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FEDERAL RESEARCH

Information on International Science and Technology Agreements



**Resources, Community, and
Economic Development Division**

B-279841

April 22, 1999

The Honorable F. James Sensenbrenner, Jr.
Chairman
The Honorable George E. Brown, Jr.
Ranking Minority Member
Committee on Science
House of Representatives

International collaboration in science and technology through joint research and development projects and activities offers opportunities for the United States and foreign governments to leverage research dollars and increase productivity. The experience and information gained from these projects and activities can lead to discoveries and inventions that are important to the economic growth and development of both the United States and foreign countries.

This report responds to your request that we provide information on the U.S. government's international science and technology (S&T) agreements that support and encourage international cooperation in research and development. Specifically, as agreed with your offices, this report identifies (1) the number of international S&T agreements active during fiscal year 1997 and (2) the number of these agreements that resulted in research projects or other activities.¹ As requested, we reviewed international S&T agreements involving the Department of State (State); the Department of Energy (DOE); the National Science Foundation (NSF); the National Aeronautics and Space Administration (NASA); the National Institutes of Health (NIH); the National Institute of Standards and Technology (NIST); and the National Oceanic and Atmospheric Administration (NOAA).

Results in Brief

During fiscal year 1997, the seven agencies we reviewed participated in 575 international science and technology agreements with 57 countries, 8 international organizations, and 10 groups of organizations and/or countries. Fifty-four of the agreements were between the U.S. government and the government of another country. The remaining 521 agreements were signed by representatives of a U.S. agency and representatives of an agency of a foreign government(s) or international organization.

¹Fiscal year 1997 is the most current year for which S&T agreement data were available at the start of our review. We define active agreements as agreements that have not been terminated by the participating governments or organizations.

More than 90 percent of the international science and technology agreements resulted in research projects or other research-related activities such as consultations among scientists and exchanges of data and personnel. The percentage of agency agreements that resulted in projects and other activities ranged, by agency, from 61 percent at the National Institutes of Health to 98 percent at the National Aeronautics and Space Administration. Agencies' officials told us that changes in either country's science priorities or inability to fund projects after negotiating an agreement are frequently the reasons some agreements do not result in research projects.

Background

The Department of State has overall responsibility for ensuring that all proposed international agreements are fully consistent with U.S. foreign policy objectives. The Department negotiates and administers government-level s&t agreements, often referred to as “umbrella” or “framework” agreements, between the U.S. government and governments of foreign countries. The Department also delegates authority to other U.S. agencies for them to negotiate and administer government-level agreements with foreign governments in mission-specific areas, such as energy and space. Government-level agreements generally provide the protocol that multiple agencies can use to share scientific data and equipment, to exchange researchers and conduct collaborative projects, and to protect intellectual property rights.

In addition, research agencies negotiate and administer agency-level agreements with their counterpart agencies in foreign governments and with international organizations to conduct international cooperative research, provide technical support, or share data and/or equipment. Agencies have the flexibility to determine the number of agreements in which they participate and to choose whether these agency-level agreements will be related to or not related to a government-level agreement.

The Department of State; the Offices of Science and Technology Policy and the United States Trade Representative, within the Executive Office of the President; the Department of Commerce; and other relevant agencies review many of the proposed agreements that are legally binding, as described in the Department of State's Circular 175.² The review—known as the Circular 175 process—is designed to ensure interagency

²Circular 175 outlines the government's procedures for coordinating reviews of proposed international S&T agreements.

coordination; consistent treatment of issues such as access to foreign facilities, information, and expertise; and appropriate consideration of the foreign policy implications of specific agreements.

