at community colleges to matriculate
12 directly into baccalaureate science, mathe-
13 matics, engineering, or technology pro-
14 grams;

15 (v) internships carried out in partner-
16 ship with industry; and

17 (vi) innovative uses of digital tech-
18 nologies, particularly at institutions of
19 higher education that serve high numbers
20 or percentages of economically disadvan-
21 taged students.

22 (C) PERFORMANCE ACCOUNTABILITY.—

23 (i) IN GENERAL.—In order to receive
24 a grant under this paragraph, an eligible
25 applicant shall establish benchmarks to in-

1 crease the number of students studying to-
2 ward and receiving associate's or bach-
3 elor's degrees in science, mathematics, en-
4 gineering, and technology.

5 (ii) CONTINUED FUNDING.—In order
6 to receive continued annual funding under
7 this paragraph, an eligible applicant shall
8 meet the benchmarks established under
9 clause (i).

10 (8) SECONDARY SCHOOL SYSTEMIC INITIA-
11 TIVE.—A merit-based, competitive grant program
12 for State educational agencies or local educational
13 agencies that supports the planning and implemen-
14 tation of agency-wide secondary school reform initia-
15 tives designed to prepare graduating secondary
16 school students to read and comprehend specialized
17 technical and scientific texts, such as computer
18 training materials or the science section of a major
19 newspaper, meet the mathematics and science edu-
20 cation needs of students at risk of not achieving
21 State academic achievement standards, reduce the
22 need for basic skill training by employers, and
23 heighten college completion rates, through—

24 (A) adoption of enriched mathematics and
25 science curricula for all students;

1 (B) strengthened teacher training in math-
2 ematics, science, and reading as it relates to
3 technical and specialized texts;

4 (C) creation of smaller learning commu-
5 nities, including initiatives that substantially re-
6 duce class size, support new small schools, or
7 small schools within schools;

8 (D) collaborations between State and local
9 secondary school systems and institutions of
10 higher education that align curricula and higher
11 education placement requirements; and

12 (E) other activities the Director determines
13 will accomplish the goals of this paragraph.

14 (9) EXPERIMENTAL PROGRAM TO STIMULATE
15 COMPETITIVE RESEARCH.—The Experimental Pro-
16 gram to Stimulate Competitive Research established
17 under section 113 of the National Science Founda-
18 tion Authorization Act of 1988 (42 U.S.C. 1862g)
19 as part of the Foundation’s crosscutting/inter-
20 disciplinary programs. The program shall provide for
21 activities, which may include research infrastructure
22 improvement grants, co-funding initiatives, and out-
23 reach initiatives.

24 (10) THE SCIENCE AND ENGINEERING EQUAL
25 OPPORTUNITIES ACT.—A comprehensive program

1 designed to advance the goals of the Science and
2 Engineering Equal Opportunities Act (42 U.S.C.
3 1885 et seq.); including programs to provide support
4 to minority serving institutions.

5 **SEC. 7. MAJOR RESEARCH INSTRUMENTATION.**

6 (a) **REVIEW AND ASSESSMENT.**—The Director shall
7 conduct a review and assessment of the major research
8 instrumentation program and, not later than 1 year after
9 the date of enactment of this Act, submit a report of find-
10 ings and recommendations to the Committee on Com-
11 merce, Science, and Transportation of the Senate, the
12 Committee on Health, Education, Labor, and Pensions of
13 the Senate, and the Committee on Science of the House
14 of Representatives. The report shall include—

15 (1) estimates of the needs, by major field of
16 science and engineering and by types of institutions
17 of higher education, for the types of research instru-
18 mentation that are eligible for acquisition under the
19 guidelines of the major research instrumentation
20 program;

21 (2) since the inception of the major research in-
22 strumentation program, the distribution of awards
23 and funding levels by year, by major field of science
24 and engineering, and by type of institution of higher
25 education for the program; and

1 (3) an analysis of the impact of the major re-
 2 search instrumentation program on the research in-
 3 strumentation needs that were documented in the
 4 Foundation's 1994 survey of academic research in-
 5 strumentation needs.

6 (b) OSTP ASSESSMENT.—The Director of the Office
 7 of Science and Technology Policy shall—

8 (1) assess the need for and develop an inter-
 9 agency program to establish fully equipped, state-of-
 10 the-art university-based centers for interdisciplinary
 11 research and advanced instrumentation development;
 12 and

13 (2) submit a report, not later than 14 months
 14 after the date of enactment of this Act, that con-
 15 tains the assessment and the recommended inter-
 16 agency program developed under paragraph (1) to
 17 the Committee on Commerce, Science, and Trans-
 18 portation of the Senate, the Committee on Health,
 19 Education, Labor, and Pensions of the Senate, and
 20 the Committee on Science of the House of Rep-
 21 resentatives .

22 **SEC. 8. MAJOR RESEARCH EQUIPMENT AND FACILITIES**
 23 **CONSTRUCTION PLAN.**

24 (a) **PRIORITIZATION OF PROPOSED MAJOR RE-**
 25 **SEARCH EQUIPMENT AND FACILITIES CONSTRUCTION.—**

1 (1) DEVELOPMENT OF PRIORITIES.—

2 (A) LIST.—The Director shall—

3 (i) develop a list indicating by number
4 the relative priority for funding under the
5 major research equipment and facilities
6 construction account that the Director as-
7 signs to each project the Board has ap-
8 proved for inclusion in a future budget re-
9 quest; and

10 (ii) submit the list described in clause
11 (i) to the Board for approval.

12 (B) UPDATES.—The Director shall update
13 the list prepared under subparagraph (A) each
14 time the Board approves a new project that
15 would receive funding under the major research
16 equipment and facilities construction account,
17 as necessary to prepare reports under para-
18 graph (2); and, from time to time, submit any
19 updated list to the Board for approval.

20 (2) ANNUAL REPORT.—Not later than 90 days
21 after the date of enactment of this Act, and not
22 later than each June 15 thereafter, the Director
23 shall transmit to Congress a report containing—

24 (A) the most recent Board-approved pri-
25 ority list developed under paragraph (1)(A);

1 ~~(B)~~ a description of the criteria used to de-
2 velop such list; and

3 ~~(C)~~ a description of the major factors for
4 each project that determined the ranking of
5 such project on the list, based on the applica-
6 tion of the criteria described pursuant to sub-
7 paragraph ~~(B)~~.

8 ~~(3)~~ CRITERIA.—The criteria described pursuant
9 to paragraph ~~(2)~~~~(B)~~ shall include, at a minimum—

10 ~~(A)~~ scientific merit;

11 ~~(B)~~ broad societal need and probable im-
12 pact;

13 ~~(C)~~ consideration of the results of formal
14 prioritization efforts by the scientific commu-
15 nity;

16 ~~(D)~~ readiness of plans for construction and
17 operation;

18 ~~(E)~~ the applicant's management and ad-
19 ministrative capacity of large research facilities;

20 ~~(F)~~ international and interagency commit-
21 ments; and

22 ~~(G)~~ the order in which projects were ap-
23 proved by the Board for inclusion in a future
24 budget request.

