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Series: Bromley, D. Allan, Files
Subseries: Miscellaneous Files

OA/ID Number: 62091
Folder ID Number: 62091-001

Folder Title:
Miscellaneous [1 of 3] [1991]

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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Memorandum	To: Allan Bromley From: Tom Ratchford Re: PCAST Advice for Developing an International Framework for Basic Science Megaprojects (3 pp.)	1/11/91	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Miscellaneous Files
WHORM Cat.:
File Location: [Miscellaneous] [1 of 3] [1991]

Date Closed: 5/7/2010	OA/ID Number: 62091-001
FOIA/SYS Case #: 2005-0336-F	Appeal Case #:
Re-review Case #:	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
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(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information



John P. McTague
Vice President
Technical Affairs

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P. O. Box 1899
Dearborn, Michigan 48121-1899

FAX TRANSMITTAL SHEET

DATE: 29 January 1991

TO: Dr. Tom Ratchford

TELEPHONE: (202) 395-7396

FAX: (202) 395-3719

FROM: Dr. John McTague

TELEPHONE: (313) 322-7105

FAX: (313) 845-0512

NUMBER OF PAGES (INCLUDING COVER SHEET): 13

SPECIAL INSTRUCTIONS:

Withdrawal/Redaction Sheet

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02. Letter	To: Tom Ratchford From: John McTague Re: Conversation with Katasuhiko Umehara (12 pp.)	1/24/91	(b)(1)	

Collection:

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Office: Science and Technology Policy, Office of (OSTP)
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Retchford

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506**

April 11, 1991

*Looks
o/c*

MEMORANDUM FOR OSTP STAFF

FROM:

KEN YALE

SUBJECT:

Next PCAST Meeting

Hold

Please review the attached agenda for the next PCAST meeting, and provide comments directly to Tom Welch or Bill Snyder, at X5101, by MONDAY MORNING, APRIL 15, 1991.

If we do not hear from you by that time, we will assume that you concur with the agenda items.

Thank you.

DRAFT

As of April 8, 1991

PRESIDENT'S COUNCIL OF ADVISORS
ON
SCIENCE AND TECHNOLOGY

MAY 2-3, 1991
AGENDA

THURSDAY, MAY 2, 1991

OPEN SESSION 9:00 AM - 11:00 AM
CONFERENCE ROOM
COUNCIL ON ENVIRONMENTAL QUALITY
722 JACKSON PLACE, NW

8:30 - 9:00	ARRIVAL AND COFFEE	
9:00 - 9:30	OPENING REMARKS	DR. BROMLEY
9:30 - 10:30	THE OFFICE OF TECHNOLOGY ASSESSMENT - AN OVERVIEW OF RECENT REPORTS	DR. JOHN GIBBONS
10:30 - 11:00	DISCUSSION	
11:00 -	CLOSING REMARKS AND MOVE TO ROOM 208, OLD EXECUTIVE OFFICE BUILDING	DR. BROMLEY

DRAFT

THURSDAY, MAY 2, 1991 Continued...

**CLOSED SESSION 11:00 - 4:30 PM
CORDELL HULL CONFERENCE ROOM
ROOM 208
OLD EXECUTIVE OFFICE BUILDING**

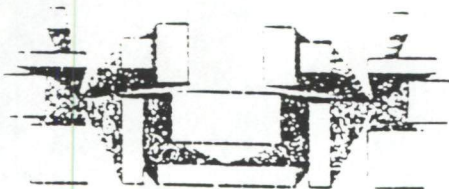
11:15 - 11:45	NATIONAL SECURITY AND TECHNOLOGY PANEL - A PROGRESS REPORT	DR. BUCHSBAUM
11:45 - 12:15	HIGH PERFORMANCE COMPUTING AND COMMUNICATIONS PANEL - A PROGRESS REPORT	DR. BUCHSBAUM
12:15 - 1:00	LUNCH	
1:00 - 1:30	GLOBAL ENVIRONMENT AND NATURAL RESOURCES PANEL - A PROGRESS REPORT	DR. LOVEJOY
1:30 - 2:00	EDUCATION AND HUMAN RESOURCES PANEL - A PROGRESS REPORT	DR. LIKINS
2:00 - 2:30	PANEL ON MEGAPROJECTS IN THE SCIENCES - A PROGRESS REPORT	DR. McTAGUE DR. RATCHFORD
2:30 - 3:00	BIOSCIENCE AND BIOTECHNOLOGY PANEL - A PROGRESS REPORT	DR. NATHANS
3:00 - 3:15	BREAK	
3:15 - 3:45	THE DEPARTMENT OF EDUCATION	HON. LAMAR ALEXANDER
3:45 - 4:00	DISCUSSION	
4:00 - 4:30	DISCUSSION OF JULY AGENDA AND CLOSING REMARKS	DR. BROMLEY

DRAFT

FRIDAY, MAY 3, 1991

**CLOSED SESSION 9:00 AM - 12:00 NOON
ROOSEVELT ROOM
WEST WING
WHITE HOUSE**

8:30 - 8:50	ARRIVAL AND COFFEE <u>(DR. BROMLEY'S OFFICE, ROOM 358, OEOB)</u>	
8:50 - 9:00	MOVE TO ROOSEVELT ROOM	
9:00 - 9:15	PREPARATION FOR THIS MORNING	DR. BROMLEY
9:15 - 9:30	APPROVAL OF TERMS OF REFERENCE AND MEMBERS FOR PCAST PANEL ON INTERNATIONAL ECONOMIC COMPETITIVENESS	DR. GOMORY DR. SHAPIRO
9:30 - 10:00	GOVERNOR SUNUNU	
10:00 - 10:15	DISCUSSION	
10:15 - 10:30	BREAK	
10:30 - 11:00	OTHER BUSINESS	
11:00 - 11:15	DISCUSSION	
11:15 - 12:00	OTHER BUSINESS AND CLOSING REMARKS	DR. BROMLEY



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

DATE: 94/11/91

TO: John McRague

ADDRESS: FORD MOTOR CO.

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Fax Number: 313-845-0512

FROM: Tom Ratchford

Telephone Number: 202-456-2894

Fax Number: (202) 395-3719

Number of Pages (including cover sheet): 17

SPECIAL INSTRUCTIONS:

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE

2101 Constitution Avenue, Washington, D.C. 20418

Date: April 9, 1991

Contact: Susan Turner-Lowe or Stephen Push
(202) 334-2138

EMBARGOED: NOT FOR RELEASE BEFORE 3 P.M. EDT, WEDNESDAY, APRIL 10

THREAT OF GREENHOUSE WARMING
JUSTIFIES SOME ACTIONS NOW

WASHINGTON -- In spite of great uncertainties in the science of global climate change, the United States should adopt a limited portfolio of measures to reduce production of greenhouse gases, a panel of the Committee on Science, Engineering, and Public Policy (COSEPUP) administered by the National Academies of Sciences and Engineering and the Institute of Medicine said today.* Greenhouse gases trap heat around the earth and may be responsible for observed increases in average global temperature.

For the first time in a report that discusses the full range of greenhouse gases, the panel performed engineering and economic analyses for policy options and recommended a mix of initiatives that, over their lifetimes, would either cost relatively little or produce net savings. It did not, however, call for fixed caps on carbon dioxide emissions or taxes on energy use at this time.

Recommended programs include phasing out chlorofluorocarbons (CFCs) -- long-lived greenhouse gases that also destroy atmospheric ozone -- in accordance with international agreements. In addition, the panel recommended adoption of energy policies that include efficiency and conservation; suggested exploring an energy

(MORE)

*The panel's report, *Policy Implications of Greenhouse Warming*, is available for \$14.95 (prepaid) plus shipping from the National Academy Press at the mailing address in the letterhead; telephone (202) 334-3313 or 1-800-624-6242. The publication sales office is located at 2001 Wisconsin Ave., N.W., Harris Building room 384. Reporters may obtain copies from the Office of News and Public Information, also at the letterhead address.

pricing mechanism that would reflect the cost of environmental degradation; called for increased efforts to reduce deforestation and increase reforestation; and recommended some measures to help human and ecologic systems adapt to future climate change.

Most of these actions can be achieved with "best practice" technology currently available. Altogether, they would cut U.S. emission of greenhouses gases an estimated 10 percent to 40 percent below the 1990 level, the panel estimated.

Global warming that has occurred in this century -- between about 0.5 degrees and 1 degree Fahrenheit -- is consistent with some models, the panel noted, but it could also be the result of natural climatic variability. "Neither can be ruled out," the panel said.

Based on current projections, the concentration of greenhouse gases in the atmosphere would be roughly double pre-Industrial Revolution levels by the middle of the next century, causing a possible rise in average global temperature of between 2 F and 9 F. The panel noted that this is broader than ranges adopted in other analyses, but believes that prudent policy choices should be based on conservative assumptions in the face of large uncertainty.

Moreover, the panel was concerned about the possibility of "surprises" not predictable by current methods but nevertheless characteristic of complex systems. If global warming is more serious than anticipated, more stringent measures would need to be taken, it added.

The study was requested by Congress in 1988. It presents the principal findings and recommendations and incorporates input from three other COSEPUP panels that evaluated national options for reducing or offsetting emissions of carbon dioxide and other greenhouse gases, and assessed the sensitivity of people, economic activities, and natural ecosystems to climatic change. The study was chaired by Daniel J. Evans, former governor and U.S. senator from the state of Washington and an engineer by training.

GREENHOUSE GASES

Greenhouse gases include water vapor, carbon dioxide, methane, CFCs and

(MORE)

hydrogenated CFCs, tropospheric ozone, and nitrous oxide. These gases act like a greenhouse, effectively warming the planet. If the rate of climate change increases, some ecosystems may not be able to adjust and might be severely affected.

Atmospheric concentrations of carbon dioxide, methane, and CFCs continue to rise. The 1990 concentration of carbon dioxide is about 25 percent higher than at the turn of the 19th century; it currently is increasing by about 0.5 percent per year, mostly as a result of burning fossil fuels and forest land. Methane levels are slightly more than double the presumed concentration in 1750 and rising by almost one percent a year. CFCs do not occur naturally and were not present at all in the atmosphere until a few decades ago.