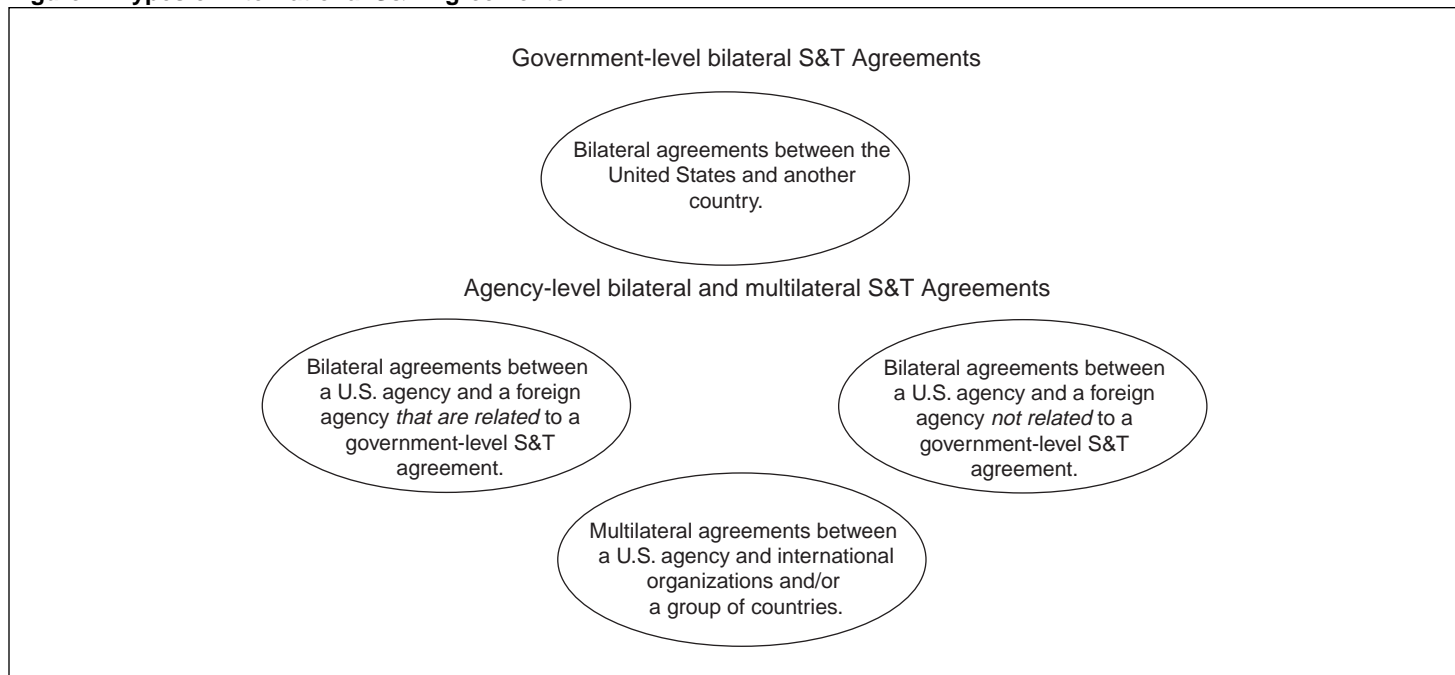
While these agreements can be an indicator of national interest to cooperate in research and development, they are generally diplomatic agreements that have no associated budget authority.³ The U.S. government maintains these agreements to support and encourage international cooperation in science and technology. However, the government does not have a system for linking international S&T agreements with actual spending on cooperative research and development. According to a study by the Rand Corporation, the U.S. government spent more than \$3 billion in fiscal year 1995 on research and development projects involving international cooperation that may or may not have been associated with specific international S&T agreements.⁴ In addition, the study states that government agencies spent as much as \$1.5 billion in other activities that were not research and development but that constituted scientific or technical activities that involved significant international cooperation.

In this report, we categorize the international S&T agreements into four types: (1) government-level bilateral agreements between the U.S. government and the government of another country, (2) agency-level bilateral agreements between a U.S. agency and a research agency of a foreign country that are related to a government-level agreement and provide additional details that define how each agency will cooperate, (3) agency-level bilateral agreements between a U.S. agency and a research agency of a foreign country that are not related to a government-level agreement, and (4) agency-level multilateral agreements between a U.S. agency and research agencies of international organization and/or of two or more foreign countries. Figure 1 illustrates the types of S&T agreements.

³Between 1987 and 1995, the United States signed seven international S&T agreements that created joint funds matched by each participating country to encourage collaboration on international projects. In fiscal year 1996, the United States stopped contributing to these funds and no longer provides funding for international S&T agreements.

⁴International Cooperation in Research and Development: An Inventory of U.S. Government Spending and a Framework for Measuring Benefits, Critical Technologies Institute, RAND (1997).

Figure 1: Types of International S&T Agreements



Number of International S&T Agreements

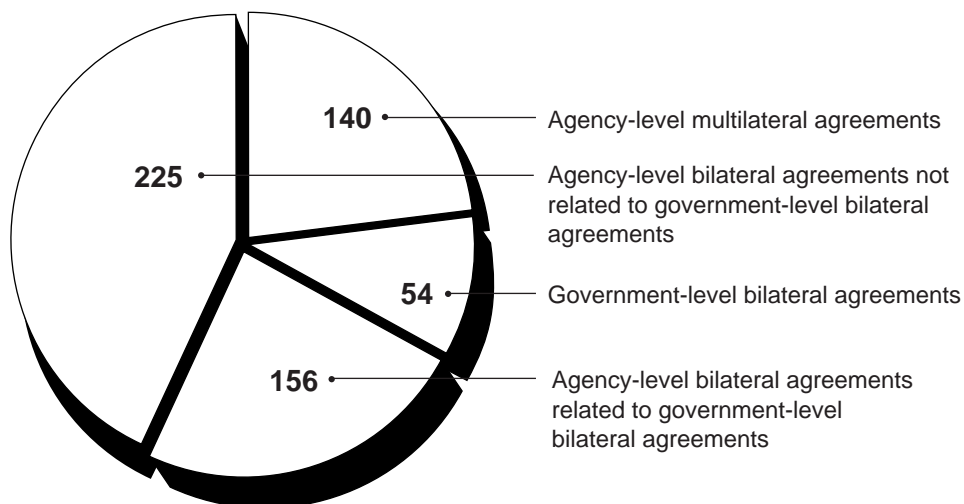
During fiscal year 1997, the seven agencies we reviewed participated in 575 international S&T agreements. The number of agreements varied by agency, with the Department of Energy participating in 257 (or 45 percent) of the 575 agreements. Fifty-seven countries participated in bilateral agreements, while 8 international organizations and 10 groups of organizations and/or countries participated in multilateral agreements.