25 ~~(b)~~ FACILITIES PLAN.—

1 (1) IN GENERAL.—Section 201(a)(1) of the Na-
2 tional Science Foundation Authorization Act of 1998
3 (42 U.S.C. 1862l(a)(1)) is amended to read as fol-
4 lows:

5 “(1) IN GENERAL.—The Director shall prepare,
6 and include as part of the Foundation’s annual
7 budget request to Congress, a plan for the proposed
8 construction of, and repair and upgrades to, national
9 research facilities, including full life-cycle cost infor-
10 mation.”.

11 (2) CONTENTS OF PLAN.—Section 201(a)(2) of
12 the National Science Foundation Authorization Act
13 of 1998 (42 U.S.C. 1862l(a)(2)) is amended—

14 (A) in subparagraph (A), by striking
15 “(1);” and inserting “(1), including costs for
16 instrumentation development;”;

17 (B) at the end of subparagraph (B), by
18 striking “and”;

19 (C) in subparagraph (C), by striking “con-
20 struction.” and inserting “construction;” and

21 (D) by adding at the end the following:

22 “(D) for each project funded under the
23 major research equipment and facilities con-
24 struction account—

1 “(i) estimates of the total project cost
2 (from planning to commissioning); and

3 “(ii) the source of funds, including
4 Federal funding identified by appropria-
5 tions category and non-Federal funding;

6 “(E) estimates of the full life-cycle cost of
7 each national research facility;

8 “(F) information on any plans to retire na-
9 tional research facilities; and

10 “(G) estimates of funding levels for grants
11 supporting research that will make use of each
12 national research facility.”.

13 (3) DEFINITION.—Section 2 of the National
14 Science Foundation Authorization Act of 1998 (42
15 U.S.C. 1862k note) is amended—

16 (A) by redesignating paragraphs (3)
17 through (5) as paragraphs (4) through (6), re-
18 spectively; and

19 (B) by inserting after paragraph (2) the
20 following:

21 “(3) FULL LIFE-CYCLE COST.—The term ‘full
22 life-cycle cost’ means all costs of development, pro-
23 curement, construction, operations and support, and
24 shut-down costs, without regard to funding source

1 and without regard to what entity manages the
2 project.”.

3 (c) PROJECT MANAGEMENT.—No national research
4 facility project funded under the major research equip-
5 ment and facilities construction account shall be managed
6 by an individual whose appointment to the Foundation is
7 temporary.

8 (d) BOARD APPROVAL OF MAJOR RESEARCH EQUIP-
9 MENT AND FACILITIES PROJECTS.—

10 (1) IN GENERAL.—The Board shall explicitly
11 approve any project to be funded out of the major
12 research equipment and facilities construction ac-
13 count before any funds may be obligated from such
14 account for such project.

15 (2) REPORT.—Not later than September 15 of
16 each fiscal year, the Board shall report to the Com-
17 mittee on Commerce, Science, and Transportation of
18 the Senate, the Committee on Health, Education,
19 Labor, and Pensions of the Senate, and the Com-
20 mittee on Science of the House of Representatives
21 on the conditions of any delegation of authority
22 under section 4 of the National Science Foundation
23 Act of 1950 (42 U.S.C. 1863) that relates to funds
24 appropriated for any project in the major research
25 equipment and facilities construction account.

1 **SEC. 9. ADMINISTRATIVE AMENDMENTS.**

2 (a) **ADOPTION OF PROCEDURES FOR MEETINGS.—**

3 Section 4(e) of the National Science Foundation Act of
 4 1950 (42 U.S.C. 1863(e)), is amended by striking the sec-
 5 ond and third sentences and inserting “The Board shall
 6 adopt procedures governing the conduct of its meetings,
 7 including a definition of a quorum and delivery of notice.”.

8 (b) **CONFIDENTIALITY OF CERTAIN INFORMATION.—**

9 Section 14(i) of the National Science Foundation Act of
 10 1950 (42 U.S.C. 1873(i)) is amended to read as follows:

11 “(i) **CONFIDENTIALITY OF CERTAIN INFORMA-**
 12 **TION.—**

13 “(1) **IN GENERAL.—**

14 “(A) **NONDISCLOSURE.—**Information sup-
 15 plied to the Foundation or a contractor of the
 16 Foundation in survey forms, questionnaires, or
 17 similar instruments for purposes of section 3(a)
 18 (5) or (6) by an individual, an industrial or
 19 commercial organization, or an educational or
 20 academic institution when the institution has
 21 received a pledge of confidentiality from the
 22 Foundation, shall not be disclosed to the public
 23 unless the information has been transformed
 24 into statistical or abstract formats that do not
 25 allow for the identification of the supplier.

1 “(B) STATISTICAL OR RESEARCH PUR-
2 POSES.—Information that has not been trans-
3 formed into nonidentifiable formats as de-
4 scribed in subparagraph (A) may be used only
5 for statistical or research purposes.

6 “(C) IDENTITIES.—The identities of indi-
7 viduals and organizations supplying information
8 described in subparagraph (A) may not be dis-
9 closed to the public.

10 “(2) OBLIGATIONS OF RESEARCHERS.—In sup-
11 port of functions authorized by section 3(a) (5) or
12 (6), the Foundation may designate, at its discretion,
13 authorized persons, including employees of Federal,
14 State or local agencies or instrumentalities (includ-
15 ing local educational agencies) and employees of pri-
16 vate organizations, to have access, for statistical or
17 research purposes only, to identifiable information
18 collected pursuant to section 3(a) (5) or (6). No
19 such person may—

20 “(A) publish information collected pursu-
21 ant to section 3(a) (5) or (6) in such a manner
22 that either an individual, an industrial or com-
23 mercial organization, or an educational, aca-
24 demic, or other nonprofit institution that has

1 received a pledge of confidentiality from the
2 Foundation can be specifically identified;

3 “(B) permit anyone other than individuals
4 authorized by the Foundation to examine, in
5 identifiable form, data relating to an individual,
6 an industrial or commercial organization, or an
7 academic, educational, or other non-profit insti-
8 tution that has received a pledge of confiden-
9 tiality from the Foundation; or

10 “(C) knowingly and willfully request or ob-
11 tain any confidential information described in
12 paragraph (1) from the Foundation under false
13 pretenses.

14 “(3) PENALTY.—Violation of this subsection is
15 punishable by a fine of not more than \$10,000, im-
16 prisonment for not more than 5 years, or both.”.

17 **SEC. 10. REPORTS.**

18 (a) GRANT SIZE AND DURATION.—Not later than 6
19 months after the date of enactment of this Act, the Direc-
20 tor shall transmit to the Committee on Commerce,
21 Science, and Transportation of the Senate, the Committee
22 on Health, Education, Labor, and Pensions of the Senate,
23 and the Committee on Science of the House of Represent-
24 atives a report describing the impact that increasing the
25 average grant size and duration would have on minority

1 serving institutions and on institutions located in States
2 where the Foundation's Experimental Program to Stimu-
3 late Competitive Research (established under section 113
4 of the National Science Foundation Authorization Act of
5 1988 (42 U.S.C. 1862g)) is carrying out activities.

6 (b) OPEN MEETINGS.—Not later than 6 months after
7 the date of enactment of this Act, the Chair of the Board
8 shall transmit to the Committee on Commerce, Science,
9 and Transportation of the Senate, the Committee on
10 Health, Education, Labor, and Pensions of the Senate,
11 and the Committee on Science of the House of Represent-
12 atives a report describing proposed procedures under
13 which the Board could conduct its meetings so as to en-
14 sure greater public access to its deliberations.