The primary tools for evaluating the effect of increasing greenhouse gas concentrations on climate change are exceedingly complex computer programs called "general circulation models" (GCMs). For a doubling in greenhouse gas concentrations, different GCMs project temperature rises of between about 2 F and 9 F. The panel recommended research to improve GCMs.

"The larger of these temperature increases would mean climate warming greater than any in human history," the panel noted. "If the higher GCM projections prove to be accurate, massive responses would be needed, and the stresses on this planet and its inhabitants would be serious," it warned.

REDUCING OR OFFSETTING GREENHOUSE EMISSIONS

The biggest single reduction of greenhouse emissions recommended by the panel would come from eliminating CFCs. It recommended that the United States continue "aggressive phaseout" of CFCs and their replacement by non-greenhouse gas substitutes, as the nation promised in signing the London Protocol last year. The agreement calls for the elimination of CFCs by the year 2000.

It also recommended that "full social cost pricing" of energy be studied, "with a goal of gradual introduction of a such a system." Social cost pricing means setting the price of each form of energy at the cost necessary to recoup all societal costs not normally assessed in present pricing mechanisms. Moreover, the nation should

"make greenhouse warming a key factor in planning for our future energy supply mix," fostering energy conservation and efficiency, reforming state public utility regulation, increasing research on alternative energy supplies, and boosting research and development of a "new generation" of nuclear reactors.

Because trees and other plants remove carbon dioxide from the atmosphere during photosynthesis, the panel urged that the United States act to reduce global deforestation and continue a moderate domestic reforestation effort. However, many details about this remain to be resolved, the committee stressed.

In collaboration with international partners, the United States should also continue to study geoengineering efforts -- altering cloud abundance, use of space mirrors to deflect incoming radiation, and artificially adding nutrients to the oceans to increase the uptake of carbon by marine algae. The panel noted that the effectiveness of such actions and their environmental impact, especially their contribution to depletion of the ozone layer, must be carefully evaluated before they could be seriously considered for use.

ADAPTING TO GREENHOUSE WARMING

Because of its wide geographic variation and advanced technologies, the United States likely would suffer less from global warming than less-developed or smaller countries. This does not mean we can ignore the possible consequences in smaller countries, the panel said. To enhance adaptation in the United States to greenhouse warming, it proposed:

- ▶ maintaining agricultural basic, applied, and experimental research to ensure ample food supply;
- ▶ boosting efficiency of water use through water-pricing policies and better management of the water supply;
- ▶ planning greater margins of safety for long-lived structures -- such as bridges, buildings, dams, and highways -- that are now built with current frequency and magnitude of storms and droughts in mind; and
- ▶ moving to slow losses in biodiversity, including actions to inventory,

(MORE)

collect, and preserve wild species and consider purchase or lease of lands suitable for assisting vulnerable species to migrate to new habitats.

GLOBAL LEADERSHIP

"The United States should resume full participation in international programs to slow population growth and should contribute its share to their financial and other support because of the potential to make a major contribution to raising living standards and to easing environmental problems like greenhouse warming," the panel said. However, reducing population growth alone "may not reduce emissions of greenhouse gases because it may also stimulate growth in per capita income" and greater use of energy.

The panel also said that the United States should participate fully in international agreements and in programs to address greenhouse warming.

IMPROVING THE KNOWLEDGE BASE

Researchers should continue and expand collection and dissemination of data on the Earth's climate record and of data needed to refine GCMs, the panel stressed.

Moreover, it recommended work to improve weather forecasts -- especially for extremes, and for long-term (weeks or seasons) weather changes -- to ease adaptation to climate change.

Field research also should be conducted, including studies of entire ecosystems over long periods of time, to learn how carbon dioxide enrichment in the atmosphere affects the balance of species and determine how it might affect biodiversity. Research on social and economic aspects of global change and greenhouse warming also should proceed apace, the panel urged.

Membership of the panel authoring this report and the other three panels participating in the study is attached. The reports of all four panels will be published in a single volume later this year.

#

stl: a,b,d,e,f,g,j,l,m

POLICY IMPLICATIONS OF GLOBAL WARMING – EFFECTS PANEL

Chair

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Harvard University, Cambridge, Mass.

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HERMAN CHERNOFF

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Meteorologist
Climate Research and Applications
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Durham

POLICY IMPLICATIONS OF GREENHOUSE WARMING – MITIGATION PANEL

Chair

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Princeton, N.J.

POLICY IMPLICATIONS OF GLOBAL WARMING – EFFECTS PANEL

Chair

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POLICY IMPLICATIONS OF GREENHOUSE WARMING – MITIGATION PANEL

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KEYNOTE ADDRESS

J. THOMAS RATCHFORD

**Associate Director for Policy and International Affairs
Office of Science and Technology Policy
Executive Office of the President**

**AAAS Science and Technology Policy Colloquium
Washington, D.C.
April 11, 1991**

It's great to be back at the AAAS R&D Policy Colloquium, while Allan Bromley is fulfilling a long-standing commitment at Yale University. Having played the role of moderator at this particular session for a decade makes delivering the keynote this year a particular challenge and privilege. I just hope the moderator is as kind to me as I was to earlier speakers on this podium.

Let me begin by paying homage to the AAAS and its leadership for continuing and improving this valuable policy forum. The vision of Bill Carey and the sound scholarship and writing skills of Willis Shapley launched this venture on a course that has held true to this day. But like all enduring canons, revealed truth evolves under the influence of latter day prophets. It's heartening to see Al Teich, Steve Nelson and crew laboring away in the AAAS monastery, incorporating the latest prophecies -- or should I say leaked administration documents -- into their science policy scripture. I should add that, from all accounts, Rich Nicholson is a superb father superior.

This morning I shall say a few words about Administration R&D budgets and policy intentions. I shall follow the tradition of this distinguished Colloquium that examines budgets and, using the poetic equivalent of a Fourier transform, speaks of policy.

You might be interested to know that, in my current line of work, I meet with a fairly large contingent of foreign dignitaries. Perhaps the most common question I receive is "What is U.S. science and technology policy?" My response is that while we have no formal list of science and technology priorities, we do have a general policy of investing in merit-based S&T programs and projects, with the details reflected in the myriad budget decisions that are made each year. If pressed, I point out the AAAS reports do an excellent job of deciphering policy from budget data.

I shall try also to provide a few insights as to what life is like in Allan Bromley's White House Science Office. For starters, let me say the environment is exhilarating, in spite of the long hours, daunting work load, and numerous "fire fights" that arise on a daily basis. Some of my friends say that my demeanor doesn't reflect an appropriate level of stress, strain and lost sleep. I just want all of you to know that the rumored explanation I'm adjusting so well because I rested up for this during the previous decade at AAAS is a complete fabrication, with no basis in fact.

In my opinion, the environment for science and technology in this Administration is exceptionally supportive. This is not just because President Bush recognizes the importance of science and technology, recruited someone with the stature and talents of Allan Bromley, and gave him the title and perquisites of Assistant to the President. A large number of the President's senior advisors also understand the importance of science and technology, and recognize that R&D budgets are investments in the future. It would be impossible to provide an inclusive list of such folk, but John

Sununu and Michael Boskin certainly qualify. On the budget side of the house -- and this is, after all, a colloquium on R&D budgets -- Dick Darman and his chief lieutenants -- Bob Grady, Tom Scully, Bob Howard and Janet Hale -- all recognize the investment character of R&D expenditures. Within OMB, in all four budget directorates, one finds a quality of professional staff with a depth of knowledge and expertise about science, technology, and related research and education issues that is not understood or appreciated in the science establishment.

OUTLINES OF THE BUDGET

In preparing for this talk, I went back and read Allan's keynote address from last year, and what struck me was how quickly and how much of what he said has come to pass. In particular, both the President's Council of Advisors on Science and Technology and FCCSET -- the Federal Coordinating Council for Science, Engineering, and Technology -- are now up and running smoothly. PCAST has been having monthly meetings at the White House, and the President and senior White House officials have been sitting in on portions of almost all those meetings. And several FCCSET committees have had an important influence on this year's budget, as I'll describe in a moment.

First, though, let me touch on the budget's overall outlines. As you know, research and development are treated very well -- exceedingly well -- in this year's budget. The 13 percent increase for R&D -- to a total of \$75.6 billion -- represents one of the largest increases for any component of the budget. Furthermore, these proposals are following a year in which the Congressional appropriations for R&D, while not at the levels requested by the Administration, were still quite strong.

This increase is all the more remarkable in that it comes under the first year of the new budget agreement, in which real growth in the domestic discretionary budget is essentially limited to the rate of inflation. Cuts, therefore, had to be made in other programs to accommodate increases in research and development, even though many of these other programs have very strong constituencies.

In his hearings this spring, Allan has been citing a number of policy rationales for increasing the size of the R&D budget. These include enhancing the science and technology base, strengthening science and mathematics education, resolving social concerns, increasing economic growth, enhancing national security, and promoting international cooperation.

But if I were searching for the broadest possible rationale for increasing our support of science and technology, it would be this: The Bush Administration is gradually trying to shift the balance of federal spending more toward investments in the future and away from current consumption. Such a shift is not easy to accomplish in a political setting where consumption translates readily into votes and time horizons rarely extend beyond the next election. But many people, both in the Executive Branch and in the Congress, recognize that we are underinvesting in the future of our

nation, and I believe that the Bush Administration is starting to make real progress in shifting the terms of the debate.

AREAS OF EMPHASIS IN THE BUDGET

In a \$75.6 billion budget, there are inevitably going to be many areas of emphasis, and I'll cover just a few. One of the most important is basic research. The budget proposes an 18 percent increase at the National Science Foundation, which would finally return NSF to the doubling track established by President Reagan and supported by President Bush. Furthermore, over 80 percent of that amount would go directly to individual investigators and their research infrastructure, which would ease some of the proposal pressure that has been building in recent years.

