

Chapter 9

Federal Research and Development in the District of Columbia

- Approximately \$2.7 billion of federal R&D funds are spent each year in the District of Columbia.
- The District of Columbia ranks 10th among the 50 states, District of Columbia, and Puerto Rico in terms of the amount of federal R&D dollars received annually.
- Approximately 13 percent of all federal funds spent in the District of Columbia each year on matters other than the direct support of individuals (i.e., such entitlements as retirement, disability, and housing assistance) is spent on R&D.

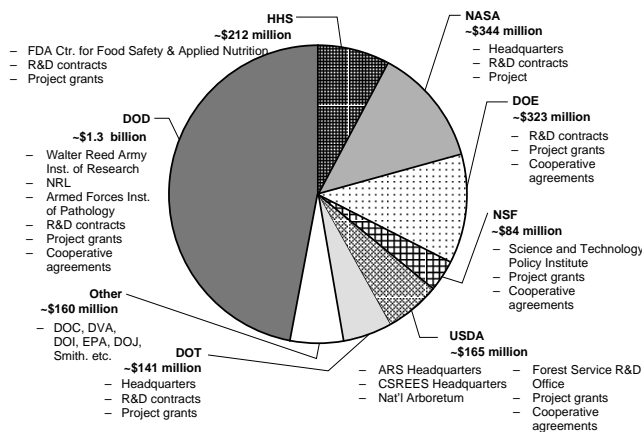


Figure 9.1 – Sources of Federal R&D Dollars Spent in the District of Columbia (Total Federal R&D ~\$2.7 billion)

BACKGROUND

In recent years, the federal government has spent in the neighborhood of \$2.7 billion annually in the District of Columbia on research and development (R&D) activities. On average, federal R&D dollars account for approximately 13 percent of all federal funds spent in the District of Columbia each year on matters other than the direct support of individuals (i.e., such entitlements as retirement, disability, and housing assistance).

Most major federal agencies that currently support federal R&D efforts provide funding for R&D activities in the District of Columbia. Foremost among these agencies is the Department of Defense, which accounts for 47 percent of all federal R&D dollars received each year by the District of Columbia. The National Aeronautics and Space Administration (NASA) and the Department of Energy (DOE) account for an additional 13 and 12 percent of the federal R&D dollars spent each year in the District of Columbia, respectively. The Departments of Health and Human Services (HHS), Agriculture (USDA), and Transportation (DOT) account for an additional 8, 6, and 5 percent of all federal R&D dollars spent each year in the District of Columbia, respectively. The remaining federal R&D dollars come collectively from the National Science Foundation (NSF), the Environmental Protection Agency (EPA), and several other agencies.⁹

All federal R&D dollars spent in the District of Columbia cover the costs of operating federal R&D units in the district, including paying the salaries of federal R&D personnel working at these units, or are awarded as grants, contracts, or cooperative agreements to entities in the district. The following is an overview of what becomes of these federal R&D dollars once they arrive in the District of Columbia. In reviewing the information presented below, please keep in mind that the administrative headquarters for most federal R&D programs are in the District of Columbia. With few, if any, exceptions, the dollars spent on staffing and operating these administrative units are categorized by federal agencies as federal R&D dollars. The amount of federal R&D dollars reported in this overview as being spent by various federal agen-

⁹ For a complete agency-by-agency breakdown of these R&D dollars, see Appendix C.

cies in the District of Columbia reflects these administrative expenses. Because these administrative activities consume dollars but do not directly reflect R&D experiments or generate new knowledge, they are not showcased herein. Further, because the District of Columbia does not contain cities by which to note the more specific location of federal R&D units, the discussion in the following section is divided by federal agency.

FEDERAL R&D UNITS IN THE DISTRICT OF COLUMBIA

The District of Columbia is home to DOD's Walter Reed Army Institute of Research, Naval Research Laboratory, and Armed Forces Institute of Pathology.