15 **SECTION 1. SHORT TITLE.**

16 *This Act may be cited as the “National Science Foun-
17 dation Doubling Act”.*

18 **SEC. 2. DEFINITIONS.**

19 *In this Act:*

20 (1) *BOARD.*—The term “Board” means the Na-
21 tional Science Board established under section 2 of
22 the National Science Foundation Act of 1950 (42
23 U.S.C. 1861).

24 (2) *DIRECTOR.*—The term “Director” means the
25 Director of the National Science Foundation estab-

1 *lished under section 2 of the National Science Foun-*
2 *dation Act of 1950 (42 U.S.C. 1861).*

3 (3) *ELIGIBLE APPLICANT.*—*The term “eligible*
4 *applicant” means—*

5 (A) *an institution of higher education;*

6 (B) *a consortium of institutions of higher*
7 *education; or*

8 (C) *a partnership between—*

9 (i) *an institution of higher education*
10 *or a consortium of such institutions; and*

11 (ii)(I) *a nonprofit organization with*
12 *demonstrated experience in delivering*
13 *science, mathematics, engineering, or tech-*
14 *nology education; or*

15 (II) *a State government, local govern-*
16 *ment, or private company with dem-*
17 *onstrated experience in delivering science,*
18 *mathematics, engineering, or technology*
19 *education.*

20 (4) *FOUNDATION.*—*The term “Foundation”*
21 *means the National Science Foundation established*
22 *under section 2 of the National Science Foundation*
23 *Act of 1950 (42 U.S.C. 1861).*

24 (5) *INSTITUTION OF HIGHER EDUCATION.*—*The*
25 *term “institution of higher education” has the mean-*

1 *ing given such term in section 101(a) of the Higher*
2 *Education Act of 1965 (20 U.S.C. 1001(a)).*

3 (6) *NATIONAL RESEARCH FACILITY.*—*The term*
4 *“national research facility” means a research facility*
5 *funded by the Foundation which is available, subject*
6 *to appropriate policies allocating access, for use by all*
7 *scientists and engineers affiliated with research insti-*
8 *tutions located in the United States.*

9 **SEC. 3. FINDINGS.**

10 *Congress finds the following:*

11 (1) *The National Science Foundation has made*
12 *major contributions during the past 50 years to*
13 *strengthen and sustain the Nation’s academic research*
14 *enterprise that is the envy of the world.*

15 (2) *The economic strength and national security*
16 *of the United States and the quality of life of all*
17 *Americans are grounded in the Nation’s scientific and*
18 *technological capabilities.*

19 (3) *The National Science Foundation carries out*
20 *an important function in supporting basic research*
21 *in all science and engineering disciplines and in sup-*
22 *porting science, mathematics, engineering, and tech-*
23 *nology education at all levels.*

24 (4) *The research and education activities of the*
25 *National Science Foundation promote the discovery,*

1 *integration, dissemination, and application of new*
2 *knowledge in service to society and prepare future*
3 *generations of scientists, mathematicians, and engi-*
4 *neers who will be necessary to ensure America's lead-*
5 *ership in the global marketplace.*

6 *(5) The National Science Foundation must be*
7 *provided with sufficient resources to enable it to carry*
8 *out its responsibilities to develop intellectual capital,*
9 *strengthen the scientific infrastructure, integrate re-*
10 *search and education, enhance the delivery of mathe-*
11 *matics and science education in the United States,*
12 *and improve the technological literacy of all people in*
13 *the United States.*

14 *(6) The emerging global economic, scientific, and*
15 *technical environment challenges long-standing as-*
16 *sumptions about the dichotomy between domestic and*
17 *international policy, requiring the National Science*
18 *Foundation to play a more proactive role in sus-*
19 *taining the competitive advantage of the United*
20 *States through superior research capabilities.*

21 **SEC. 4. POLICY OBJECTIVES.**

22 *In allocating resources made available under section*
23 *5, the Foundation shall have the following policy objectives:*

24 *(1) To strengthen the Nation's lead in science*
25 *and technology by—*

1 (A) increasing the national investment in
2 general scientific research and in strategic areas;

3 (B) balancing the Nation's research port-
4 folio among the life sciences and fundamental
5 disciplines in mathematics, the physical sciences,
6 computer and information science, geoscience,
7 engineering, and social, behavioral, and eco-
8 nomic sciences that are important for the contin-
9 ued development of enabling technologies nec-
10 essary for sustained international competitive-
11 ness;

12 (C) expanding the pool of scientists and en-
13 gineers in the United States;

14 (D) modernizing the Nation's research in-
15 frastructure; and

16 (E) establishing and maintaining coopera-
17 tive international relationships with premier re-
18 search institutions, with the goal of such rela-
19 tionships being the exchange of personnel, data,
20 and information in an effort to alleviate prob-
21 lems common to the global community.

22 (2) To increase overall workforce skills by—

23 (A) improving the quality of mathematics
24 and science education, particularly in kinder-
25 garten through grade 12;

1 (B) providing access to information tech-
2 nology for all students;

3 (C) raising postsecondary enrollment rates
4 for underrepresented minorities in science, math-
5 ematics, engineering, and technology disciplines;

6 (D) increasing access to higher education in
7 science, mathematics, engineering, and tech-
8 nology fields for students from low-income house-
9 holds; and

10 (E) expanding technical training opportu-
11 nities at institutions of higher education.

12 (3) To strengthen innovation by—

13 (A) expanding the focus of competitiveness
14 and innovation policy at the regional and local
15 level;

16 (B) supporting initiatives and organiza-
17 tions that enhance and mobilize regional innova-
18 tion; and

19 (C) identifying best policy practices in fos-
20 tering innovation at the State, regional, and
21 local levels.

22 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

23 (a) FISCAL YEAR 2003.—

1 (1) *IN GENERAL.*—*There are authorized to be ap-*
2 *propriated to the National Science Foundation*
3 *\$5,536,390,000 for fiscal year 2003.*

4 (2) *SPECIFIC ALLOCATIONS.*—*Of the amount au-*
5 *thorized under paragraph (1)—*

6 (A) *\$4,174,840,000 shall be made available*
7 *to carry out research and related activities;*

8 (B) *\$1,006,250,000 shall be made available*
9 *for education and human resources;*

10 (C) *\$152,900,000 shall be made available*
11 *for major research equipment and facilities con-*
12 *struction;*

13 (D) *\$194,700,000 shall be made available*
14 *for salaries and expenses; and*

15 (E) *\$7,700,000 shall be made available for*
16 *the Office of Inspector General.*

17 (b) *FISCAL YEAR 2004.*—

18 (1) *IN GENERAL.*—*There are authorized to be ap-*
19 *propriated to the National Science Foundation*
20 *\$6,390,832,000 for fiscal year 2004.*

21 (2) *SPECIFIC ALLOCATIONS.*—*Of the amount au-*
22 *thorized under paragraph (1)—*

23 (A) *\$4,842,814,000 shall be made available*
24 *to carry out research and related activities;*

1 (B) \$1,157,188,000 shall be made available
2 for education and human resources;

3 (C) \$168,190,000 shall be made available
4 for major research equipment and facilities con-
5 struction;

6 (D) \$214,170,000 shall be made available
7 for salaries and expenses; and

8 (E) \$8,470,000 shall be made available for
9 the Office of Inspector General.