Types of International S&T Agreements

Two-thirds of the agreements were agency-level bilateral agreements. Most of these were not related to government-level bilateral agreements. To be related to one of the government-level agreements, an agency-level agreement must specifically state that it is related to a government-level agreement.⁵ As figure 2 shows, 225 of the 575 agreements were agency-level bilateral agreements that did not refer to a government-level agreement, while 156 agency-level bilateral agreements did reference a government-level agreement. The 140 multilateral agreements did not have corresponding government-level multilateral agreements. App. I provides additional details on the number of agreements by type.

⁵Under our approach for categorizing agreements, government-level agreements included agreements that cover broad S&T coordination issues and research in specific mission-related areas.

Figure 2: Number of International S&T Agreements, by Type, Active During Fiscal Year 1997



Note: There are 575 agreements.

Source: GAO's analysis of agencies' data.

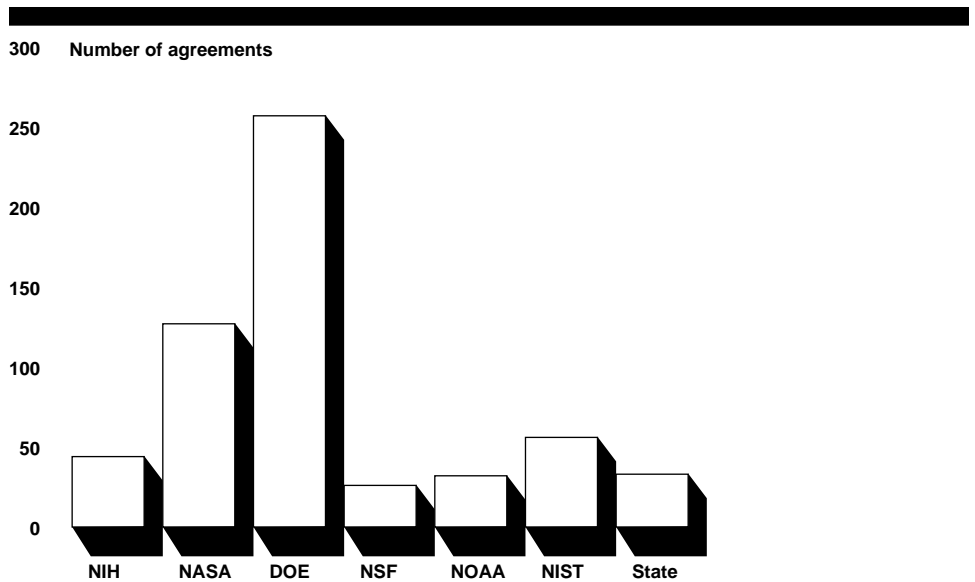
Agency officials had different viewpoints on the relative advantages and disadvantages of developing agency-level bilateral agreements that relate to government-level agreements. At the National Institute of Standards and Technology, over 80 percent of the agency-level bilateral s&t agreements refer to existing government-level agreements. Program officials at the National Institute of Standards and Technology said that they believe that it is easier to negotiate an agency-level agreement that is related to a government-level agreement because intellectual property rights issues have already been resolved in the government-level agreement. Department of State officials agreed. Office of Science and Technology Policy officials added that having agency-level agreements related to government-level agreements provides it and the Department of State some degree of oversight to ensure that agency programs are consistent with nonproliferation, trade, and other national security interests. At the Department of Energy, on the other hand, 40 percent of the Department's agency-level bilateral agreements are not related to a government-level s&t agreement. According to Department of Energy officials, having agency-level agreements that are related to government-level agreements

under certain conditions can impose an administrative burden. Government-level agreements with some countries may require numerous meetings and reports to monitor the status of projects and actions. According to these officials, agency-level agreements related to such government agreements would also require similar meetings and reports. These meetings and reports can increase the cost and decrease the time available for actual research or project implementation.

Agencies' Participation

The distribution of the 575 agreements varied widely among the seven agencies we reviewed. As figure 3 shows, the number of agreements varied from 26 for the National Science Foundation to 257 for the Department of Energy.

Figure 3: Number of International S&T Agreements, by Agency, Active During Fiscal Year 1997



Note: There are 575 agreements.