The increase at the National Institutes of Health -- in absolute terms -- is even larger than at the NSF: about \$500 million, or about 6 percent of the FY 1991 budget. Also, the increase is structured in such a way that funding for research project grants grows by about 9 percent. If these proposals are enacted, NIH will be funding more principal investigators than it ever has in the past.

Together, NSF and NIH support over half of the federally-funded basic research done in the United States, and over 75 percent of the federally-funded basic research done in universities. By focusing special attention on these agencies, the Administration is seeking to strengthen what Allan often refers to as the heart and backbone of American science and technology.

COMPETITION AND EXCELLENCE

Yet it should be remembered that we will never fully satisfy the needs of university researchers for funds -- nor should we. Competition remains an indispensable part of a system based on excellence. The challenge is to balance competition with the needs of the nation and with the many opportunities that now exist within science.

Some in the scientific community have been calling for increases in the support of basic research that far exceed what has been proposed. The glib answer to such calls is that, given the new budget agreement, such increases are politically impossible in the next few years.

But there is a more substantive reply. Compared with other countries, the United States invests very heavily in basic research. In fact, I think it can be said that many other countries do not pay their fair share of the amounts needed to increase the world's storehouse of knowledge. This can be seen quite clearly in the preference of students and senior scientists alike to come to the United States to work and study. Nowhere else can they find better institutions, better support, and the intellectual excitement vital to forefront research.

However, in an age of instant communications and well-traveled and competitive scientists, the comparative advantage from doing basic research and carrying the resulting new knowledge into commercial and military products is not as large as it once was. We, therefore, have to take the actions of other countries into account in making decisions about how to support basic research. This is also a consideration in another major area of emphasis in the budget -- technology development. The budget includes increased funding for a number of generic precompetitive technologies, including high performance computing and communications, biotechnology, advanced manufacturing and materials, and aeronautics. In fact, the budget goes so far as to state that it is providing increased funding "for all major civilian applied R&D areas."

This is an important measure of the Administration's intentions. We see the government as having a vital role in the development of technologies up to the point at which the private sector can recognize the promise of those technologies and act to convert them into valuable products and processes. This was one of the important messages contained in the document U.S. Technology Policy released by OSTP last September.

FCCSET AND THE PRESIDENTIAL INITIATIVES

The budget also includes three special Presidential initiatives in science and technology, each of which is based on the work of a committee under FCCSET. The initiatives are in high-performance computing and communications -- an important example of the generic technologies I just mentioned -- global change, and education and human resources. Let me use education as an example of the FCCSET process, since this was the initiative with which I was most directly involved.

Over this last year, FCCSET's Committee on Education and Human Resources -- which is chaired by Admiral James Watkins, the Secretary of Energy -- did a thorough budgetary and programmatic review of science, mathematics, engineering, and technology education at all levels, from grade school to graduate school. The committee found, first of all, that much more was being done at the Federal level than anyone had expected. In Fiscal Year 1991, the federal government directly spent about \$1.7 billion in these areas, with graduate and precollege education receiving the largest sums and undergraduate education receiving somewhat less.

The committee then sought to establish strategic objectives and funding priorities for federal programs in these areas. It decided, for example, that the greatest priority was precollege education, both for the training of new scientists and engineers and for the general scientific and mathematical literacy of the public. Within precollege education the committee cited teacher preparation and enhancement as the most important thing the federal government can support.

The work of the committee has met with great success within the federal government. For one, the budget proposes a 13 percent increase in the programs covered by the

committee. But many program managers and agency heads have noted the way in which this committee, and the two other committees doing budgetary crosscuts, were able to bring great coherence to what had formerly been a confusing welter of federal programs.

Watching the operations of a revitalized and reorganized FCCSET has been very fascinating to me. For well over a century, observers of science have debated whether the federal effort in science and technology would be more efficient if it were all conducted by a single department -- a Department of Science and Technology. I do not believe that it would. I believe that the diversity of the present system, in which researchers have more than one source of funding for their ideas, has contributed greatly to the strength of American science and technology.

But it remains true that more than a few areas of federal science and technology need more coordination. In science and mathematics education, for example, many senior people working on very similar subjects but in different agencies had never even met each other. FCCSET offers a way to bring these people together with a common set of objectives. It offers a way to integrate science programs while maintaining the advantages of pluralism. If I were asked to name the most important thing that Allan has done since becoming head of OSTP, I would answer his recognition and implementation of the full potential of the FCCSET process.

SUPPORT FOR "BIG SCIENCE"

As you know, the budget also provides increased support for a number of what have been called "big science" projects. Actually, I don't find this to be a very illuminating or helpful label. Many big science or "megaprojects" are actually coordinated programs of research being done by individual investigators, whether at one place or in separate locations -- such as the human genome project or astronomy research. Other megaprojects -- most notably the space station -- are not primarily science projects. For that matter, all megaprojects -- by virtue of their being big -- are subject to important nonscientific influences.

Nor is it true, as some have said, that the Administration has never seen a large science project that it does not like. Many, many more projects are proposed to and by the agencies than ever make it into the budget. In its final form, the budget actually represents a cascade of priority decisions that are made over the course of its preparation.

One important consideration in many of these projects has been the growing role of the Congress in shaping them. Last year's budget for NASA is a good example. The FY 1991 House appropriations report for NASA established an upper limit on the funding profile for development of a redesigned space station of no more than 10 percent growth per year, with a peak-year funding of no more than \$2.6 billion. What this means is that the funding for the program will not follow a least-cost construction path, based primarily on technical and engineering considerations.

Rather, future funding is on a predetermined course, and NASA has to adapt to that.

In a deeper sense, what this reflects is Congress's growing recognition that it is facing a zero-sum game not only in any given year but in the outyears. The headroom available in the past to provide for outyear increases in new program starts is no longer available. This raises some very important questions -- which have not yet been completely worked out -- regarding the projects already under way and those now being planned for the next few years.

INTERNATIONAL COOPERATION

I might point out, as an aside, that there is a way around the zero sum game, and that is to view large scientific projects on an international rather than a national basis. Our office has been doing a great deal of work on this subject over the past year and a half, with some progress being made.

The policy rationale for international cooperation is clear: large scientific projects are now becoming too expensive for any one country to afford, but they produce knowledge and technologies that are of value to many countries. All countries are, therefore, generally better off if they work together.

The question is how to carry out this cooperation. A FCCSET committee -- the Committee on International Science, Engineering, and Technology -- has been looking at this question, and Allan has held discussions with a number of science advisors from other countries to examine the issue. PCAST also has a panel on this subject to provide input from the private sector, which is vitally interested in these projects. We expect that these efforts will enable us to engage in a deeper dialogue with the science ministers from the OECD nations next year.

Many difficult issues still need to be resolved. Let me give you an example. Seven years ago at this colloquium, Reimer Lüst, spoke. He was then President of the Max Planck Society in Germany and President-elect of the European Space Agency (ESA). I remember his luncheon address very well, because I arranged for it at the last minute. Last fall I visited Lüst in Paris at ESA headquarters, just as he was ending his term. Unfortunately for me, it was just a few days after Senate Appropriations had whacked \$850 million off the funding for the Space Station.

Lüst is a good friend and normally a very gentle person, but his message to me that day was anything but gentle. He said that I may not realize what is happening, but if the United States backed out on the Space Station agreement it would kill European cooperation with the United States in high energy physics, in fusion, in virtually every other major area of science and technology. He advised that for our own good, we should not do it. We have to take feelings like this into account as we approach international cooperation in the basic sciences.

CONGRESSIONAL EARMARKING OF FACILITIES

I said earlier that Congress is becoming much more involved in the shaping of large science projects. There is another area in which they are becoming more involved in R&D budgets as well -- through the earmarking of funds for R&D and for R&D facilities. This year the budget request includes an analysis done by our office showing that Congress earmarked over \$800 million in FY 1991 for R&D projects and R&D facilities, with over \$400 million of this amount going to academic institutions. This is a substantial amount of money, and it has sharply increased in recent years.

Earmarking typically supports projects that do not undergo merit review, and thus there is no way to judge their quality. Furthermore, earmarking seriously undermines the ability of the Administration to set priorities, because it greatly increases the uncertainty regarding Congressional action on the requests we send to the Hill.

Many people have been asking in recent years what can be done to reduce the pressures to earmark. Personally, I think that the behavior of the Congress is unlikely to change. Members of Congress are simply doing what they were elected to do when they respond to constituent requests.

Rather, I believe that much of the responsibility for dealing with the large and increasing levels of earmarking in Congressional appropriations rests with the university community. What is needed, therefore, is for the academic research community to foreclose the comparative advantage sought by those in their ranks who aggressively pursue pork barrel funding at the expense of their fellow institutions who support the principle of merit review.

There are several ways to do this, but I have time to note just one. Neither NSF nor NIH, two agencies central to the support of academic research, have significant funds earmarked for R&D or R&D facilities in their budgets. If the academic community were to unite behind a simple prohibition of NSF or NIH funding to any university that accepts earmarked funds, the atmosphere at both ends of Pennsylvania Avenue would, no doubt, change dramatically. It would remove an important part of the uncertainty that now overhangs Administration formulation of budget priorities. And it could allow for the kind of reasoned consideration of the issues affecting academic research institutions that this country critically needs.

This is an important problem. Think about it.

CONCLUSION

These are some of the issues that have been occupying our thoughts in putting together this year's budget and in presenting it to the Congress. But as you well know, a lot can happen to a budget by the time it travels along Pennsylvania Avenue and emerges from the Hill. Congress can take a much different view of the R&D

budget than does the Administration. And in some cases both of us are subject to forces beyond our control.

The situation reminds me of a story that is popular in our house, since my wife come from "a tennis family," and our children and I are participants in the sport. It's about a man who was totally obsessed with tennis; he lived, breathed, ate, and slept tennis. But there was one thing that worried him more than anything else. Was there tennis in heaven?