10 (c) FISCAL YEAR 2005.—

11 (1) IN GENERAL.—There are authorized to be ap-
12 propriated to the National Science Foundation
13 \$7,378,343,000 for fiscal year 2005.

14 (2) SPECIFIC ALLOCATIONS.—Of the amount au-
15 thorized under paragraph (1)—

16 (A) \$5,617,665,000 shall be made available
17 to carry out research and related activities;

18 (B) \$1,330,766,000 shall be made available
19 to carry out education and human resources;

20 (C) \$185,009,000 shall be made available
21 for major research equipment and facilities con-
22 struction;

23 (D) \$235,587,000 shall be made available
24 for salaries and expenses; and

1 (E) \$9,317,000 shall be made available for
2 the Office of Inspector General.

3 (d) FISCAL YEAR 2006.—

4 (1) IN GENERAL.—There are authorized to be ap-
5 propriated to the National Science Foundation
6 \$8,519,776,000 for fiscal year 2006.

7 (2) SPECIFIC ALLOCATIONS.—Of the amount au-
8 thorized under paragraph (1)—

9 (A) \$6,516,491,000 shall be made available
10 to carry out research and related activities;

11 (B) \$1,530,380,000 shall be made available
12 to carry out education and human resources;

13 (C) \$203,509,900 shall be made available
14 for major research equipment and facilities con-
15 struction;

16 (D) \$259,145,700 shall be made available
17 for salaries and expenses; and

18 (E) \$10,248,700 shall be made available for
19 the Office of Inspector General.

20 (e) FISCAL YEAR 2007.—

21 (1) IN GENERAL.—There are authorized to be ap-
22 propriated to the National Science Foundation
23 \$9,839,262,000 for fiscal year 2007.

24 (2) SPECIFIC ALLOCATIONS.—Of the amount au-
25 thorized under paragraph (1)—

1 (A) \$7,559,130,000 shall be made available
2 to carry out research and related activities;

3 (B) \$1,759,938,000 shall be made available
4 to carry out education and human resources;

5 (C) \$223,860,900 shall be made available
6 for major research equipment and facilities con-
7 struction;

8 (D) \$285,060,300 shall be made available
9 for salaries and expenses; and

10 (E) \$11,273,570 shall be made available for
11 the Office of Inspector General.

12 **SEC. 6. SPECIFIC PROGRAM AUTHORIZATIONS.**

13 From amounts authorized to be appropriated under
14 section 5, the Director shall continue the following initia-
15 tives in accordance with this section:

16 (1) *INFORMATION TECHNOLOGY.*—An informa-
17 tion technology research program to support competi-
18 tive, merit-based proposals for research, education,
19 and infrastructure support in areas related to
20 cybersecurity, terascale computing systems, software,
21 networking, scalability, communications, and data
22 management.

23 (2) *NANOSCALE SCIENCE AND ENGINEERING.*—A
24 nanoscale science and engineering research and edu-

1 *cation program to support competitive, merit-based*
2 *proposals that emphasize research aimed at—*

3 *(A) discovering novel phenomena, processes,*
4 *materials, and tools that address grand chal-*
5 *lenges in materials, electronics, optoelectronics*
6 *and magnetics, manufacturing, the environment,*
7 *and healthcare; and*

8 *(B) supporting new interdisciplinary cen-*
9 *ters and networks of excellence, including shared*
10 *national user facilities, infrastructure, research,*
11 *and education activities on the societal implica-*
12 *tions of advances in nanoscale science and engi-*
13 *neering.*

14 *(3) PLANT GENOME RESEARCH.—A plant ge-*
15 *nome research program to support competitive, merit-*
16 *based proposals—*

17 *(A) that advance our understanding of the*
18 *structure, organization, and function of plant*
19 *genomes; and*

20 *(B) that accelerate the use of new knowledge*
21 *and innovative technologies toward a more com-*
22 *plete understanding of basic biological processes*
23 *in plants, especially in economically important*
24 *plants such as corn and soybeans.*

1 (4) *INNOVATION PARTNERSHIPS.*—*An innovation*
2 *partnerships program with the purpose of providing*
3 *competitive, merit-based support for proposals that*
4 *seek to stimulate innovation at the regional level*
5 *through partnerships involving States, regional gov-*
6 *ernmental entities, local governmental entities, indus-*
7 *try, academic institutions, and other related organi-*
8 *zations in strategically important fields of science*
9 *and technology.*

10 (5) *MATHEMATICS AND SCIENCE PARTNER-*
11 *SHIPS.*—

12 (A) *IN GENERAL.*—

13 (i) *COMPETITIVE GRANT PROGRAM.*—
14 *During fiscal years 2003, 2004, and 2005,*
15 *the Director shall carry out a mathematics*
16 *and science partnership program in accord-*
17 *ance with the requirements of sections 2201*
18 *and 2202 of the Elementary and Secondary*
19 *Education Act of 1965 (20 U.S.C. 6661 and*
20 *6662) (as such sections were in effect on the*
21 *day before the date of enactment of this*
22 *Act), by awarding competitive grants to eli-*
23 *gible partnerships (as defined under section*
24 *2201 of such Act as so in effect) in accord-*
25 *ance with such section 2202(a)(1) as so in*

1 *effect without regard to the amount of funds*
2 *appropriated for such program under sec-*
3 *tion 2203 of such Act (as such section was*
4 *in effect on the day before the date of enact-*
5 *ment of this Act).*

6 (ii) *FORMULA GRANT PROGRAM.—Dur-*
7 *ing fiscal years 2006 and 2007, the Director*
8 *shall carry out a mathematics and science*
9 *partnership program in accordance with the*
10 *requirements of sections 2201 and 2202 of*
11 *the Elementary and Secondary Education*
12 *Act of 1965 (20 U.S.C. 6661 and 6662) (as*
13 *such sections were in effect on the day before*
14 *the date of enactment of this Act), by*
15 *awarding grants to State educational agen-*
16 *cies in accordance with such section*
17 *2202(a)(2) as so in effect without regard to*
18 *the amount of funds appropriated for such*
19 *program under section 2203 of such Act (as*
20 *such section was in effect on the day before*
21 *the date of enactment of this Act). If an eli-*
22 *gible partnership was previously awarded a*
23 *grant under clause (i), and the grant period*
24 *has not ended, the Director shall reserve*
25 *funds in a sufficient amount to make pay-*

1 *ments to the partnership in accordance with*
2 *the terms of the grant.*

3 *(iii) CONSULTATION AND COORDINA-*
4 *TION.—The Director shall consult and co-*
5 *ordinate with the Secretary of Education in*
6 *carrying out the program under this sub-*
7 *paragraph.*

8 *(B) SHARED PLAN.—Not later than 120*
9 *days after the date of enactment of this Act, the*
10 *Director and the Secretary of Education shall*
11 *prepare a plan for the joint administration of*
12 *this paragraph and submit such plan to Con-*
13 *gress for review and comment.*