- The Walter Reed Army Institute of Research is a unit of DOD. It conducts biomedical research focused on soldier health and readiness. Current research activities focus on developing drugs and vaccines to protect against infectious diseases, preventing operational stress in compact environments, and developing medical strategies to protect soldiers from chemical and biological warfare threats. This federal unit annually receives about \$64 million of federal R&D funds, almost all of which is spent on in-house activities, and has a total workforce of about 800 people, half of whom are civilians.
- The Naval Research Laboratory (NRL) is a unit of DOD. It is the Navy's corporate laboratory and the principal in-house component of the Office of Naval Research. NRL conducts a range of R&D directed toward maritime applications of new and improved materials, techniques, equipment, and systems and oceanic, atmospheric, and space sciences and related technologies. Much of the laboratory's research has focused on space, including the launch of atmospheric probes using captured V-2 rockets, the development of the nation's first satellite program, and work on the Global Positioning System. The R&D divisions of the laboratory include radar; information technology, including an Information Security Engineering Lab-

oratory and a Virtual Reality Laboratory; optical sciences; electronic warfare; the Laboratory for the Structure of Matter; chemistry; materials science and technology; the Laboratory for Computational Physics and Fluid Dynamics; the condensed matter and radiation sciences; plasma physics; electronics science and technology, which includes the Nanoelectronics Processing Facility, the Penthouse Processing Facility, and the Laboratory for Advanced Material Synthesis; the Biomolecular Science and Engineering Center; acoustics, which includes the Tactical Oceanography Simulation Laboratory; remote sensing; oceanography; marine geosciences; marine meteorology; space science; and the Naval Space Technology Center. This federal facility annually receives about \$605 million of federal R&D dollars, approximately \$304 million of which is spent on in-house activities, and has a total workforce of about 3,000 civilian personnel. In addition to its campus in the District of Columbia, the laboratory maintains research sites at the Stennis Space Center in Mississippi; Monterey, California, home to the Fleet Numerical Marine Meteorology and Oceanography Center; Lexington Park, Maryland, home to the Flight Support Detachment; Chesapeake Beach, Maryland, home to the Chesapeake Bay Detachment; Key West, Florida, home to the Marine Corrosion Test Facility; Quantico, Virginia, home to the Midway Research Center; and Mobile Bay, Alabama, home to the *USS Shadwell*, a decommissioned naval vessel.

- The Armed Forces Institute of Pathology is a unit of DOD. It conducts R&D on the etiology and pathogenesis of disease. In some cases, this research is conducted in departments that deal with pathology related to a single organ system, such as the skin, genitourinary, and female reproductive systems. In other cases, this research is conducted in departments encompassing such disciplines as infectious and parasitic diseases, veterinary pathology, and medical and molecular genetics. Through the American Registry of Pathology, a nonprofit organization created by Congress in 1976, civilian pathologists can consult the pathol-

ogists on staff at the institute. This federal unit annually receives approximately \$54 million in federal R&D funds and has about 275 civilian personnel. A portion of these funds is spent on the maintenance and operation of R&D equipment and facilities.

The District of Columbia is home to the headquarters of the National Aeronautics and Space Administration (NASA).

- The headquarters of NASA is responsible for managing the space flight centers, research centers, and other installations that constitute NASA. Through the coordination of three divisions—Agency Management, Functional Offices, and Enterprise Management, NASA headquarters integrates the many parts of the agency. The Agency Management division focuses on accountability and communications and functions as a liaison between NASA and its many customers; the Functional Offices serve in an advisory capacity to the NASA Administrator and work in partnership with the enterprise administrators and center directors to ensure that agency activities are being conducted in accordance with all statutory and regulatory requirements, including fiduciary responsibilities; and the Enterprise Management division is responsible for establishing overall customer requirements and ensuring customer satisfaction. This federal unit annually receives a total of approximately \$363 million, at least \$162 million of which directly involves R&D activities, and has about 974 FTEs, only a portion of whom are directly involved in R&D activities. The vast majority of NASA's R&D funds are distributed to its centers located elsewhere in the nation, much of which is then dispersed throughout the nation as grants and/or contracts.

The District of Columbia is home to the Department of Commerce's (DOC) National Systematics Laboratory.

- The National Systematics Laboratory is a unit of the Northeast Fisheries Science Center inside DOC's National Oceanic and Atmospheric Administration (NOAA). The laboratory maintains and revises existing names and descriptions of fish, squids, crus-

taceans, and corals of economic or ecological importance to the United States. It also names and describes new species of these organisms. Because some important species of fish, squids, and crustaceans are highly mobile and other exotic species are introduced into U.S. waters or markets, the laboratory's research is worldwide. This federal unit annually receives approximately \$53,000 of federal R&D dollars and has about six FTEs, only a portion of whom are involved in R&D activities.

The District of Columbia is home to HHS's Center for Food Safety and Applied Nutrition.