Finally, he decided to get an answer once and for all by going to a highly-recommended fortune teller, Madame Helga. So he went down a seedy sidestreet in the city, found Madame Helga's office, and put the question to her: Is there tennis in heaven?

"This is one of the most difficult questions I've ever been asked," she replied. "I will have to consult on it overnight. Come back tomorrow and I will have your answer, and bring your checkbook because it's going to be very expensive."

So the next day the man returned to Madame Helga and paid the very large fee that she demanded. She then said, "I have good news and bad news. Which would you like first?"

The man replied, "Well, tell me the good news."

"There is indeed tennis in heaven," the fortune teller said. "In fact, there are tennis courts as far as the eye can see. There are grass courts, clay courts, and hard surface courts. There's never a waiting list, ball boys are assigned to every court, and God himself plays in some of the tournaments."

"That's amazing," the man said. "So what's the bad news."

"Well you're scheduled for doubles at 4:00 this afternoon."

There are difficult questions facing us in the months and years ahead, and we may not be pleased with all the answers. There will be some good news, and there will be some bad news. But if we keep in mind that the public supports science and technology because it pays off -- and we keep reminding our neighbors and our representatives in Congress of that fundamental fact -- R&D budgets will continue to prosper. In the meantime, I think we can look forward to a good year for science and technology.

THE WHITE HOUSE
WASHINGTON

April 16, 1991

Dear David:

I am pleased that you will have the opportunity to testify on the subject of academic research facilities. As you know, the Administration is still discussing this issue. We may eventually wish to take up the issue in PCAST but, for the time being, I think that your individual testimony can serve us well by outlining and reiterating the fundamental issues which impinge on the health of our university research system.

Fundamentally, I think that the points we made in our 1986 "Packard-Bromley Report" still hold and that the recommendations we made pertaining to the academic infrastructure deserve to be underscored once again: 1) the cost of maintaining infrastructure is an integral part of federally sponsored research costs; 2) catch-up funding (merit-based and shared equally with non-Federal sources) is needed to correct the serious deterioration of our university infrastructure caused by years of deferred capital investments; and 3) use allowances on facilities and equipment should be based on more realistic depreciation rates.

Since the issuance of our report, many other voices have joined the debate and additional reports have supported our findings. For example, the 1988 Cornelius Pings report on indirect costs, prepared for the AAU, put forth a recommendation similar to our own that the useful life of facilities be reduced from 50 years to 20 years and that equipment be amortized over 4 to 7 years (we had suggested 5 to 10 years) from the current 15 years. Most recently, in February 1991, the GUIRR issued an options paper on Research Facility Financing that also suggests increasing the rate of reimbursement as an option. Incidentally, the Roundtable estimates very roughly that such an adjustment would cost the Federal Government about \$100 million per year.

You may recall that, since the issuance of our report, NSF established a modest research facilities program at an approximate annual level of \$20 million. In January of this year NSF announced 78 awards totaling \$39 million to institutions in 37 states. The recipient institutions agreed to cost-share about \$61 million from institutional, state, and other sources.

In the Administration's FY 1992 budget request, no funds have been requested for the research facilities program because of a higher-priority \$50 million NSF research instrumentation initiative. However, the FY 1992 request does include a \$25 million buildings and facilities program at the Department of Agriculture as part of its National Research Initiative.

In 1988 and 1990, the NSF Research Facilities Office surveyed the state of research facilities in the United States, and its findings are supportive of those in our own

report. The 1988 survey revealed a reported research facility capital project need of \$11.6 billion (\$8.1 billion in new construction and \$3.5 billion in repair and renovation). In the 1990 survey, the total reported need had increased to \$15.6 billion (\$10.6 billion for new projects and \$5.0 billion for repair and renovation). Of the \$15.6 billion, institutions were planning to spend \$3.6 billion on capital projects, deferring \$12 billion indefinitely (\$8 billion for new construction and \$4 billion for repair and renovation.)

The OTA report on "Federally Funded Research: Decisions for a Decade," released just last week, touches on the issue of academic facilities. The report does not make recommendations in this regard but raises the issue of "how much is enough?", distinguishing between necessarily subjective definition of "need" (as surveyed by NSF) and the more quantifiable notion of "demand" (as evidenced, for example, by the number of proposals submitted to the NSF facilities program.)

We at least have a sense of the order of magnitude of what is needed to remedy the university facilities situation. As long as our resources fall short of the needs, the more difficult and more immediate questions are how to allocate the resources we might be able to muster. For example, should we emphasize new construction or repair and renovation? Should we concentrate resources on a limited number of institutions (and, if so, which types), or should we spread our resources more widely?

In your testimony, you may wish to note that improving our current infrastructure rather than expanding it is our best option. This could be accomplished by emphasizing repair and upgrading of current facilities rather than building new facilities. On the whole, it would probably be wise to confine the bulk of your remarks to the "Packard-Bromley Report". A number of trends are currently accelerating in Washington, including the earmarking and indirect cost issues, which you probably will not want to get into at this time.

I am sending you excerpts of some of the reports I have mentioned. I hope that the information will be useful to you.

Sincerely,



D. Allan Bromley
Assistant to the President
for
Science and Technology

The Honorable David Packard
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Federally Funded Research: Decisions for a Decade Advisory Panel

OTA REPORT

April 1991

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NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

Table 2—Federally Funded Research in the 1980s and 1990s (In percent)

	Fiscal year 1980	Fiscal year 1991 (est.)
R&D as percent of total Federal budget	5.0	4.7
Total research as percent of Federal R&D	38.9	36.3
Basic research as percent of Federal R&D	15.7	19.1
Basic research as percent of total Federal budget	0.8	0.9

Agency	Fiscal year 1980	Fiscal year 1991 (est.)
Percent of total (basic) research funds distributed, by agency		
HHS/NIH	29/24 (38/35)	34/29 (40/37)
DOD	20 (12)	15 (8)
NASA	14 (12)	16 (15)
DOE	11 (11)	12 (14)
NSF	8 (17)	9 (15)
USDA	6 (6)	5 (5)
Other	7 (4)	10 (4)

Performer	Fiscal year 1980	Fiscal year 1991 (est.)
Percent of total (basic) research funds, by performer		
Universities	32 (50)	36 (47)
Federal	32 (25)	30 (23)
Industry	18 (7)	15 (9)
Nonprofits	6 (6)	8 (9)
FFRDCs ^a	11 (11)	11 (12)

Ranking	Fiscal year 1980	Fiscal year 1988
Percent distribution of Federal R&D funds at academic institutions		
Top 10	25	25
Top 20	40	39
Top 50	68	65
Top 100	84	85

KEY: DOD=U.S. Department of Defense; DOE=U.S. Department of Energy; FFRDC=Federally Funded Research and Development Center; USDA=U.S. Department of Agriculture; NSF=National Science Foundation; HHS/NIH=U.S. Department of Health and Human Services/National Institutes of Health; NASA=National Aeronautics and Space Administration

^aThe category of FFRDCs includes all Federally Funded Research and Development Centers that are not administered by the Federal Government. NOTE: R&D data are based on Federal obligations; calculations involving the total Federal budget are based on outlays. Columns may not sum to 100 percent due to rounding.

SOURCES: Office of Technology Assessment, 1991, based on National Science Foundation data; U.S. General Accounting Office data; *Economic Report of the President* (Washington, DC: U.S. Government Printing Office, 1991); and *Budget of the United States Government: Fiscal Year 1992* (Washington, DC: U.S. Government Printing Office, 1991).

Issues and Options for Congress

ISSUE 1: Setting Priorities in the Support of Research

Summary

Priorities are set throughout the Federal Government at many levels. At the highest level, research priorities are compared to nonscience and nonengineering needs. At the next level, priorities are set across research fields, such as biomedicine and mathematics. Within fields, agency programs reflect research opportunities in subfields and relevance to national needs. Finally, research projects are compared, ranked, and awarded Federal funds.

Although priority setting occurs throughout the Federal Government, it falls short in three ways. First, criteria used in selecting various areas of research and megaprojects are not made explicit and vary widely from area to area. This is particularly true, and particularly a problem, at the highest levels of priority setting, e.g., in the President's budget and the congressional decision process. Second, there is currently no mechanism for evaluating the total research portfolio of the Federal Government in terms of progress toward many national objectives, although recent efforts by the Office of Science and Technology Policy have lead to some cross-agency planning, budgeting, and evaluation. Third, the principal criteria for selection, scientific merit and mission relevance, are in practice coarse filters. Con-

research priorities, especially at the macro level.³⁹ Whether their exhortations lead to clearer research agendas (including the suspension or postponement of some activities) remains to be seen, and whether these investments are balanced, well-managed, and yield the desired consequences is hard to judge in real time. But surely the policy process is enriched by drawing a map of the choices, the benefits, and the costs to be incurred by the scientific community and the Nation.

ISSUE 2: Understanding Research Expenditures

Summary

Many in the scientific community claim that the "costs of doing research" are rising quickly, especially that the costs of equipment and facilities outpace increases in Federal research funding. The most reliable data are available from research agencies, and can be analyzed at two levels: 1) total Federal expenditures for research, and 2) individual components of research project budgets. OTA finds that Federal expenditures for research have risen faster than inflation, and more researchers are supported by the Federal Government than ever before. Salaries and indirect costs account for the largest and fastest growing share of these expenditures. However, these findings do not truly address the claims expressed above, because of the numerous and sometimes inconsistent meanings of the costs of doing research.

Most research activities become cheaper to complete with time, as long as the scope of the problem and the standards of measurement do not change. However, advances in technology and knowledge are "enabling": they allow deeper probing of more complex scientific problems. Experiments are also carried out in an environment driven by competition. While competition is part of the dynamic of a healthy

research system, competition drives up demand for funding, because success in the research environment often correlates highly with the financial resources of research groups.

Direct cost containment by the research agencies may not be an appropriate Federal role, although Congress might direct the agencies to pursue specific measures at their discretion and to evaluate their effectiveness. Instead, greater cost-accountability could be encouraged by the executive branch and Congress. In particular, the Federal Government should seek to eliminate the confusion around allowable indirect costs, and develop better estimates of future expenditures, especially for megaprojects where costs often escalate rapidly.