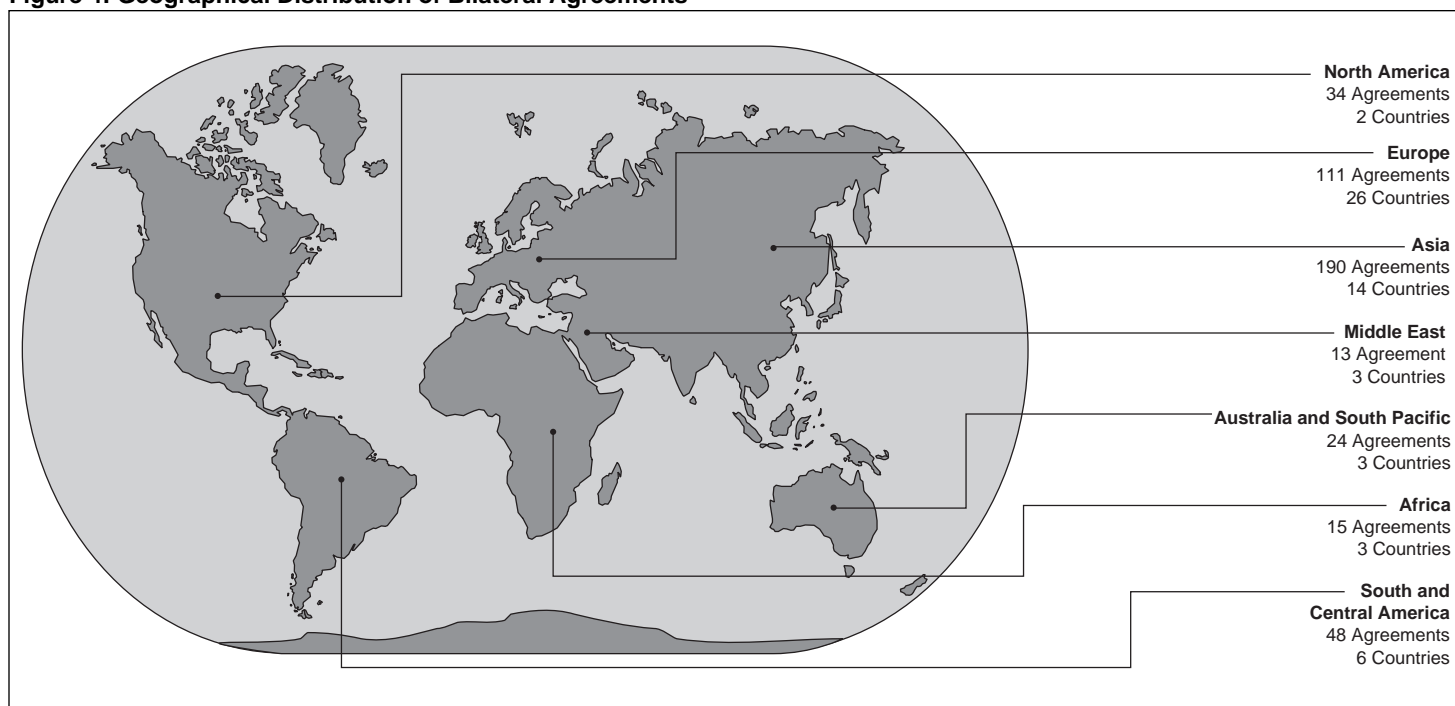
Source: GAO's analysis of agencies' data.

Participation by Foreign Countries and Organizations

The seven agencies that we reviewed have bilateral agreements with 57 countries from almost every region of the world and multilateral agreements with 8 international organizations and 10 groups of organizations and/or countries. Figure 4 summarizes the distribution of

bilateral agreements among major regions of the world. For example, in North America, the United States has a total of 34 bilateral agreements with two countries—Canada and Mexico. App. II provides specific data on the number of bilateral agreements by agency and by country.

Figure 4: Geographical Distribution of Bilateral Agreements



Note: Total number of bilateral agreements equals 435.

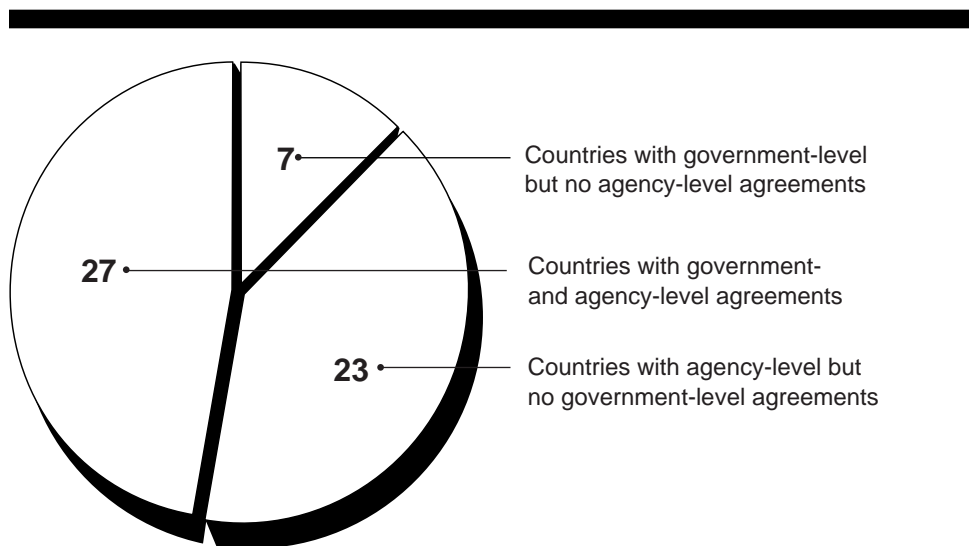
Source: GAO's analysis of agencies' data.