- The Center for Food Safety and Applied Nutrition is a unit of HHS's Food and Drug Administration. The center promotes and protects the public health and economic interest by ensuring that food is safe, nutritious, and wholesome; cosmetics are safe; and food and cosmetics are honestly, accurately, and informatively labeled. It conducts research in such areas as genetically engineered foods, packing materials, food adulteration, and food additives. The center also houses the hazard analysis critical control point food safety system that focuses on preventing problems rather than reacting to them after they have occurred. This federal unit annually receives approximately \$12.4 million of federal R&D funds and has about 181 FTEs directly involved in R&D activities.

The District of Columbia is home to USDA's Forest Service Research and Development Office; the headquarters of the Agricultural Research Service; Cooperative Research, Extension, and Education Service Headquarters; and the U.S. National Arboretum.

- The Forest Service Research and Development Office is responsible for coordinating national research programs and providing expert scientific advice to the Forest Service's R&D units through review and analysis of experiment station programs. In addition to performing administrative duties, the office covers R&D projects with national scope that require special emphasis

and R&D activities that may get supplemental funding for only one fiscal year. Such projects include the Urban Treehouse Program aimed at inner-city and metropolitan areas; the International Arid Lands Consortium designed to reclaim semiarid lands in the United States, Israel, and elsewhere in the world; and the Patents Program to protect the federal government's interest in new technologies. This federal unit annually receives approximately \$16.4 million of federal R&D funds and has about 54 employees.

- The Agricultural Research Service (ARS) Headquarters unit is responsible for planning, implementing, coordinating, and assessing the national programs of ARS. National staff is in charge of identifying high-priority research issues and bringing all the relevant parties together to develop the best method of addressing a research priority. These activities are separated according to whether they involve animal production, natural resources, or crop production. The planning and coordination responsibilities within each of these areas are further divided to better focus on the complementary research capabilities and needs within a particular field, such as food safety, animal health, air quality, manure and byproduct utilization, crop production, and plant diseases. This federal R&D unit annually receives approximately \$44.5 million in federal R&D dollars to cover headquarters activities and has about 463 employees. The vast majority of the service's R&D funds are dispersed to the hundreds of agricultural research centers throughout the nation.
- The Cooperative State Research, Extension, and Education Service (CSREES) Headquarters is responsible for the management and oversight of the extramural scientific research and education programs of the USDA. Specifically, the headquarters unit coordinates USDA's partnerships with the land-grant university system, other colleges and universities, and other public and private research and education organizations in the initiation and development of agricultural research, extension, and

higher education programs that are carried out by land-grant universities and other partners. It works with land-grant institutions in each state, territory, and the District of Columbia; more than 130 colleges of agriculture; 59 agricultural experimental stations; 57 cooperative extension services; and 63 forestry schools. Additionally, the headquarters unit is responsible for strategic planning to improve agricultural productivity, create new products, protect animal and human health, and revitalize rural American communities. This federal unit annually receives approximately \$14 million in federal R&D dollars to cover the cost of headquarter activities and has about 190 FTEs, most of whom are directly involved in R&D activities. The vast majority of the service's federal R&D funds are dispersed throughout the nation as grants and/or contracts.

- The U.S. National Arboretum, a unit of USDA's ARS, is composed of three research divisions—the Floral and Nursery Plants Research Unit, the Education and Visitors Services Unit, and the Gardens Unit. The Arboretum conducts research to conserve and display trees, shrubs, flowers, and other plants to enhance the environment. Specific research activities at the Arboretum include plant breeding and taxonomy, with an emphasis on tree and shrub breeding and taxonomy. Research in this area has resulted in the introduction of pest- and disease-resistant *Ulmus* and *Acer* as well as new forms of the magnolia. This federal R&D unit annually receives approximately \$7.1 million of federal R&D funds and has about 96 FTEs.

The District of Columbia is home to parts of the EPA's National Center for Environmental Assessment and its National Center for Environmental Research and Quality Assurance.

- The National Center for Environmental Assessment is a unit of the EPA. While it is headquartered in the District of Columbia, the center maintains offices in Cincinnati, Ohio, and Research Triangle Park, North Carolina. This office, which focuses on characterizing the risk resulting from exposure to various haz-

ards, conducts research on human and ecological risk assessment paradigms. Recent R&D activities include biologically based modeling using pharmacokinetic and mechanistic information. This federal R&D office annually receives approximately \$16.2 million of federal R&D funds, only a fraction of which is spent in the District of Columbia. The vast majority of these R&D dollars are dispersed throughout the nation as grants.