Discussion

Many researchers state as an overriding problem that the "costs of doing research" have risen much faster than inflation in the Gross National Product (GNP), and Federal expenditures for research have not kept pace with these rising costs. Included in the costs of research are salaries, benefits, equipment, facilities, indirect costs, and other components of research budgets. Equipment and facilities are typically named as most responsible for increased costs.⁴⁰

However, addressing these claims is difficult, because it is hard to define what is meant by the costs of doing research. Research activities become cheaper to complete with time, as long as the scope of the problem and the standards of measurement do not change. But this is not the way progress is made. Advances in technology and knowledge are "enabling": they allow deeper probing of more complex problems. This is an intrinsic challenge of research.

There is an extrinsic challenge as well. Experiments are carried out in an environment that is driven by competition. Competition is part of the dynamic of a healthy research system. One sign of a

³⁹In addition to those cited previously, see Robert M. Rosenzweig, President, Association of American Universities, "Address to the President's Opening Session, The Gerontological Society of America," 43rd annual meeting, Boston, MA, Nov. 16, 1990; John H. Dutton and Lawson Crowe, "Setting Priorities Among Scientific Initiatives," *American Scientist*, vol. 76, No. 6, November-December 1988, pp. 599-603; Albert H. Teich, "Scientists and Public Officials Must Pursue Collaboration To Set Research Priorities," *The Scientist*, vol. 4, No. 3, Feb. 5, 1990, pp. 17; and Tina M. Kaarsberg and Robert L. Park, "Scientists Must Face the Unpleasant Task of Setting Priorities," *The Chronicle of Higher Education*, vol. 37, No. 23, Feb. 20, 1991, p. A52.

⁴⁰See Janice Long, "Bush's Science Advisor Discusses Declining Value of R&D Dollars," *Chemical and Engineering News*, vol. 68, No. 17, Apr. 23, 1990, pp. 16-17; *Science: The End of the Frontier?*, op. cit., footnote 14; and OTA interviews at the University of Michigan and Stanford University, July-August 1990.

healthy research system is that it can expand to produce more research. "Needs" in the research environment are thus open-ended.

Although competition exists in the research community, it does not necessarily drive down costs, as would be expected in typical "markets." In an earlier era, the chief cost of research was the annual salary of the principal investigator (PI). Today, the PI is often the head of a team with many players and access to the latest research technologies. In the face of inherent uncertainty about the eventual outcomes of research,⁴¹ sponsors must apply various criteria in predicting the likelihood of eventual project success, such as access to sophisticated equipment or the availability of appropriately trained personnel. These criteria are often associated with higher rather than lower costs. Success, therefore, often comes to those who spend the most (especially if research teams are relatively evenly matched). In fact, competitive proposals are often the most expensive and low bids can actually *decrease* a proposer's chance of winning a grant. Because additional personnel and sophisticated equipment are seen by sponsors as being instrumental in the conduct of research, costs are ultimately limited by what sponsors are willing to spend.

Products, or "outputs," of scientific research have also traditionally defied measurement.⁴² Consequently, the price of research measured in economic terms—the cost per-unit output—is extremely difficult to estimate. Analysis using crude measures of scientific "productivity" suggests that the cost of producing a published paper or performing a given scientific measurement has *decreased*: with less than double the investment per year since 1965, more than double the number of papers are published today in academia, and more than double

the number of Ph.D. scientists are employed in the academic sector.⁴³ By these measures, science has grown more productive (and consequently the cost per-unit output of research has decreased).⁴⁴ However, there is no metric to compare a "unit" of today's research with one in the past.

Thus, "Are the costs of research going up?" is not a useful question for policy purposes. Research expenditures by the Federal Government are awarded and accounted for on an annual basis. What gets included in these expenditures can be modified by adjusting the scale and pace of scientific research. Especially for basic research, these factors are variable, though the competition for personal and institutional recognition pushes PIs toward larger teams and more sophisticated instrumentation. In mission-oriented science, the rate of research may be dictated by pressing concerns (e.g., curbing the AIDS epidemic is desired as quickly as possible).

For policy purposes, research costs equal expenditures: if the Federal Government provides more funds, "costs" will go up accordingly. A more useful policy question might be: "Is Federal spending on individual components of research project budgets reasonable?" The Federal Government will tend to have a different point of view on this question from the research performer. OTA has explored both perspectives.

Incomplete and murky data on research expenditures complicate questions on the costs of research. Analysis of Federal expenditures for the conduct of research must factor what Federal agencies are willing to spend for personnel, facilities, and instrumentation, while analysis of expenditures by research performers is confounded by the expenditure accounting schemes that vary from research institu-

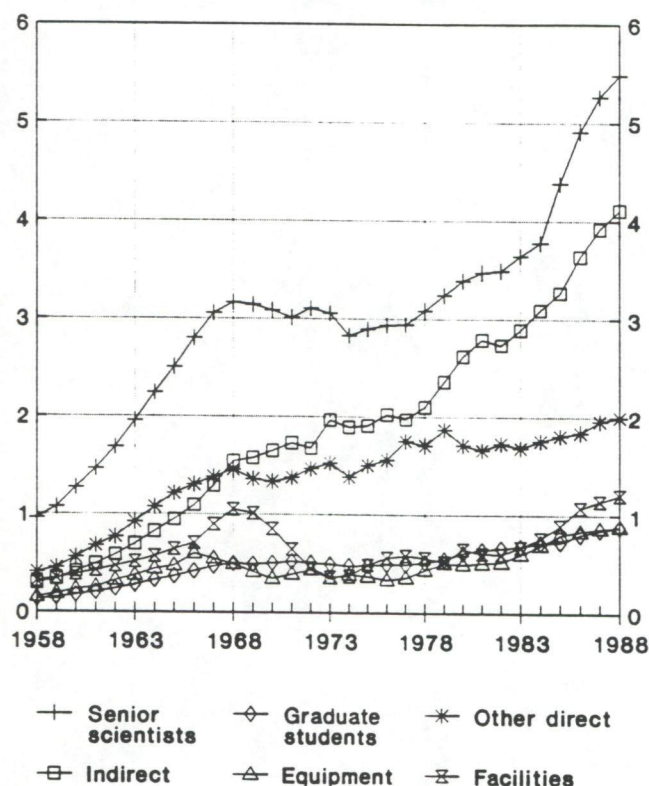
⁴¹See, for example, Richard Nelson, "The Allocation of Research and Development Resources: Some Problems of Public Policy," *Economics of Research and Development*, Richard Tybout (ed.) (Columbus, OH: Ohio State University Press, 1965), pp. 288-308. Nelson points out that "... research and development has economic value because the information permits people to do things better, and sometimes to do things that they did not know how to do before. ... [but] there is no simple way to evaluate the benefits society can expect from the knowledge created by different kinds of R&D. ... " (pp. 293-294). Also see Mansfield, op. cit., footnote 3.

⁴²Published papers and patents have been used as proxies, but they cannot be standardized. See Susan E. Cozzens, "Literature-Based Data in Research Evaluation: A Manager's Guide to Bibliometrics," final report to the National Science Foundation, Sept. 18, 1989.

⁴³On the former, see H.D. White and K.W. McCain, "Bibliometrics," *Annual Review of Information Science and Technology*, vol. 24, 1989, pp. 119-186; and on the latter, National Science Board, op. cit., footnote 12, tables 5-17 and 5-30.

⁴⁴However, even if one accepts these definitions of research output, the productivity of research relative to other economic activities might still be stagnant. Economist William Baumol explains that research, due to the price of labor rather than increases in its productivity, has an "... inherent tendency to rise in cost and price, persistently and cumulatively, relative to the costs and prices of the economy's other outputs." He warns that "... the consequence may be an impediment to adequate funding of R&D activity, that is, to a level of funding consistent with the requirements of economic efficiency and the general economic welfare." See W.J. Baumol et al., *Productivity and American Leadership: The Long View* (Cambridge, MA: MIT Press, 1989), ch. 6, quotes from pp. 116, 124.

Figure 8—Estimated Cost Components of U.S. Academic R&D Budgets: 1958-88 (In billions of 1988 dollars)



SOURCE: Government-University-Industry Research Roundtable, *Science and Technology in the Academic Enterprise: Status, Trends and Issues*, (Washington, DC: National Academy Press, 1989), figure 2-43.

NOTE: Constant dollars were calculated using the GNP Implicit Price Deflator.

DEFINITION OF TERMS: Estimated personnel costs for senior scientists and graduate students include salaries and fringe benefits, such as insurance and retirement contributions. Other direct costs include such budget items as materials and supplies, travel, subcontractors, computer services, publications, consultants, and participant support costs. Indirect costs include general administration, department administration, building operation and maintenance, depreciation and use, sponsored-research projects administration, libraries, and student-services administration. Equipment costs include: 1) reported expenditures of separately budgeted current funds for the purchase of research equipment, and 2) estimated capital expenditures for fixed or built-in research equipment. Facilities costs include estimated capital expenditures for research facilities, including facilities constructed to house scientific apparatus.

DATA: National Science Foundation, Division of Policy Research and Analysis. Database: CASPAR. Some of the data within this database are estimates, incorporated where there are discontinuities within data series or gaps in data collection. Primary data source: National Science Foundation, Division of Science Resource Studies, "Survey of Scientific and Engineering Expenditures at Universities and Colleges"; National Institutes of Health; American Association of University Professors; National Association of State Universities and Land Grant Colleges.

tion to research institution.⁴⁵ In addition, much of the current debate over rising expenditures takes place within a context of agency budget constraints and pressures felt by research performers.

The most reliable data on Federal research expenditures are available from research agencies, and can be analyzed at two levels: 1) total Federal expenditures for research, and 2) individual components of research project budgets. OTA finds that total expenditures on individual components of grants have risen over inflation, but not nearly at the rate for total Federal expenditures for research (see figure 8). Instead, growth in the size of the research work force supported by the Federal Government seems to account for the largest increase in Federal research expenditures. Also, the largest component increases of research project budgets are for salaries and indirect costs.