14 *(C) TECHNICAL ASSISTANCE.—At the re-*
15 *quest of an eligible partnership or a State edu-*
16 *cational agency, the Director shall provide the*
17 *partnership or agency with technical assistance*
18 *in meeting any requirements of the mathematics*
19 *and science partnership program carried out by*
20 *the Director, including providing advice from ex-*
21 *perts on how to develop—*

22 *(i) a high-quality application for a*
23 *grant or subgrant under the program; and*

1 (ii) *high-quality activities from funds*
2 *received from a grant or subgrant under the*
3 *program.*

4 (6) *ROBERT C. NOYCE SCHOLARSHIP.—*

5 (A) *IN GENERAL.—A program of multi-year*
6 *awards to institutions of higher education to en-*
7 *able the institutions to provide future teachers,*
8 *who have not less than 2 years of completed work*
9 *toward a baccalaureate degree in a mathematics*
10 *or science area, with scholarships, stipends, and*
11 *training toward teacher certification or alter-*
12 *native certification.*

13 (B) *SELECTION.—An institution of higher*
14 *education that receives an award under this*
15 *paragraph shall provide scholarships, stipends,*
16 *and training to future teachers based on aca-*
17 *ademic merit, with consideration given to the fi-*
18 *nancial need of such future teachers and the goal*
19 *of promoting the participation in the program of*
20 *women, minorities, and individuals with disabil-*
21 *ities.*

22 (C) *AMOUNT.—Scholarships and stipends*
23 *awarded pursuant to this paragraph shall be*
24 *equal to the lesser of \$7,500, or the cost of at-*
25 *tendance at the institution of higher education.*

1 (D) *SERVICE OBLIGATION.*—Not later than
2 3 years after receiving a scholarship or stipend
3 under this paragraph, an individual shall begin
4 to teach mathematics or science in a high pov-
5 erty school for 2 years.

6 (E) *CERTIFICATION.*—

7 (i) *IN GENERAL.*—An individual that
8 receives a scholarship or stipend under this
9 paragraph shall provide the institution of
10 higher education attended by the individual
11 with a certification that the individual has
12 completed full time employment as a mathe-
13 matics or science teacher in a high poverty
14 school.

15 (ii) *SUBMISSION OF CERTIFICATION.*—

16 An individual shall submit the certification
17 described in clause (i) at the end of each
18 academic year for which the individual was
19 employed as a full-time teacher of mathe-
20 matics or science in a high poverty school
21 in compliance with the service obligation
22 under subparagraph (D).

23 (F) *NONCOMPLIANCE.*—In the event an in-
24 dividual provided a scholarship or stipend under
25 this paragraph does not comply with subpara-

1 *graphs (D) or (E), such individual shall repay*
2 *all funds received under the program, including*
3 *interest on such funds at the prevailing market*
4 *rate, unless the Director provides for partial or*
5 *total waiver of the terms of this subparagraph*
6 *for an individual due to extreme hardship.*

7 (7) *SCIENCE, MATHEMATICS, ENGINEERING AND*
8 *TECHNOLOGY TALENT EXPANSION PROGRAM.—*

9 (A) *IN GENERAL.—A merit-based, multi-*
10 *year, competitive grant program for eligible ap-*
11 *plicants to increase the number of students, par-*
12 *ticularly students who are women, minorities, or*
13 *persons with disabilities, studying toward and*
14 *receiving associate's or bachelor's degrees in*
15 *science, mathematics, engineering, and tech-*
16 *nology.*

17 (B) *TYPES OF PROJECTS.—The types of*
18 *projects the Foundation may support under this*
19 *paragraph include those that promote high*
20 *quality—*

21 (i) *interdisciplinary teaching;*

22 (ii) *undergraduate-conducted research;*

23 (iii) *mentor relationships for students*
24 *in underrepresented groups;*

1 (iv) bridge programs that enable stu-
 2 dents at community colleges to matriculate
 3 directly into baccalaureate science, mathe-
 4 matics, engineering, or technology pro-
 5 grams;

6 (v) internships carried out in partner-
 7 ship with industry; and

8 (vi) innovative uses of digital tech-
 9 nologies, particularly at institutions of
 10 higher education that serve high numbers or
 11 percentages of economically disadvantaged
 12 students.

13 (C) *PERFORMANCE ACCOUNTABILITY.*—

14 (i) *IN GENERAL.*—In order to receive a
 15 grant under this paragraph, an eligible ap-
 16 plicant shall establish benchmarks to in-
 17 crease the number of students studying to-
 18 ward and receiving associate's or bachelor's
 19 degrees in science, mathematics, engineer-
 20 ing, and technology.

21 (ii) *CONTINUED FUNDING.*—In order to
 22 receive continued annual funding under this
 23 paragraph, an eligible applicant shall meet
 24 the benchmarks established under clause (i).

25 (8) *SECONDARY SCHOOL SYSTEMIC INITIATIVE.*—

1 (A) *IN GENERAL.*—A merit-based, competi-
2 tive grant program for State educational agen-
3 cies or local educational agencies, with priority
4 given to agencies that serve high poverty commu-
5 nities, that supports the planning and imple-
6 mentation of agency-wide secondary school re-
7 form initiatives designed to promote scientific
8 and technological literacy, meet the mathematics
9 and science education needs of students at risk of
10 not achieving State academic achievement stand-
11 ards, reduce the need for basic skill training by
12 employers, and heighten college completion rates.

13 (B) *PERMISSIBLE USE OF FUNDS.*—Grant
14 funds received under the grant program de-
15 scribed in subparagraph (A) may be used to re-
16 furbish or build secondary school science labora-
17 tories as part of a comprehensive program to en-
18 hance the quality of science, mathematics, engi-
19 neering, and technology instruction.

20 (9) *EXPERIMENTAL PROGRAM TO STIMULATE*
21 *COMPETITIVE RESEARCH.*—

22 (A) *IN GENERAL.*—The *Experimental Pro-*
23 gram to Stimulate Competitive Research, estab-
24 lished under section 113 of the National Science

1 *Foundation Authorization Act of 1988 (42*
2 *U.S.C. 1862g), that is designed to enhance—*

3 *(i) competitive research in mathe-*
4 *matics, science, and engineering throughout*
5 *the States eligible to participate in the pro-*
6 *gram and the Commonwealth of Puerto*
7 *Rico;*

8 *(ii) research infrastructure in the*
9 *States eligible to participate in the program*
10 *and the Commonwealth of Puerto Rico; and*

11 *(iii) the geographic distribution of*
12 *Federal research and development support.*

13 *(B) ACTIVITIES.—The program identified*
14 *under subparagraph (A) shall—*

15 *(i) provide for activities determined*
16 *appropriate by the Foundation, which may*
17 *include research infrastructure improvement*
18 *grants (that target funds based on a State's*
19 *research capabilities), co-funding initia-*
20 *tives, and outreach initiatives for eligible*
21 *States;*

22 *(ii) subject to clause (iv), when deter-*
23 *mining eligibility for participation in the*
24 *program, include a State for which the total*
25 *amount of National Science Foundation re-*

1 *search funding provided to all institutions*
2 *within the State for the 3 years preceding*
3 *the year for which the determination is*
4 *made was not more than 1.0 percent of the*
5 *total amount of Foundation research fund-*
6 *ing made available to all States for those 3*
7 *years;*

8 *(iii) ensure that a State that is eligible*
9 *to participate in the program on the date of*
10 *enactment of this Act is immediately eligi-*
11 *ble for planning funds; and*

12 *(iv) ensure that a State that was eligi-*
13 *ble to participate in the program on the*
14 *day before the date of enactment of this Act*
15 *receives not less than 100 percent of the*
16 *amount of funds the State received under*
17 *the program for fiscal year 2002.*

18 (10) *THE SCIENCE AND ENGINEERING EQUAL OP-*
19 *PORTUNITIES ACT.—A comprehensive program de-*
20 *signed to advance the goals of the Science and Engi-*
21 *neering Equal Opportunities Act (42 U.S.C. 1885 et*
22 *seq.), including programs to—*

23 *(A) provide support to minority serving in-*
24 *stitutions; and*

1 (B) ensure that reports required under sec-
2 tions 36 and 37 of such Act are submitted to
3 the—

4 (i) Committee on Science of the House
5 of Representatives;

6 (ii) Committee on Health, Education,
7 Labor, and Pensions of the Senate; and

8 (iii) Committee on Commerce, Science,
9 and Transportation of the Senate.