- The National Center for Environmental Research and Quality Assurance is a unit of the EPA. It manages the EPA's research grant and fellowship programs. These programs are designed to expand the EPA's science and technology base and the pool of qualified environmental professionals. The center also serves as EPA's focal point for issues on quality assurance and peer review. This federal R&D unit has about 78 FTEs and annually receives approximately \$147.8 million of federal R&D funds, the vast majority of which is transferred to external parties to support the conduct of extramural R&D projects and experiments.

The District of Columbia is home to NSF's Science and Technology Policy Institute.

- The Science and Technology Policy Institute, formerly the Critical Technologies Institute, is a federally funded research and development center (FFRDC) sponsored by NSF and operated by RAND. It is headquartered in Washington, D.C., but conducts approximately 20 percent of its activities in California. The institute conducts studies and policy analyses for the White House Office of Science and Technology Policy, the cabinet-level National Science and Technology Council, NSF, and other government agencies concerned with policies affecting science and technology. Specific research projects have focused on determining the impact of technology innovation on society, estimating the costs of reducing greenhouse gas emissions, and analyzing the effectiveness of alternative public-private partnerships with the commercial remote sensing industry. This

federally owned and contractor-operated R&D unit annually receives approximately \$2.5 million of federal funds and employs about 15 people. While the funds received by this unit are credited to California where the headquarters of RAND is located, it has no impact on the geographic allocation of federal R&D dollars, because none of the activities of the institute is considered by NSF to be R&D. As a result, none of the institute's funds are included in the official federal R&D budget. Because the institute is a congressionally chartered federally funded *research and development* center, however, it has been included in this report.

The District of Columbia is home to the headquarters of DOT.

- The headquarters of DOT is responsible for managing and coordinating the eleven individual operating administrations that constitute DOT. These include the Bureau of Transportation Statistics, U.S. Coast Guard, the Federal Aviation Administration, the Federal Highway Administration, the Federal Railroad Administration, the Federal Transit Administration, the Maritime Administration, National Highway Traffic Safety Administration, the Research and Special Programs Administration, the Saint Lawrence Seaway Development Corporation, the Surface Transportation Board, and the Transportation Administrative Services Center. Other responsibilities include negotiating and overseeing the implementation of international transportation agreements, ensuring the fitness of U.S. airlines, enforcing airline consumer protection regulations, issuing regulations to prevent alcohol and illegal drug misuse in transportation systems, and preparing transportation legislation. This federal unit annually receives approximately \$3.5 million federal R&D dollars to cover the costs of headquarters activities and has about 20 FTEs. The vast majority of its R&D funds are distributed to DOT units around the country or are dispersed throughout the nation as grants and/or contracts.

The District of Columbia is home to the Department of Interior's (DOI) Patuxent Biological Survey Project.

- The Biological Survey Project is a unit of the Patuxent Wildlife Research Center inside DOI's USGS. The unit is located in the National Museum of Natural History. It conducts research on a wide range of scientific activities that seek to understand and address national and regional natural resource problems. It conducts inventories, identifies resource issues, and tests hypotheses through research, designing and evaluating monitoring programs. It also provides objective results to managers and citizens. Specific research activities of this unit include studies on the control and containment of the brown tree snake, the geographic variation in white-fronted geese, and a synthesis of the biology of North American amphibian larvae. This federal R&D unit annually receives approximately \$959,000 of federal R&D funds and has about 15 FTEs.

The District of Columbia is home to a Department of Veterans Affairs (DVA) R&D unit.

- While the principal focus of the Washington, D.C., VA Medical Center is providing medical care to veterans, it is also the location of a number of research activities. In a recent year, this federally owned and operated facility was the site of 359 projects with total funding of approximately \$2 million. These R&D activities focus on a wide range of topics, including HIV/AIDS, congestive heart failure, neoplasms, and hepatitis.

The District of Columbia is home to the Department of Justice's (DOJ's) Federal Bureau of Investigation Laboratory and National Institute of Justice.

- The Federal Bureau of Investigation Laboratory is a unit of DOJ. It conducts R&D on new tools for forensic and investigative support. It is also responsible for providing forensic services to forensic medicine and law enforcement professionals. In addition to conducting R&D, the laboratory is responsible for

providing timely, high-quality examinations of physical evidence, analytical reports, expert testimony in court, operational and technical support for investigations, and training and symposia for crime laboratory practitioners and law enforcement personnel. This federal unit annually receives approximately \$5 million of federal R&D funds and employs about 1,100 people, only a fraction of whom are directly involved in R&D activities.