As figure 4 shows, 301 (69 percent) of the bilateral agreements are with Asian and European countries; Middle Eastern countries have the least number of agreements. Agreements with Japan, Russia, and China together account for 146 (34 percent) of the 435 bilateral agreements. Japan has the most agreements with an individual agency—28 with the Department of Energy.

Almost half of the 57 countries participating in bilateral agreements are involved in both government-level and agency-level agreements. Figure 5

summarizes the number of countries that participate in different types of agreements.

Figure 5: Number of Countries With Different Types of Bilateral Agreements



Note: There are 57 countries with bilateral agreements.

Source: GAO's analysis of agencies' data.

As shown in figure 5, U.S. agencies have signed international s&t agreements with agencies in 23 foreign countries that do not participate in government-level s&t agreements. For example, the Department of Energy and the National Aeronautics and Space Administration have a number of agreements with agencies in France and Australia. The United States has not signed a government-level s&t agreement with either country. Officials at the Office of Science and Technology Policy and the Department of State indicated that, with some countries, there may not be sufficient interest by enough agencies to warrant a government-level agreement.

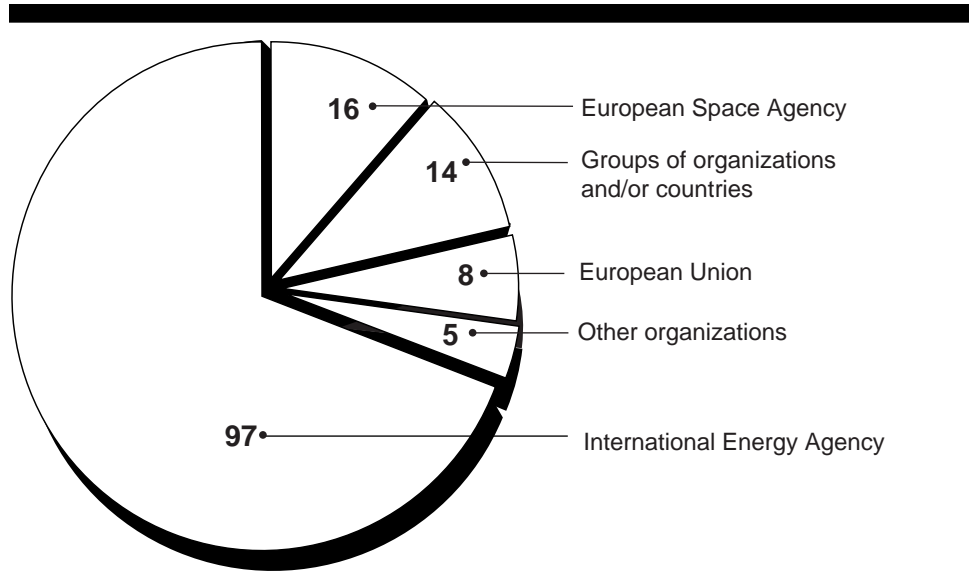
Figure 5 also shows that U.S. agencies have not developed agreements with seven countries that have signed government-level s&t agreements.⁶ According to officials at the U.S. agencies, their agencies do not participate in agreements with some countries because the countries are

⁶U.S. agencies have not signed agency-level agreements with Croatia, Latvia, Lithuania, the Former Yugoslav Republic of Macedonia, Romania, Slovenia, and Turkey.

not conducting research that meets their agencies' mission needs. The officials said that State Department officials use joint s&t agreements as one of several tools to improve foreign relations and to demonstrate diplomatic support for a country. However, these officials said that while they recognize that diplomacy and improved foreign relations may be valid reasons for signing broad s&t agreements, individual U.S. agencies will not sign agreements with other countries unless the agreements address agency research missions. In addition, National Institutes of Health and National Science Foundation officials said that agencies can informally collaborate on research projects and in other research-related activities without an international s&t agreement.

U.S. agencies have also signed a total of 140 international s&t agreements with international organizations such as the International Energy Agency and the European Space Agency and groups of organizations and/or countries. Figure 6 summarizes the number of multilateral agreements by these organizations and groups. For example, U.S. agencies have 16 agreements with the European Space Agency. See appendix III for details on the agencies, organizations, and countries participating in the multilateral agreements.

Figure 6: Participants in Multilateral S&T Agreements and Number of Agreements by Participants



Note: There are 140 multilateral agreements.

Source: GAO's analysis of agencies' data.

Figure 6 shows that 97 (about 70 percent) of the 140 multilateral agreements are with the International Energy Agency. The International Energy Agency represents the U.S. and 23 countries with common scientific interests and priorities. According to Department of Energy officials, the International Energy Agency acts as a broker for the Department of Energy whenever two or more member countries participate in an agreement. However, the participating countries may vary for each agreement, depending in part on the subject of the agreement and the countries' interests. For example, an agreement on coal research involves Australia, Canada, and 10 other countries and the United States, while another agreement on advance fuel cells research involves Japan, Korea, and 12 other countries and the United States.