10 **SEC. 7. ESTABLISHMENT OF RESEARCH ON MATHEMATICS**
11 **AND SCIENCE LEARNING AND EDUCATION IM-**
12 **PROVEMENT.**

13 (a) *ESTABLISHMENT.*—The Director shall award
14 grants, on a competitive basis, to—

15 (1) conduct and evaluate research in cognitive
16 science, education, and related fields associated with
17 the science of learning and teaching mathematics and
18 science; and

19 (2) develop ways in which the results of such re-
20 search can be applied, duplicated, and scaled up for
21 use in low-performing elementary schools and sec-
22 ondary schools to improve the teaching and student
23 achievement levels in mathematics and science.

24 (b) *APPLICATION.*—An applicant desiring to receive a
25 grant under this section shall submit an application to the

1 *Director at such time, in such manner, and accompanied*
2 *by such information as the Director may require.*

3 (c) *EVALUATION.*—

4 (1) *IN GENERAL.*—*In evaluating the applications*
5 *submitted under subsection (b), the Director shall con-*
6 *sider, at a minimum—*

7 (A) *the ability of the applicant to effectively*
8 *carry out the research program and apply the*
9 *applicant's results to effective educational prac-*
10 *tice;*

11 (B) *the experience of the applicant in con-*
12 *ducting research on the science of teaching and*
13 *learning mathematics and science and the capac-*
14 *ity of the applicant to foster new multidisci-*
15 *plinary collaborations; and*

16 (C) *the capacity of the applicant to attract*
17 *and provide adequate support for graduate stu-*
18 *dents to pursue research at the intersection of*
19 *educational practice and basic research on*
20 *human cognition and learning.*

21 (2) *CURRENT PRACTICES.*—*Not less than 1 of the*
22 *grants awarded by the Director under subsection (a)*
23 *shall include a comprehensive evaluation of the effec-*
24 *tiveness of current mathematics and science teaching*
25 *practices.*

1 (d) *ACTIVITIES.*—*An applicant receiving a grant*
2 *under this section shall—*

3 (1) *include, in such applicant’s research, the ac-*
4 *tive participation of elementary school and secondary*
5 *school administrators and mathematics and science*
6 *teachers; and*

7 (2) *submit the results of such applicant’s re-*
8 *search to the Director.*

9 (e) *COORDINATION.*—*The Director shall—*

10 (1) *apply the results of the research conducted*
11 *pursuant to grants awarded under this section to de-*
12 *veloping models of educational practice and assess the*
13 *success of such models;*

14 (2) *coordinate with the Secretary of Education*
15 *in—*

16 (A) *devising a research agenda to carry out*
17 *this section;*

18 (B) *disseminating the results of the research*
19 *conducted pursuant to grants awarded under*
20 *this section to elementary school teachers and*
21 *secondary school teachers; and*

22 (C) *providing programming, guidance, and*
23 *support to ensure that such teachers—*

1 (i) understand the implications of the
2 research disseminated under subparagraph
3 (B) for classroom practice; and

4 (ii) can use the research to improve
5 such teachers performance in the classroom.

6 **SEC. 8. DUPLICATION OF PROGRAMS.**

7 (a) *IN GENERAL.*—The Director shall review the edu-
8 cation programs of the Foundation that are in operation
9 as of the date of enactment of this Act to determine whether
10 any of such programs duplicate the programs authorized
11 under this Act.

12 (b) *IMPLEMENTATION.*—As programs authorized under
13 this Act are implemented, the Director shall—

14 (1) terminate any existing duplicative program
15 being carried out by the Foundation or merge the ex-
16 isting duplicative program into a program authorized
17 under this Act; and

18 (2) not establish any new program that dupli-
19 cates a program that has been implemented pursuant
20 to this Act.

21 (c) *REPORT.*—

22 (1) *REVIEW.*—The Director of the Office of
23 Science and Technology Policy shall review the edu-
24 cation programs of the Foundation to ensure compli-
25 ance with the provisions of this section.

1 (2) *SUBMISSION.*—Not later than 1 year after
2 the date of enactment of this Act, and annually there-
3 after as part of the annual Office of Science and
4 Technology Policy’s budget submission to Congress,
5 the Director of the Office of Science and Technology
6 Policy shall complete a report on the review carried
7 out under this subsection and shall submit the report
8 to—

9 (A) the Committee on Health, Education,
10 Labor, and Pensions of the Senate;

11 (B) the Committee on Appropriations of the
12 Senate;

13 (C) the Committee on Science of the House
14 of Representatives;

15 (D) the Committee on Education and the
16 Workforce of the House of Representatives;

17 (E) the Committee on Appropriations of the
18 House of Representatives; and

19 (F) the Committee on Commerce, Science,
20 and Transportation of the Senate.

21 **SEC. 9. MAJOR RESEARCH INSTRUMENTATION.**

22 (a) *REVIEW AND ASSESSMENT.*—The Director shall
23 conduct a review and assessment of the major research in-
24 strumentation program and, not later than 1 year after the
25 date of enactment of this Act, submit a report of findings

1 *and recommendations to the Committee on Commerce,*
2 *Science, and Transportation of the Senate, the Committee*
3 *on Health, Education, Labor, and Pensions of the Senate,*
4 *and the Committee on Science of the House of Representa-*
5 *tives. The report shall include—*

6 (1) *estimates of the needs, by major field of*
7 *science and engineering and by types of institutions*
8 *of higher education, for the types of research instru-*
9 *mentation that are eligible for acquisition under the*
10 *guidelines of the major research instrumentation pro-*
11 *gram;*

12 (2) *since the inception of the major research in-*
13 *strumentation program, the distribution of awards*
14 *and funding levels by year, by major field of science*
15 *and engineering, and by type of institution of higher*
16 *education for the program; and*

17 (3) *an analysis of the impact of the major re-*
18 *search instrumentation program on the research in-*
19 *strumentation needs that were documented in the*
20 *Foundation's 1994 survey of academic research in-*
21 *strumentation needs.*

22 (b) *OSTP ASSESSMENT.—The Director of the Office*
23 *of Science and Technology Policy shall—*

24 (1) *assess the need for and develop an inter-*
25 *agency program to establish fully equipped, state-of-*