Trends in Components of Total Federal Research Expenditures

Analyzing Federal expenditures for specific line items of research budgets reveals interesting trends (again see figure 8). First, reimbursements for indirect costs are the fastest growing portion of Federal research expenditures. Indirect costs is a term that stands for expenses that research institutions can claim from the Federal Government for costs that cannot be directly attributed to a single research project, i.e., they are distributed over many investigators who share research infrastructure and administrative support. Federal support for indirect costs has increased since the 1960s, with the largest increases in the late 1960s and the 1980s. In 1958, indirect cost billings comprised 10 to 15 percent of Federal academic R&D funding. By 1988, that share had risen to roughly 25 percent.⁴⁶ In addition, some agencies allow more than other agencies in indirect costs. For example, in 1988, the indirect cost as a percent of the total R&D expenditures allowed at

⁴⁵For an attempt to compare expenditures at two public and two private universities associated with the performance of National Science Foundation-funded research, see G.W. Baughman, "Impact of Inflation on Research Expenditures of Selected Academic Disciplines 1967-1983," report to the National Science Foundation and the National Center for Educational Statistics, NSF/PLN 8017815, Nov. 8, 1985. Also see Daniel E. Koshland, "The Underside of Overhead," *Science*, vol. 249, May 11, 1990, p. 3; and "The Overhead Question," letters in response to Koshland's editorial, *Science*, vol. 249, July 6, 1990, pp. 10-13.

⁴⁶National Science Foundation, *The State of Academic Science and Engineering* (Washington, DC: 1990), p. 121.

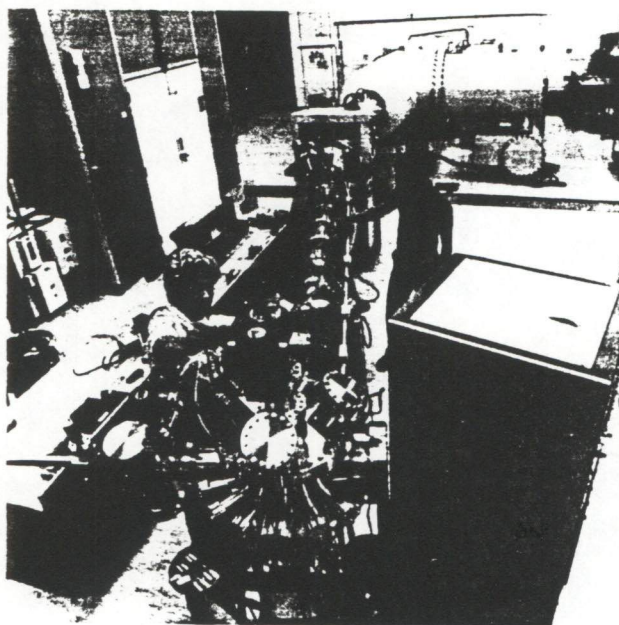


Photo credit: Bob Kaimbach, University of Michigan

These scientists are in an ion beam laboratory at the University of Michigan. Research often requires state-of-the-art equipment.

NIH was 30 percent, whereas it was less than 24 percent for NSF (a proportion unchanged since the mid-1980s).⁴⁷

Second, increasing numbers of investigators and rising salaries (and the benefits that go with them) have driven up the price of the personnel component of direct costs. University personnel speak of the increased competition for faculty with other sectors of the economy, and note that faculty salaries have been rising significantly over inflation during the last decade. The average total compensation (salaries and benefits) for academic Ph.D.s in the natural sciences and engineering increased from \$59,000

(1988 dollars) in 1981 to more than \$70,000 in 1988. In the same period, the number of full-time equivalent scientists and engineers employed in academic settings rose steadily from about 275,000 to almost 340,000.⁴⁸

Third, Federal support for *academic* research equipment alone increased from \$0.5 billion in 1968 (1988 dollars) to \$0.9 billion in 1988. Despite pronounced increases and improvements in equipment stocks in the 1980s, 36 percent of department heads still describe their equipment as inadequate (to conduct state-of-the-art research). This is in part due to the reduction in the obsolescence time of equipment and instrumentation use since the late 1970s.⁴⁹

Finally, the Federal share of all capital expenditures for *academic* facilities (which include both research and teaching facilities) has never topped one-third. Now it is less than 10 percent.⁵⁰ For university *research* facilities alone, the Federal Government provided an estimated 11 and 16 percent, respectively, of private and public university capital expenditures in 1988-89. The government also supports research facilities through depreciation, operation, and maintenance charges accounted for in the indirect cost rate. In 1988, the Federal Government supplied nearly \$1 billion to support university infrastructure. Almost 20 percent was for facilities depreciation, while the rest was recovered for operation and maintenance costs.⁵¹

Academic administrators claim that with growing frequency, aging laboratories and classroom buildings falter and break down,⁵² and many claim that facility reinvestment has not kept pace with growing needs. However, the picture is not clear. For example, when asked by NSF, a majority of the research administrators and deans at the top 50

⁴⁷Ibid., p. 142; and Association of American Universities, *Indirect Costs Associated With Federal Support of Research on University Campuses: Some Suggestions for Change* (Washington, DC: December 1988).

⁴⁸Government-University-Industry Research Roundtable, *Science and Technology in the Academic Enterprise: Status, Trends, and Issues* (Washington, DC: National Academy Press, October 1989), pp. 2-34 and 2-47, based on National Science Foundation data.

⁴⁹National Science Foundation, *Academic Research Equipment in Selected Science/Engineering Fields: 1982-83 to 1985-86*, SRS 88-D1 (Washington, DC: June 1988).

⁵⁰For public universities, 50 to 60 percent of the facilities funds come from the States, and 30 percent from bond issues. For private universities, roughly one-third comes from the Federal Government, while another one-third is from donations. See Michael Davey, *Bricks and Mortar: A Summary and Analysis of Proposals to Meet Research Facilities Needs on College Campuses* (Washington, DC: Congressional Research Service, 1987).

⁵¹Over the period 1982 to 1988, the Federal support of university infrastructure grew by over 70 percent in real terms. These figures are presented in "Enhancing Research and Expanding the Human Frontier," op. cit., footnote 26, pp. 61-62. The document further states that: "Each academic institution must provide a certification that its research facilities are adequate (to perform the research proposed) as a condition of accepting research grants." The "... \$12 billion of needed, but unfunded capital projects. ..." reported in the National Science Foundation surveys of universities "... has not had an apparent effect on the ability of universities to accept Federal research funds."

⁵²Karen Grassmuck, "Colleges Scramble for Money to Reduce Huge Maintenance Backlog, Estimated to Exceed \$70 Billion; New Federal Help Seen Unlikely," *The Chronicle of Higher Education*, vol. 37, No. 6, Oct. 10, 1990, pp. A1, A34.

research universities replied that their facilities were "good to excellent," whereas a majority of the research administrators and deans in the schools below the top 50 estimated that their facilities were "fair to poor."⁵³

The crux of the facilities problem is that research and academic centers can always use new or renovated buildings, but how much is enough? Even though "need" may not be quantified in the different sectors of the research enterprise, a demand certainly exists. For example, when NSF solicited proposals for a \$20 million program in 1989 to address facilities needs, it received over 400 proposals totaling \$300 million in requests.⁵⁴

Federal Policy Responses to Increased Demand

Many Federal agencies have experimented with grant-reducing measures, such as the salary caps required by Congress and temporarily imposed by NSF and NIH, the ceilings on indirect costs currently in place at USDA, the elimination of cost-blind reviews of proposals in some research programs at NIH, the limitation of funds supplied in new grants to researchers with multiple Federal grants at the National Institute of General Medical Sciences, and the institution of fixed-price grants in some NSF programs.⁵⁵ Congress could pursue permanent grant-reducing measures to slow or limit increases in research expenditures on individual research grants. However, it may not be an appropriate Federal role to dictate specific allowable costs in research projects. In general, allowing market forces to determine costs has been a tradition in Federal policy.

Instead, greater cost-accountability could be encouraged. One benefit of cost-accountability could be incentives for performers to spend less than what was targeted in project budgets, and greater flexibil-

ity in expenditures for performers (e.g., researchers could be encouraged to use the money saved one year in the next year, a so-called no-cost extension). Within such cost-accountability measures, Congress might also direct the agencies to experiment with cost-containment schemes and to evaluate their effectiveness.

Greater cost-accountability is especially important in the calculation of indirect cost rates. At present, the guidelines for calculating costs are detailed in conjunction with OMB Circular A-21 and have been in force since 1979. Every major research university has an indirect rate established for the current fiscal year for recovery of costs associated with sponsored research. These rates have evolved over many years as a result of direct interaction and negotiation with the cognizant Federal agency. There is a wide range of indirect costs rates among universities, with most noticeable differences between public and private institutions (rates tend to be higher at private institutions). Rates vary because of: 1) significant differences in facilities-related expenditures, 2) underrecovery by some universities, 3) imposition of limits by some government agencies in the negotiation process, and 4) diversity in assigning component expenditures as direct or indirect.⁵⁶

However, confusion around what is contained in the indirect cost rate is getting worse, not better. This reflects, in part, the difficulty of separating expenditures along lines of research, instruction, and other functions.⁵⁷ Recent investigations by the Office of Naval Research and the House Committee on Energy and Commerce have also uncovered significant variation in the accounting of indirect costs by the cognizant Federal agencies and research universities.⁵⁸ These differences should be sorted out, and more explicit and understandable guidelines devised.

⁵³National Science Foundation, *Scientific and Engineering Research Facilities at Universities and Colleges: 1988*, NSF 88-320 (Washington, DC: September 1988), p. 26.

⁵⁴See Jeffrey Mervis, "Institutions Respond in Large Numbers to Tiny Facilities Program at NIH, NSF," *The Scientist*, vol. 4, No. 8, Apr. 16, 1990, p. 2.