- The National Institute of Justice is a unit of DOJ. It is headquartered in the District of Columbia and oversees programs that support R&D on new technologies to fight crime and improve criminal justice, carries out research on criminal behavior, evaluates the effectiveness of criminal justice programs, identifies promising new programs, and develops new methods to prevent crime and reduce delinquency. This federal unit annually receives approximately \$6 million of federal R&D funds to cover headquarters activity and has about 70 FTEs. The vast majority of its R&D funds are dispersed throughout the nation as grants and contracts.

The District of Columbia is home to the R&D units of most Smithsonian Institution museums and centers.

- The National Museum of Natural History conducts research on topics of current societal importance, such as terrestrial and marine biological diversity, global climate change, genetic research, and ecosystem modeling. The museum annually receives approximately \$17.5 million of federal R&D funds and employs about 582 people, only a portion of whom are involved in R&D activities.
- The National Air and Space Museum conducts research on the evolution of air and space technology. With the largest collection of aviation and space artifacts in the world, the National Air and Space Museum collects and preserves objects that tell the entire history of aviation and space flight. The museum annually receives approximately \$3 million of federal R&D funds and has a workforce of about 214 employees, only a portion of whom are involved in R&D activities.

- The National Museum of American History conducts research on the cultural, scientific, and technological growth of the United States. The museum annually receives approximately \$5 million of federal R&D funds and employs about 304 people, only a portion of whom are involved in R&D activities.
- The National Museum of American Art conducts research on American paintings, sculptures, graphics, folk art, and photographs. The museum annually receives approximately \$2 million of federal R&D funds and employs about 123 people, only a portion of whom are involved in R&D activities.
- The National Portrait Gallery conducts research on U.S. history as revealed through paintings, sculptures, prints, drawings, and photographs of the men and women who made significant contributions to its development. The museum annually receives approximately \$1.3 million of federal R&D funds and employs about 85 people, only a portion of whom are involved in R&D activities.
- The National Postal Museum conducts research on postal history and the preservation of philatelic items. The museum annually receives approximately \$120,000 of federal R&D funds and employs about nine people, only a few of whom are directly involved in R&D activities.
- The Hirshhorn Museum and Sculpture Garden conducts research on modern art. The museum annually receives approximately \$500,000 of federal R&D funds and employs about 71 people, only a fraction of whom are involved in R&D activities.
- The Arthur M. Sackler Gallery and the Freer Gallery of Art conduct research on the art of Asia. The galleries annually receive approximately \$1.3 million of federal R&D funds and employ about 77 people, only a portion of whom are involved in R&D activities.
- The National Museum of African Art conducts research on the traditional and contemporary arts of Africa, especially those

from south of the Sahara. The museum annually receives approximately \$600,000 of federal R&D funds and employs about 54 people, only a portion of whom are involved in R&D activities.

- The Anacostia Museum and Center for African American History and Culture conducts research on the African-American experience, as well as contemporary urban issues (e.g., housing, transportation, and health care) and their impact on the African-American community. The museum annually receives approximately \$400,000 of federal R&D funds and employs about 25 people, only a portion of whom are involved in R&D activities.
- The Archives of American Art conducts research on the visual arts in America using primary source documentation. The archive annually receives approximately \$830,000 of federal R&D funds and employs about 24 people, about half of whom are involved in R&D activities. In addition to its research center in the District of Columbia, the archive has research centers in New York and California, only one of which (in California) actually conducts research on-site.
- The Center for Folklife Programs and Cultural Studies conducts research on the expressive cultures of ethnic, regional, tribal, and occupational groups and the contexts in which they occur. The center annually receives approximately \$200,000 of federal R&D funds and employs about 14 people, a few of whom are involved directly in R&D activities.
- The Smithsonian Institution Archives conducts research on the history of the Smithsonian Institution. The archive annually receives approximately \$1 million of federal R&D funds and employs about 24 people, the majority of whom are involved in R&D activities.
- The Smithsonian Institution Libraries conduct research focused on the Smithsonian's collection of 1.2 million books, most especially its 40,000 rare volumes. The libraries annually receive

approximately \$5.5 million of federal R&D funds and employ about 107 people, the vast majority of whom are involved in R&D activities.