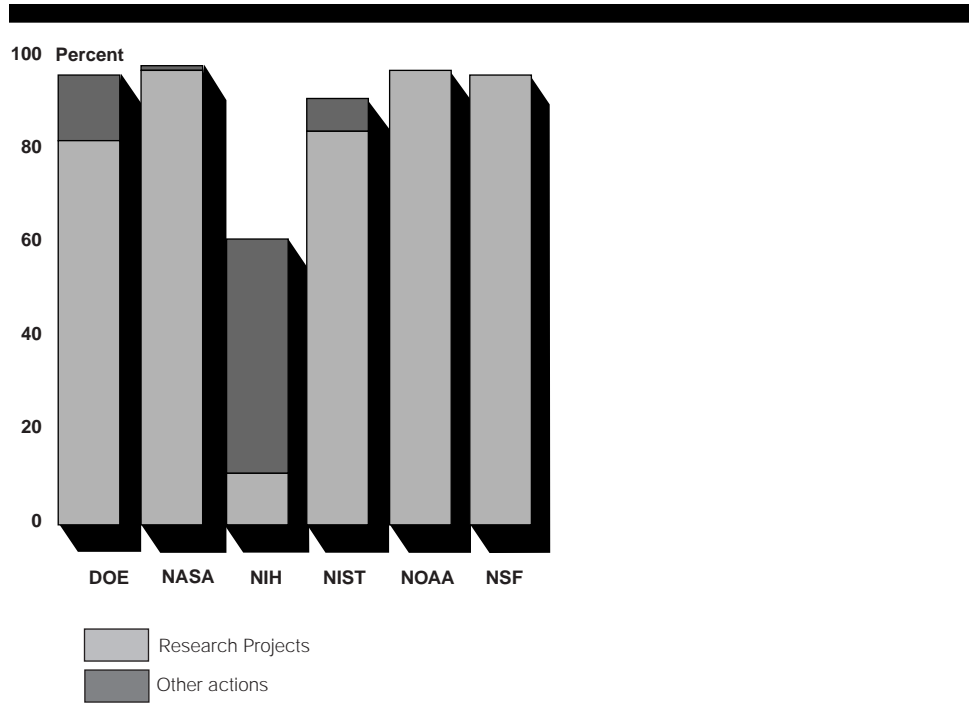
Most S&T Agreements Result in Research Projects or Other Research-Related Activities

More than 90 percent of the international s&t agreements active in fiscal year 1997 resulted in research projects or other research-related activities. For the agreements that did not have such results, agencies cited two reasons: funding problems of one or both parties that developed after the agreements were signed and changes in research priorities.

Figure 7 shows the percentage of agency agreements that have resulted in research projects or other research-related activities since the agreements were started or last renewed.⁷ The percentage of agency agreements resulting in projects or other activities during this time ranged from 61 percent at the National Institutes of Health to 98 percent at the National Aeronautics and Space Administration. In total, 93 percent of the agency agreements, 506 in all, resulted in projects or other research-related activities such as consultations among scientists and exchanges of data and/or personnel. About 7 percent resulted in no activities. For this report, we define a research project as a set of coherent activities designed to achieve a common purpose by a specific date. We define other research-related activities as meetings, consultations, and exchanges of data and/or personnel.

⁷Agency agreements include agency-level agreements and government-level mission-specific agreements.

Figure 7: Percent of Agreements That Resulted in Research Projects or Other Actions



Source: GAO's analysis of agencies' data.

Agreements resulted in research projects more often—about 82 percent of the time—than in other research-related activities. See appendix IV for additional details on the results of each agency's agreements.

We did not include data on the number of research projects or other research-related activities associated with the 33 government-level agreements negotiated by the Department of State because these government-level agreements generally have associated agency-level agreements. As previously noted, U.S. agencies have developed agency-level agreements with all but seven countries that have government-level agreements. For three of these countries, four U.S. agencies have started projects under government-level agreements. These projects are funded from joint matching funds provided by the U.S. government and the participating countries to encourage international collaboration. For the remaining four countries, agencies have neither

signed an agency-level agreement nor started a joint project with the country under a government-level agreement.

A variety of research projects are conducted under international agreements at the U.S. agencies. For example, the National Aeronautics and Space Administration's projects conducted under international agreements include a project to develop crew return and transfer vehicles for the International Space Station and to launch satellites to conduct research projects. The National Science Foundation's projects include joint work in ocean drilling, and the National Institutes of Health sponsors projects to investigate potentially dangerous infectious diseases. Table 1 provides additional examples of projects and activities resulting from the agreements.

Table 1: Examples of Research Projects and Activities Resulting From International S&T Agreements

Agency	Examples of research projects and activities
Department of Energy	Demonstration of clean coal technologies to more efficiently produce electricity from coal.
National Science Foundation	Joint construction and operation of two major telescopes for astronomical observation (Gemini Telescopes Project).
National Institutes of Health	Consultations to explore areas of cooperation in vision research and workshops to discuss sharing electronic library information.
National Oceanic and Atmospheric Administration	Distribution of data from remote-sensing satellites to foreign ground stations.
National Aeronautics and Space Administration	Cooperation in launching a foreign country's satellite for earth observation.
National Institute of Standards and Technology	Cooperation in dimensional metrology.