1 *the-art university-based centers for interdisciplinary*
 2 *research and advanced instrumentation development;*
 3 *and*

4 (2) *submit a report, not later than 14 months*
 5 *after the date of enactment of this Act, that contains*
 6 *the assessment and the recommended interagency pro-*
 7 *gram developed under paragraph (1) to the Com-*
 8 *mittee on Commerce, Science, and Transportation of*
 9 *the Senate, the Committee on Health, Education,*
 10 *Labor, and Pensions of the Senate, and the Com-*
 11 *mittee on Science of the House of Representatives.*

12 **SEC. 10. MAJOR RESEARCH EQUIPMENT AND FACILITIES**

13 **CONSTRUCTION PLAN.**

14 (a) *PRIORITIZATION OF PROPOSED MAJOR RESEARCH*
 15 *EQUIPMENT AND FACILITIES CONSTRUCTION.—*

16 (1) *DEVELOPMENT OF PRIORITIES.—*

17 (A) *LIST.—The Director shall—*

18 (i) *develop a list indicating by number*
 19 *the relative priority for funding under the*
 20 *major research equipment and facilities*
 21 *construction account that the Director as-*
 22 *signs to each project the Board has ap-*
 23 *proved for inclusion in a future budget re-*
 24 *quest; and*

1 (ii) submit the list described in clause
2 (i) to the Board for approval.

3 (B) *UPDATES.*—The Director shall update
4 the list prepared under subparagraph (A) each
5 time the Board approves a new project that
6 would receive funding under the major research
7 equipment and facilities construction account, as
8 necessary to prepare reports under paragraph
9 (2), and, from time to time, submit any updated
10 list to the Board for approval.

11 (2) *ANNUAL REPORT.*—Not later than 90 days
12 after the date of enactment of this Act, and not later
13 than each June 15 thereafter, the Director shall trans-
14 mit to Congress a report containing—

15 (A) the most recent Board-approved pri-
16 ority list developed under paragraph (1)(A);

17 (B) a description of the criteria used to de-
18 velop such list; and

19 (C) a description of the major factors for
20 each project that determined the ranking of such
21 project on the list, based on the application of
22 the criteria described pursuant to subparagraph
23 (B).

24 (3) *CRITERIA.*—The criteria described pursuant
25 to paragraph (2)(B) shall include, at a minimum—

1 (A) scientific merit;

2 (B) broad societal need and probable im-
3 pact;

4 (C) consideration of the results of formal
5 prioritization efforts by the scientific commu-
6 nity;

7 (D) readiness of plans for construction and
8 operation;

9 (E) the applicant's management and ad-
10 ministrative capacity of large research facilities;

11 (F) international and interagency commit-
12 ments; and

13 (G) the order in which projects were ap-
14 proved by the Board for inclusion in a future
15 budget request.

16 (b) *FACILITIES PLAN.*—

17 (1) *IN GENERAL.*—Section 201(a)(1) of the Na-
18 tional Science Foundation Authorization Act of 1998
19 (42 U.S.C. 1862l(a)(1)) is amended to read as follows:

20 “(1) *IN GENERAL.*—The Director shall prepare,
21 and include as part of the Foundation's annual budg-
22 et request to Congress, a plan for the proposed con-
23 struction of, and repair and upgrades to, national re-
24 search facilities, including full life-cycle cost informa-
25 tion.”.

1 (2) *CONTENTS OF PLAN.*—Section 201(a)(2) of
2 *the National Science Foundation Authorization Act of*
3 *1998 (42 U.S.C. 1862l(a)(2)) is amended—*

4 (A) *in subparagraph (A), by striking “(1);”*
5 *and inserting “(1), including costs for instru-*
6 *mentation development;”;*

7 (B) *in subparagraph (B), by striking “and”*
8 *after the semicolon;*

9 (C) *in subparagraph (C), by striking “con-*
10 *struction.” and inserting “construction;”;* and

11 (D) *by adding at the end the following:*

12 “(D) *for each project funded under the*
13 *major research equipment and facilities con-*
14 *struction account—*

15 “(i) *estimates of the total project cost*
16 *(from planning to commissioning); and*

17 “(ii) *the source of funds, including*
18 *Federal funding identified by appropri-*
19 *ations category and non-Federal funding;*

20 “(E) *estimates of the full life-cycle cost of*
21 *each national research facility;*

22 “(F) *information on any plans to retire na-*
23 *tional research facilities; and*

1 “(G) estimates of funding levels for grants
2 supporting research that will make use of each
3 national research facility.”.

4 (3) *DEFINITION.*—Section 2 of the National
5 Science Foundation Authorization Act of 1998 (42
6 U.S.C. 1862k note) is amended—

7 (A) by redesignating paragraphs (3)
8 through (5) as paragraphs (4) through (6), re-
9 spectively; and

10 (B) by inserting after paragraph (2) the fol-
11 lowing:

12 “(3) *FULL LIFE-CYCLE COST.*—The term ‘full
13 life-cycle cost’ means all costs of development, pro-
14 curement, construction, operations and support, and
15 shut-down costs, without regard to funding source and
16 without regard to what entity manages the project.”.

17 (c) *PROJECT MANAGEMENT.*—No national research fa-
18 cility project funded under the major research equipment
19 and facilities construction account shall be managed by an
20 individual whose appointment to the Foundation is tem-
21 porary.

22 (d) *BOARD APPROVAL OF MAJOR RESEARCH EQUIP-*
23 *MENT AND FACILITIES PROJECTS.*—

24 (1) *IN GENERAL.*—The Board shall explicitly ap-
25 prove any project to be funded out of the major re-

1 *search equipment and facilities construction account*
2 *before any funds may be obligated from such account*
3 *for such project.*

4 (2) *REPORT.*—*Not later than September 15 of*
5 *each fiscal year, the Board shall report to the Com-*
6 *mittee on Commerce, Science, and Transportation of*
7 *the Senate, the Committee on Health, Education,*
8 *Labor, and Pensions of the Senate, and the Com-*
9 *mittee on Science of the House of Representatives on*
10 *the conditions of any delegation of authority under*
11 *section 4 of the National Science Foundation Act of*
12 *1950 (42 U.S.C. 1863) that relates to funds appro-*
13 *priated for any project in the major research equip-*
14 *ment and facilities construction account.*

15 **SEC. 11. ADMINISTRATIVE AMENDMENTS.**

16 (a) *ADOPTION OF PROCEDURES FOR MEETINGS.*—*Sec-*
17 *tion 4(e) of the National Science Foundation Act of 1950*
18 *(42 U.S.C. 1863(e)), is amended by striking the second and*
19 *third sentences and inserting “The Board shall adopt proce-*
20 *dures governing the conduct of its meetings, including a def-*
21 *inition of a quorum and delivery of notice.”.*

22 (b) *CONFIDENTIALITY OF CERTAIN INFORMATION.*—
23 *Section 14(i) of the National Science Foundation Act of*
24 *1950 (42 U.S.C. 1873(i)) is amended to read as follows:*