FEDERAL R&D GRANTS TO DISTRICT OF COLUMBIA ENTITIES

Every major institution of higher education in the District of Columbia is the recipient of significant federal R&D dollars each year through grants made by federal agencies to faculty, graduate students, and research centers. The vast majority of the R&D grants are made by HHS, DOD, and NSF to individual faculty members and therefore ultimately inure to the benefit of such institutions as Georgetown University, George Washington University (GWU), Howard University, Catholic University of America (CUA), the University of the District of Columbia (UDC), and American University. The table below shows the number of R&D grants active in FY 1998, highlighting those made by HHS, DOD, and NSF to parties at the various institutions and estimates of the total dollars transferred to them in FY 1998 pursuant to the terms of these grants. Nearly all of the grants in the “Other Agencies” category going to Georgetown University are from

Table 9.1 – Sources of Federal R&D Grants to Higher Education in the District of Columbia

Institution	HHS		DOD		NSF		Other Agencies		Total	
	Amount	#	Amount	#	Amount	#	Amount	#	Amount	#
Georgetown	\$43M	234	\$10M	13	\$1M	23	\$4M	8	\$60M	280
GWU	\$21M	53	\$2M	12	\$1M	26	\$2M	24	\$26M	115
Howard	\$11M	31	\$3M	19	\$1M	17	\$2M	34	\$16M	101
CUA	\$1M	10	\$1M	7	\$1M	21	\$2M	36	\$5M	74
UDC	\$1M	5	<\$1M	2	<\$1M	2	\$1M	11	\$3M	20
American	<\$1M	3	<\$1M	1	\$1M	10	<\$1M	10	\$1M	24
Other	<\$1M	4	0	0	<\$1M	3	\$1M	15	\$2M	22
Total	\$79M	340	\$16M	56	\$5M	102	\$13M	138	\$112M	636

the Department of Transportation (\$4 million). DOE provides close to \$1 million of the comparable grants going to both GWU and Howard University. The grants going to CUA in this category include \$1 million each from NASA and the Department of Education. UDC similarly receives about \$1 million each from NASA and USDA.

These activities are particularly significant because they fund much of the “basic research” so critical to expanding our knowledge and understanding of fundamental scientific phenomena. In addition, these funds often account for a substantial portion of the dollars available each year to various academic departments within these institutions.

Several other nonacademic institutions in the District of Columbia also received a significant amount of federal R&D grants each year. Foremost among these institutions that received R&D grants in FY 1998 are the National Academy of Sciences (\$30 million), the Carnegie Institution (\$7 million), and the Medlantic Research Foundation (\$5 million).

Scattered among these grants, as well as among the contracts discussed in the section below, are small business innovative research (SBIR) awards. These are special awards made by the SBIR programs supported by the 10 federal agencies with annual budgets for extramural R&D of more than \$100 million. In a recent year, small businesses in the District of Columbia received nine SBIR awards totaling \$1 million. Examples include a \$250,000 award from the Department of Education to A.U. Software, Inc., in Washington for work on promoting student self-determination and a \$100,000 award from HHS to Healthmark Associates in Washington to develop an interactive prostate cancer decision support system.

Also included among these grants are formula grants from federal agencies. Formula grants differ from the much more common project grants in that the money transmitted through formula grants is allocated to a state or one of its subdivisions in accordance with a distribution formula prescribed by law or regulation. Among the formula grants benefiting the District of Columbia are ones valued at more than \$530,000 from USDA's CSREES for the support of research in agriculture.

OTHER FEDERAL R&D ACTIVITIES IN THE DISTRICT OF COLUMBIA

Several entities in the District of Columbia also receive notable sums in the form of contracts or cooperative agreements from federal agencies for specific R&D efforts. By far the majority of these funds go from NSF to the Joint Oceanographic Institutions, which in FY 1998 received close to \$49 million from a continuing R&D contract to manage and operate the Ocean Drilling Program. In addition, the National Academy of Sciences (\$23 million), the American Registry of Pathology (\$11 million), Advanced Power Technologies (\$10 million), the American Institutes for Research (\$10 million), and Lockheed Martin (\$9 million) received very large R&D contracts from federal agencies in FY 1998. Note that these amounts are in addition to the federal R&D grants also received by the National Academy of Sciences. Georgetown University (\$10 million), GWU (\$9 million), and Howard University (\$3 million) also received contracts in FY 1998 from various federal agencies to conduct R&D for the federal government. Although these amounts are notable, they do not come close to eclipsing the funds that these institutions receive from federal R&D grants.

A total of \$20 million of federal R&D dollars was also received in FY 1998 by entities in the District of Columbia in the form of cooperative agreements. One of the largest of these cooperative agreements (\$3 million in FY 1998) came from DOE to the National Academy of Sciences for reviews and studies in the field of radioactive waste management. Other federal agencies awarding cooperative agreements to the District of Columbia-based entities include NSF, DOJ, and DOD.