Source: GAO's analysis of agencies' data.

Agencies' officials told us that some agreements did not result in projects because the participating agencies of either country changed their s&t priorities or were unable to fund projects after negotiating an agreement. For example, National Institutes of Health officials said that an agreement signed late in fiscal year 1997 with Chile has not resulted in the intended projects or other activities because the Chilean science agency has not yet been able to provide the expected funding. However, the officials anticipate that projects may result from this agreement in the future.

National Science Foundation officials told us that an agreement with Indonesia has not resulted in activities because of administrative problems that researchers have encountered in dealing with the country.

Agency Comments

We provided a draft of this report to the Department of State; the Department of Energy; the Department of Commerce, which includes the National Institute of Standards and Technology and the National Oceanic and Atmospheric Administration; the National Science Foundation; the National Aeronautics and Space Administration; the National Institutes of Health; and the Office of Science and Technology Policy for review and comment. We obtained comments from each of these agencies. Generally, the agencies agreed that the report accurately describes their international s&t agreements and related activities. Some of the agencies suggested technical changes to help ensure an accurate description of their international s&t agreements. In addition, the Department of State suggested changes that would clarify its role and authority. We incorporated these suggestions in our report.

Scope and Methodology

To determine the number and type of international s&t agreements active during fiscal year 1997, we met with officials at the Department of State's Bureau of Oceans and International Environmental and Scientific Affairs and at selected agencies. Department of State officials provided us with data on some government-level agreements. However, detailed data on individual agencies' agreements had to be obtained from representatives from each agency's international s&t office.⁸ To respond to our request for information, these officials generally collected data from various units within the agency on agreements that were active during fiscal year 1997 and provided the data to us electronically.⁹ We analyzed the data to identify the number and type of agreements and the foreign participants.

To determine the number of agreements that resulted in projects or other actions and the reasons some agreements have not produced these results, we obtained information from the six U.S. research agencies. The Department of State does not generally fund research projects under the broad government-level s&t agreements that it administers.

⁸We did not request data on informal cooperative efforts involving individual scientists or on the Department of Energy's classified agreements.

⁹National Aeronautics and Space Administration officials identified active agreements that were approved during the 3-year period fiscal years 1995-97, instead of all active agreements, because the agency could not easily identify its total universe of active agreements.

In addition, we reviewed and discussed legislation with the Department of State and other agencies that was relevant to international S&T agreements. We also reviewed and discussed with the six research agencies their policies and procedures on international S&T agreements and obtained pertinent documents and reports that discussed their international activities and agreements.

In general, we relied on the data the agencies provided us and did not independently verify its accuracy. However, we reviewed early drafts of the data that the agencies prepared for us and followed up with the agencies to clarify and resolve inconsistencies in all data that the agencies provided. Our review was performed from August 1998 through April 1999 in accordance with generally accepted government auditing standards.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this report. At that time, we will send copies to the Honorable William M. Daley, Secretary of Commerce; the Honorable Bill Richardson, Secretary of Energy; the Honorable Donna E. Shalala, Secretary of Health and Human Services; the Honorable Madeleine K. Albright, Secretary of State; the Honorable D. James Baker, Under Secretary, National Oceanic and Atmospheric Administration; Raymond G. Kammer, Director, National Institute of Standards and Technology; Dr. Harold E. Varmus, Director, National Institutes of Health; Daniel S. Goldin, Administrator, National Aeronautics and Space Administration; Dr. Rita R. Colwell, Director, National Science Foundation; and Dr. Neal Lane, Director, Office of Science and Technology Policy. We will also make copies available to others on request.

Please contact me at (202) 512-3841 if you or your staff have any questions. Major contributors to this report are listed in appendix V.



Susan D. Kladiva
Associate Director, Energy,
Resources, and Science Issues

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Abbreviations

DOE	Department of Energy
NASA	National Aeronautics and Space Administration
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
S&T	science and technology

The Number and Types of Agreements Seven Federal Agencies Participated in During Fiscal Year 1997

Agency	Types of agreements							Total
	Government-level			Agency-level				
	Broad S&T	Agency mission-specific	Subtotal	Bilateral (related to government-level)	Bilateral (not related to government-level)	Multilateral		
DOE	0	9	9	85	56	107	257	
NASA ^a	0	6	6	6	100	15	127	
NIH	0	3	3	8	32	1	44	
NIST	0	0	0	41	8	7	56	
NOAA	0	2	2	4	19	7	32	
NSF	0	1	1	12	10	3	26	
State	33 ^b	0	33	0	0	0	33	
Total	33	21	54	156	225	140	575	

Note: Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), and Department of State (State).

^aThe number of S&T agreements for NASA may be understated. Agency officials provided data on agreements that were approved during fiscal years 1995 through 1997 because they did not know how many active agreements the agency had in fiscal year 1997.

^bIn addition to the broad S&T agreements, the Department of State has negotiated government-level diplomatic notes with Canada, United Kingdom, and Germany that address intellectual property rights.

Source: GAO's analysis of agencies' data.