⁵⁵For a discussion of various options, see Barbara J. Culliton, "NIH Readies Plan for Cost Containment," *Science*, vol. 250, Nov. 30, 1990, pp. 1198-1199; and Colleen Cordes, "Universities Fear That U.S. Will Limit Payments for Overhead Costs Incurred by Researchers," *The Chronicle of Higher Education*, vol. 37, No. 3, Nov. 21, 1990, pp. A19, A21.

⁵⁶Association of American Universities, op. cit., footnote 47.

⁵⁷Eleanor C. Thomas and Leonard L. Lederman, National Science Foundation, Directorate for Scientific, Technological, and International Affairs, "Indirect Costs of Federally Funded Academic Research," unpublished paper, Aug. 3, 1984, p. 1.

⁵⁸See Marcia Barinaga, "Stanford Sails Into a Storm," *Science*, vol. 250, Dec. 21, 1990, p. 1651; "Government Inquiry," *Stanford Observer*, November-December 1990, pp. 1, 13; Colleen Cordes, "Conceding 'Shortcomings,' Stanford To Forgo \$500,000 in Overhead on U.S. Contracts," *The Chronicle of Higher Education*, Jan. 30, 1991, vol. 37, No. 20, pp. A19, A22; and Colleen Cordes, "Stanford U. Embroiled in Angry Controversy on Overhead Charges," *The Chronicle of Higher Education*, Feb. 6, 1991, vol. 37, No. 21, pp. A1, A20-A21.

It is also important to stress accuracy in developing estimates of costs for megaprojects. When the Federal Government "buys" a megaproject, the initial investment seems to represent a point of no return. Once the go, no-go decision has been made at the national level, the commitment is expected to be honored. However, criteria for consideration in the funding of a science megaproject could conceivably include: startup and maintenance costs, cost of unanticipated delay, cost of users' experiments, and likely changes in the overall cost of the project from initial estimate to completion. Some estimates for science megaprojects double before the construction is even begun, and costs of operating a big science facility once it is completed are sometimes not considered.⁵⁹

Megaprojects will always be selected through a political process because of their scale, lumpiness, and incommensurability. Since their costs, especially in following years, affect other disciplines' abilities to start new, large projects, megaprojects could well be considered as candidates for crosscutting, priority-setting analysis *before* the practical point of no return. As the National Academy of Sciences' report on budget priorities reminds: "...it is necessary to specify the institutions, individuals, and organizations that will be served; [and] the costs ... of the program."⁶⁰ The cost of investment for the Federal Government is an important criterion to apply to all scientific research, including megaprojects.

Performer Expectations

Not all problems in research costs can be addressed by the Federal Government. Many researchers point to higher expectations, which require more

spending, and competition in the university environment. In the academic environment, researchers are asked today to publish more papers, shepherd more graduate students, and bring in more Federal funding than their predecessors.⁶¹ If they do not meet these expectations, some report a sense of failure.⁶² This is true even if they have succeeded, but not by as much or as quickly as they had hoped.

To boost research productivity and to compete with other research teams, faculty attempt to leverage their time with the help of postdoctoral fellows, nontenure track researchers, and graduate students who are paid lesser salaries. Due to the shortage of faculty positions for the numbers of graduate students produced, young Ph.D.s have been willing to take these positions in order to remain active researchers. This availability of "cheap labor" is seen by many senior researchers and their institutions as the only way they can make ends meet in competing for grants.⁶³ This is a trend toward an "industrial model," where project teams are larger and responsibilities are more distinct within the group.⁶⁴ While the expenditures charged to an *individual* grant may be less (since more grants may be required to support the diverse work of the group), the overall cost of supporting a PI and the larger group are greater.⁶⁵

Some experiments have been attempted on U.S. campuses to temper the drive for more research publications (as a measure of productivity). For example, at Harvard Medical School, faculty are allowed to list only five publications for consideration in tenure reviews, with similar numbers set for

⁵⁹For example, see Kuntz, op. cit., footnote 31; and David P. Hamilton, "The SSC Takes on a Life of Its Own," *Science*, vol. 249, Aug. 17, 1990, pp. 371-372.

⁶⁰National Academy of Sciences, op. cit., footnote 6, p. 11.

⁶¹This is especially true in entrepreneurial research areas such as biotechnology. See Henry Etzkowitz, "Entrepreneurial Scientists and Entrepreneurial Universities in American Academic Science," *Minerva*, vol. 21, summer-autumn 1983, pp. 198-233.

⁶²*Science: The End of the Frontier?* op. cit., footnote 14.

⁶³Labor economist Alan Fechter, Executive Director, Office of Scientific and Engineering Personnel, National Research Council, writes: "... personnel costs constitute roughly 45 percent of total costs and ... this percentage has remained reasonably stable over time. Given that salaries of faculty (i.e., principal investigators) have been rising during the 1980s, this suggests that the staffing pattern of research projects has been changing, with the input of PIs decreasing relative to ... other, less expensive resources. There is some evidence to support this hypothesis in the report of GUIRR [Government-University-Industry Research Roundtable] ... [that] finds in academia an increasing ratio of nonfaculty to faculty," personal communication, Nov. 15, 1990. See Government-University-Industry Research Roundtable, op. cit., footnote 48.

⁶⁴Elsewhere this has been called the "industrialization" of science, or "... a new collectivized form in which characteristics of both the academic and industrialized modes are intermingled." See John Ziman, *An Introduction to Science Studies* (Cambridge, England: Cambridge University Press, 1984), p. 132 (elaborated below).

⁶⁵Noted at OTA Workshop on the Costs of Research and Federal Decisionmaking, July 19, 1990.

other promotions.⁶⁶ Thus, the quality and importance of the candidate's selected set of papers is stressed, though measuring these characteristics remains controversial.⁶⁷ However, strong incentives militate against reducing research volume. Most overhead is brought into the university by a small number of research professors. (At Stanford, 5 percent of the faculty bring in over one-half of the indirect cost dollars.) Any measure that would reduce grant awards and publications produced by these investigators would deprive the university of revenues. In fact, many universities in tight financial straits try to *maximize* the level of research volume.⁶⁸

The Federal Government must seek to understand better the trends in expenditures in the research environment—especially variations across institutional settings—and craft government policies to allocate resources effectively. Reliable analyses of research expenditures at all of the Federal agencies are not available. Future studies of expenditures should look not only at the economic forces that increase (and decrease) research expenditures, but also at the sociology of research organizations, including the demography of research teams and institutional policies for sponsored projects.⁶⁹

Federal agencies clearly must understand increasing demands to fund research, as research universities and laboratories are an invaluable resource for the United States. Devising mechanisms for coping with research expenditures is one of the central challenges to the Federal system for funding research in the 1990s.

ISSUE 3: Adapting Education and Human Resources To Meet Changing Needs

Summary

Three issues are central to education and human resources for the research work force:

1. Recent projections of shortages of Ph.D. researchers in the mid-1990s have spurred

urgent calls to augment Ph.D. production in the United States. OTA believes that the likelihood of these projections being realized is overstated, and that these projections alone are poor grounds on which to base public policy. For instance, they assume continued growth in demand in both academic and industrial sectors, independent of the level of Federal funding. In both this and previous OTA work, however, OTA has indicated the value to the Nation—regardless of employment opportunities in the research sector—of expanding the number and diversity of students in the educational pipeline (K-12 and undergraduate) for science and engineering, preparing graduate students for career paths in or outside of research, and, if necessary, providing retraining grants for researchers to move more easily between research fields.

2. Total participation in science and engineering can be increased if the opportunities and motivation of presently underparticipating groups (e.g., women, minorities, and researchers in some geographic locations) are addressed. Federal legislation has historically played an important role in recruiting and retaining these groups. Also, "set-aside" programs (which offer competitive research grants to targeted groups) and mainstream disciplinary programs are tools that can enlarge, sustain, and manage the diversity of people and institutions in the research system.

3. Research in many fields of science and engineering is moving toward a larger, more "industrial" model, with specialized responsibilities and the sharing of infrastructure. In response, the Federal Government may wish to acknowledge changes in the composition of research groups and to enhance the opportunities and rewards for postdoctorates, nontenure track researchers, and others.

⁶⁶The National Science Foundation also now limits the number of publications it will consider, as evidence of an applicant's track record, in reviewing grant proposals. See David P. Hamilton, "Publishing By—and For?—the Numbers," *Science*, vol. 250, Dec. 7, 1990, pp. 1331-1332.

⁶⁷See N.L. Geller et al., "Lifetime Citation Rates to Compare Scientists' Work," *Social Science Research*, vol. 7, No. 4, 1978, pp. 345-365; and A.L. Porter et al., "Citations and Scientific Progress: Comparing Bibliometric Measures With Scientist Judgments," *Scientometrics*, vol. 13, 1988, pp. 103-124.

⁶⁸OTA interviews at Stanford University, Aug. 2-3, 1990.

⁶⁹See Susan E. Cozzens et al. (eds.), *The Research System in Transition*, Proceedings of a NATO Advanced Study Institute, II Ciocco, Italy, Oct. 1-13, 1989 (Dordrecht, Holland: Kluwer, 1990).

both the participation in, and the capacity of, the Federal research system. But because the annual funding for each program remains modest (typically in the \$10 million range), program impact is limited.

Without set-asides, the Federal Government would have little confidence that once scientific merit has been demonstrated, other differentiating criteria would be applied to the funding of researchers. However, to a research system already strapped for resources, the funding of such "tangential" concerns is seen by some as diverting precious dollars away from the core need to advance knowledge.⁹⁹

Human resources are perhaps the most important component of the research system. Through support of scientists and engineers, graduate students, and the educational pipeline, the Federal Government is instrumental in the creation of a strong research work force, which has been expanding under this support since the 1950s. In the 1990s, however, the research work force—in its myriad forms of organization and scale of effort—has reached such a size that it feels strain under the Federal Government's present approach to supporting the conduct of research. In addition, accommodating to an expanding research work force, and to the changing ethnic and racial composition of students in the educational pipeline for science and engineering, poses challenges to the Federal research system. Human resources issues have implications not only for the number of participants in the research work force, but also for the character of the research that new entrants automatically bring to the Nation's research enterprise.