25 *“(i) CONFIDENTIALITY OF CERTAIN INFORMATION.—*

1 “(1) *IN GENERAL.*—

2 “(A) *NONDISCLOSURE.*—*Information sup-*
3 *plied to the Foundation or a contractor of the*
4 *Foundation in survey forms, questionnaires, or*
5 *similar instruments for purposes of section 3(a)*
6 *(5) or (6) by an individual, an industrial or*
7 *commercial organization, or an educational or*
8 *academic institution when the institution has re-*
9 *ceived a pledge of confidentiality from the Foun-*
10 *ation, shall not be disclosed to the public unless*
11 *the information has been transformed into statis-*
12 *tical or abstract formats that do not allow for*
13 *the identification of the supplier.*

14 “(B) *STATISTICAL OR RESEARCH PUR-*
15 *POSES.*—*Information that has not been trans-*
16 *formed into nonidentifiable formats as described*
17 *in subparagraph (A) may be used only for statis-*
18 *tical or research purposes.*

19 “(C) *IDENTITIES.*—*The identities of indi-*
20 *viduals and organizations supplying informa-*
21 *tion described in subparagraph (A) may not be*
22 *disclosed to the public.*

23 “(2) *OBLIGATIONS OF RESEARCHERS.*—*In sup-*
24 *port of functions authorized by section 3(a) (5) or (6),*
25 *the Foundation may designate, at its discretion, au-*

1 *thorized persons, including employees of Federal,*
2 *State or local agencies or instrumentalities (including*
3 *local educational agencies) and employees of private*
4 *organizations, to have access, for statistical or re-*
5 *search purposes only, to identifiable information col-*
6 *lected pursuant to section 3(a) (5) or (6). No such*
7 *person may—*

8 *“(A) publish information collected pursuant*
9 *to section 3(a) (5) or (6) in such a manner that*
10 *either an individual, an industrial or commer-*
11 *cial organization, or an educational, academic,*
12 *or other nonprofit institution that has received a*
13 *pledge of confidentiality from the Foundation*
14 *can be specifically identified;*

15 *“(B) permit anyone other than individuals*
16 *authorized by the Foundation to examine, in*
17 *identifiable form, data relating to an individual,*
18 *an industrial or commercial organization, or an*
19 *academic, educational, or other non-profit insti-*
20 *tution that has received a pledge of confiden-*
21 *tiality from the Foundation; or*

22 *“(C) knowingly and willfully request or ob-*
23 *tain any confidential information described in*
24 *paragraph (1) from the Foundation under false*
25 *pretenses.*

1 “(3) *PENALTY.*—Violation of this subsection is
 2 punishable by a fine of not more than \$10,000, im-
 3 prisonment for not more than 5 years, or both.”.

4 (c) *APPOINTMENT.*—Section 4(g) of the National
 5 Science Foundation Act of 1950 (42 U.S.C. 1863(g)) is
 6 amended by striking the second sentence and inserting
 7 “Such staff shall be appointed by the Chairman and as-
 8 signed at the direction of the Board.”.

9 **SEC. 12. SCIENCE AND ENGINEERING EQUAL OPPORTUNI-**
 10 **TIES ACT AMENDMENTS.**

11 Section 32 of the Science and Engineering Equal Op-
 12 portunities Act (42 U.S.C. 1885) is amended—

13 (1) in subsection (a), by striking “backgrounds.”
 14 and inserting “backgrounds, including persons with
 15 disabilities.”; and

16 (2) in subsection (b)—

17 (A) by inserting “, including persons with
 18 disabilities,” after “backgrounds”; and

19 (B) by striking “and minorities” each place
 20 the term appears and inserting “, minorities,
 21 and persons with disabilities”.

1 **SEC. 13. AMENDMENT TO THE ELEMENTARY AND SEC-**
2 **ONDARY EDUCATION ACT OF 1965.**

3 (a) *IN GENERAL.*—*Title II of the Elementary and Sec-*
4 *ondary Education Act of 1965 (20 U.S.C. 6601 et seq.) is*
5 *amended by striking part B.*

6 (b) *EFFECTIVE DATE.*—*Subsection (a) and the amend-*
7 *ment made by subsection (a) shall take effect on October*
8 *1, 2003.*

9 **SEC. 14. REPORTS.**

10 (a) *GRANT SIZE AND DURATION.*—*Not later than 6*
11 *months after the date of enactment of this Act, the Director*
12 *shall transmit to the Committee on Commerce, Science, and*
13 *Transportation of the Senate, the Committee on Health,*
14 *Education, Labor, and Pensions of the Senate, and the*
15 *Committee on Science of the House of Representatives a re-*
16 *port describing the impact that increasing the average*
17 *grant size and duration would have on minority serving*
18 *institutions and on institutions located in States where the*
19 *Foundation's Experimental Program to Stimulate Com-*
20 *petitive Research (established under section 113 of the Na-*
21 *tional Science Foundation Authorization Act of 1988 (42*
22 *U.S.C. 1862g)) is carrying out activities.*

23 (b) *OPEN MEETINGS.*—*Not later than 6 months after*
24 *the date of enactment of this Act, the Chair of the Board*
25 *shall transmit to the Committee on Commerce, Science, and*
26 *Transportation of the Senate, the Committee on Health,*

1 *Education, Labor, and Pensions of the Senate, and the*
2 *Committee on Science of the House of Representatives a re-*
3 *port describing proposed procedures under which the Board*
4 *could conduct its meetings so as to ensure greater public*
5 *access to its deliberations.*

6 **SEC. 15. EVALUATIONS.**

7 (a) *IN GENERAL.*—*Notwithstanding any other provi-*
8 *sion of this Act, the Director shall annually evaluate a ran-*
9 *dom sample of grants, contracts, or other awards made pur-*
10 *suant to this Act.*

11 (b) *DISSEMINATION.*—*The Director shall—*

12 (1) *provide for the dissemination of the results of*
13 *the evaluations conducted pursuant to subsection (a)*
14 *to the public; and*

15 (2) *provide notice to the public that such evalua-*
16 *tions are available.*

17 **SEC. 16. REPORT BY COMMITTEE ON EQUAL OPPORTUNI-**
18 **TIES IN SCIENCE AND ENGINEERING.**

19 ***As part of the first report required by sec-***
20 ***tion 36(e) of the Science and Engineering***
21 ***Equal Opportunities Act (42 U.S.C. 1885c(e))***
22 ***transmitted to Congress after the date of en-***
23 ***actment of this Act, the Committee on Equal***
24 ***Opportunities in Science and Engineering***
25 ***shall include the following—***

1 ***(1) a summary its findings over the***
2 ***previous 10 years;***

3 ***(2) a description of past and present***
4 ***policies and activities of the Foundation***
5 ***to encourage full participation of women,***
6 ***underrepresented minorities, and persons***
7 ***with disabilities in science, mathematics,***
8 ***and engineering fields, including activi-***
9 ***ties in support of minority serving institu-***
10 ***tions; and***

11 ***(3) an assessment of trends of partici-***
12 ***pation and of the success of National***
13 ***Science Foundation policies and activi-***
14 ***ties, along with proposals for new strate-***
15 ***gies or the broadening of existing success-***
16 ***ful strategies toward facilitating the***
17 ***goals of that Act.***

Calendar No. 734

107TH CONGRESS
2^D SESSION

S. 2817

[Report No. 107-291]
[Report No. 107-317]

A BILL

To authorize appropriations for fiscal years 2003, 2004, 2005, 2006, and 2007 for the National Science Foundation, and for other purposes.

OCTOBER 16, 2002

Reported with an amendment