Number of United States Bilateral S&T Agreements by Region and Country

Country	DOE	NASA	NIH	NIST	NOAA	NSF	State	Total
Asia								
Japan	28	26	4	13	2	4	1	78
Russia	16	8	4	5	1	3	1	38
China	20		3	1	2	3	1	30
Korea	7		2	7	1	2	1	20
India ^a		1	1	1	1			4
Taiwan			2		2			4
Armenia		1	1				1	3
Indonesia				1		1		2
Kazakhstan				1			1	2
Philippines	1	1						2
Thailand		1			1			2
Mongolia		1					1	2
Pakistan					1			1
Turkey							1	1
Subtotal								190
Europe								
France	9	6	1		4	1		21
Germany	1	8	3			3		15
United Kingdom	5	3	1		1	1		11
Italy	2	4	3	1			1	11
Czech Republic ^{a, b}				2	1	1	1	5
Hungary ^a		1	1	1		1	1	5
Spain	4						1	5
Sweden	3	1	1					5
Ukraine	3			1			1	5
Poland ^a	2					1	1	4
Finland	1		1				1	3
Netherlands		1		1				2
Austria		2						2
Belarus	1						1	2
Bulgaria						1	1	2
Denmark		2						2
Estonia	1						1	2
Belgium		1						1
Croatia ^{a, c}							1	1
Latvia							1	1
Lithuania							1	1

(continued)

**Appendix II
Number of United States Bilateral S&T
Agreements by Region and Country**

Country	DOE	NASA	NIH	NIST	NOAA	NSF	State	Total
Former Yugoslav Republic of Macedonia ^{a, c}							1	1
Slovak Republic ^{a, b}						1		1
Slovenia ^{a, c}							1	1
Switzerland			1					1
Romania							1	1
Subtotal								111
South and Central America								
Venezuela	12		1	1			1	15
Brazil	3	6		1	1		1	12
Argentina	3	4		2			1	10
Chile	2	3	1	1			1	8
Costa Rica	2							2
Ecuador				1				1
Subtotal								48
North America								
Canada	5	14	1	3	2			25
Mexico	3		3	1	1		1	9
Subtotal								34
Australia and South Pacific								
Australia	5	9	1		1			16
New Zealand		2	1	1			1	5
Marshall Islands	3							3
Subtotal								24
Africa								
South Africa	3	2	1	1	1		1	9
Egypt			1	1			1	3
Ghana	3							3
Subtotal								15
Middle East								
Israel ^a	1	4	3					8
Saudi Arabia	1			1	2			4
Kuwait			1					1
Subtotal								13
Total	150	112	43	49	25	23	33	435

(Table notes on next page)

Appendix II
Number of United States Bilateral S&T
Agreements by Region and Country

Note: Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), and Department of State (State).

^aThese countries participate with the United States in joint funds established through government-level agreements or other arrangements to support international cooperation in research and development.

^bState Department has a joint government-level agreement with the Czech and Slovak Republics. For this report, we have counted it as one agreement with the Czech Republic.

^cCroatia, the Former Yugoslav Republic of Macedonia, and Slovenia have started joint projects with the United States under government-level S&T agreements.

Source: GAO's analysis of agencies' data.

Organizations and Countries Participating in Multilateral Agreements

	Agencies participating in multilateral agreements						Total number of agreements
	DOE	NASA	NIH	NIST	NOAA	NSF	
Organizations							
International Energy Agency	97						97
European Space Agency		13			3		16
European Union	5	2			1		8
Pan American Health Organization			1				1
European Science Foundation						1	1
Standardization and Metrology Organization for the Gulf Cooperation Council Countries				1			1
Nuclear Energy Agency	1						1
Interamerican Metrology System (5 regional organizations)				1			1
Groups of organizations and/or countries							
European Union, Canada, France, Germany, Italy, Japan, United Kingdom				2			2
European Union, Japan, Russia	2						2
European Union, International Science and Technology Center, Japan, Russia	1						1
Canada, France, Russia					2		2
Canada, France					1		1
Canada, Australia						1	1
Canada, Australia, United Kingdom, Chile, Brazil, Argentina						1	1
Denmark, Hungary				1			1
Canada, Mexico				2			2
Sweden, Norway, Finland, Denmark	1						1
Total	107	15	1	7	7	3	140

(Table notes on next page)

**Appendix III
Organizations and Countries Participating in
Multilateral Agreements**

Note: Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF).

Source: GAO's analysis of agencies' data.

Number and Percent of Agreements Active in Fiscal Year 1997 That Resulted in Research Projects or Other Actions by Agency

Type of results	Number and percent of agreements by agency													
	DOE		NASA		NIH		NIST		NOAA		NSF		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Projects	211	82	124	97	5	11	47	84	31	97	25	96	443	82
Other actions	36	14	1	1	22	50	4	7	0	0	0	0	63	11
No results	10	4	2	2	17	39	5	9	1	3	1	4	36	7
Total	257	100	127	100	44	100	56	100	32	100	26	100	542 ^a	100

Note: Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF).

^aDoes not include 33 government-level agreements.

Source: GAO's analysis of agencies' data.

Major Contributors to This Report

Resources,
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