ISSUE 4: Refining Data Collection and Analysis To Improve Research Decisionmaking

Summary

Data collected on the health of the Federal research system—dollars spent for research, enrollments, and academic degrees awarded in specific fields, and outcome measures such as publications and citations—are extensive. In

other areas, however, data are scarce. For instance, almost no consistent information exists on the size and composition of the research work force (as opposed to the total science and engineering work force), or what proportion is supported by Federal funds (across agencies).

Most research agencies, with the exception of NSF and NIH, devote few resources to internal data collection. Consequently, most analyses must rely on NSF and NIH data and indicators alone, potentially generalizing results and trends that might not apply to other agencies. Furthermore, it is not clear how agency data are used to inform research decisionmaking, as some challenge current policy assumptions and others are reported at inappropriate levels of aggregation.

OTA suggests additional information that could be collected for different levels of decisionmaking, concentrating in areas of policy relevance for Congress and the executive branch. However, better information may not be cost-free. The idea is not merely to add to data collection and analysis, but to substitute for current activities not used for internal agency decisionmaking or external accountability. Refined inhouse and extramural data collection, analysis, and interpretation would be instructive for decisionmaking and managing research performance in the 1990s.

Discussion

Many organizations collect and analyze data on the research system. First and foremost is NSF, with its numerous surveys, reports, and electronic data systems that are publicly available. Certainly the most visible compendium of data on the research system is the biennial report, *Science & Engineering Indicators* (SEI), issued since 1973 by the National Science Board, the governing body of NSF.¹⁰⁰ Other sources include the other Federal research agencies; the National Research Council; the Congressional Research Service; professional societies, especially the American Association for the Advancement of

⁹⁹Change comes incrementally and at the margins of the enterprise. But if one were constructing the system from scratch, mainstreaming criteria to reflect the multiple objectives of research funding would be a key element to consider.

¹⁰⁰See Susan E. Cozzens, "Science Indicators: Description or Prescription?" OTA contractor report, September 1990. Note that *Science & Engineering Indicators* (SEI) was named *Science Indicators* until 1987. SEI builds on data collected, published, and issued in many other reports by the Science Resources Studies Division of the National Science Foundation.

W. H. Anderson

"PINGS REPORT"

Indirect Costs
Associated with
Federal Support of
Research on
University
Campuses:

Some Suggestions
for Change

Report of the AAU Ad
Hoc Committee on
Indirect Costs to the
Executive Committee of
the Association of
American Universities

December 1988



Executive Summary

I. INTRODUCTION

A. The Problem

The American government long ago entered into a mutually beneficial partnership with the nation's universities for funding research and educating future researchers. However, the partnership has grown stale. There no longer exists in government a strong, shared vision of how and why government should support research and training in universities, and the underpinnings of the partnership have come under increasing attack. In addition, growth in research budgets has been accompanied by burgeoning expectations, with the result that available resources are actually more strained than before in many areas. Pressures caused by the federal deficit have exacerbated these problems. Issues of principle have been ignored to achieve short-term budgetary objectives. As a result, long-term needs of academic research are being underfunded, with serious long-term consequences.

B. The System

The government sponsors university research and development through grants and contracts. Included in this process is a system for reimbursement of the costs, both direct and indirect, of conducting research. This system, although intrinsically sound, has been a source of continual frustration for all concerned, because it is complex and not easily understood or explained.

OMB Circular A-21 sets forth the principles and procedures which govern the system's operation. It calls for the costs of each university's federally sponsored research to be reimbursed by the government on the basis of an individually determined indirect cost rate.

This rate is the ratio of two numbers multiplied by 100. The numerator is the summation of all the allowable costs of an institution's research which are attributable to its externally sponsored and separately budgeted research not directly charged to grant or contract budgets. The denominator is the summation of the modified total direct costs expended by the institution under those research programs. The resulting rate is then applied to each contract and grant. The rate-setting usually follows negotiations which involve documentation of costs and a decision on the full level of costs that should be assigned to the federally sponsored research on the campus.

C. & D. The Ad Hoc Committee

In response to growing concern over indirect cost issues, the Executive Committee of the AAU charged an ad hoc committee to review the current system, particularly the rules set forth in Circular A-21, and to identify problems and suggest changes. The Ad Hoc Committee met on a total of 13 occasions between March 1987 and July 1988, inviting guests from various government agencies, universities, and professional scientific societies. It finished drafting its report on September 8, 1988. The adoption of the report by the AAU membership was confirmed by its Executive Committee on December 13, 1988.

II. BACKGROUND

A. History of OMB Circular A-21

In 1947 the Office of Naval Research, then the primary supporter of university research, negotiated with universities the first formal principles for determining applicable research costs based on actual costs. These principles introduced the use of campuswide average rates, deliberately eschewing the use of marginal cost rates.

In 1958 these principles were revised and issued as Bureau of the Budget Circular A-21. They allowed for varying circumstances among universities, but required justification and documentation of costs and development of methods for distributing costs between instruction and research. Certain costs were declared unallowable. Universities with less than \$250,000 in annual federal research funding were permitted to use a simplified approach for calculating and allocating costs.

Between 1961 and 1983, Circular A-21 was revised eight times. Following various efforts in the early 1980s to limit indirect cost reimbursements, OMB in 1986 imposed a fixed allowance for faculty administrative effort that could be charged to research; this established a precedent for departure from a cost-based system.

B. Changing Context

The preceding history of OMB Circular A-21 is only part of the total picture. The entire context in which the indirect cost system operates is changing. Important changes include pressures on university faculty, cumulative effects of conflicts between faculty and university officers over indirect costs, increasing obsolescence of research facilities and equipment, and the basic relationship between universities and the federal government's support of research.

The 1986 OMB/DHHS assault on the principles of OMB Circular A-21 reveals little commitment to an ongoing government-university partnership. Any change in attitude toward support of university research will inevitably focus to some extent

on indirect costs. If indirect costs continue to increase as a line item in the federal budget, for whatever reason, they might be particularly exposed, especially if the basic rationale and explanations for such increases are not forthcoming.

Also troubling is the increasing Congressional practice of allocating funds for specific university research programs and facilities without agency review of the scientific merits. This practice reflects an increasing demand to spread research dollars more broadly among different classes of universities and geographically. To the extent that Congress or the agencies continue to yield to this demand but do not provide additional funding, there will be pressure to increase the supply of direct research dollars by capping or reducing reimbursements for indirect expenses.

III. PERSPECTIVES AND PERCEPTIONS

In this section of the report, the Ad Hoc Committee offers its perspective on some aspects of the complex whole that is indirect cost recovery and notes the perceptions held in the several affected communities.

A. Acceptance of the Basic System (Circular A-21)

Many who deal with indirect cost matters have at one time or another complained about the effectiveness of OMB Circular A-21. However, the Committee did not find any support for eliminating the current system. Rather, there was general consensus that the system is basically sound but could be improved. Happily, recommendations for change did not seem to stem from narrow, special interests.

B. Averaging

As defined, the indirect cost rate is an average. Like many averages, it may be representative of the whole, but it can be misinterpreted if it is assumed to be descriptive of a local situation. Even in a large institution, there is no average principal investigator; each research program incurs indirect costs that are distributed somewhat differently than they are in the university-wide average.

New patterns of program funding raise the possibility of change in indirect cost recovery practices. There has been a trend in recent years toward larger grants to selected universities, such as the grants made through the NSF Engineering Research Center Program. If this trend increases, pressures may mount for special overhead rates for these large centers. However, this could result in institutions' having a great number of different indirect cost rates that would be difficult for both institutions and agencies to calculate and manage. In addition, annual fluctuations in rates are likely to increase, if averaging is minimized and the ability of agencies to deal with rapid rate fluctuation is questionable. Further pitfalls in disaggregation of indirect costs include increasing uncertainty of the calculation and divisiveness resulting from incentives to direct funds through channels with lower rates.

C. Attitudes and Perceptions

1. Government Officials

There is little concern among government officials over the fact that research programs need administrative support and that real costs are incurred. The concern is over the rigor with which these costs are calculated and allocated to the research programs. Because of federal budget pressures, universities can expect to be more vulnerable for costs that are not easily quantified or documented and that are one step removed from the execution of the research.

None of the government officials who talked with the Committee believed that the relationship between the government and research universities was truly governed by a principle of full recovery of incurred costs. This attitude has serious implications for indirect cost recovery. It has led to formal and informal requirements for explicit cost-sharing by universities. Some university officials suspect that it occasionally enters into negotiations over annual rates, which may account in part for significant variations in rates by geographic region.

2. Faculty Groups

Overall, most faculty are realistic about indirect costs. But there is persistent and consistent criticism from faculty about the quality of administration and the maintenance of facilities in support of research. In most cases, the level of faculty understanding in these areas was not high. The realities of indirect costs, along with many other aspects of institutional financing, seem to be better accepted on campuses where there is an ongoing and broad-based consultation on the full range of issues attendant to the financing and management of the institution.

3. University Administrative Officers

Attitudes toward indirect costs and interpretation and explanation of indirect cost issues vary widely within different administrative offices on most campuses. Diverse interpretation is most common on the issue of full recovery. However, there is also diverse interpretation of the nature and use of the funds involved, with some seeing them as reimbursements for already incurred costs and others seeing them as new, discretionary money available after all costs are paid. This creates great potential for confusion. Some administrators believe that low indirect cost rates make it easier to compete for federal research funds, and explain their institutions' unusually low rates in part as strategies to gain competitive advantage.

D. Shared Benefits

In today's research university, the functions of teaching, research, and public service are often inseparable. Allocation of costs among these functions has proven to be exceedingly difficult and is an ongoing source of ambiguity and controversy. While

some categories of costs can be assigned unambiguously, others cannot. This is one of the major reasons for variations in rates from institution to institution. There are intrinsic differences in the balance between teaching and research from university to university, and there also will be reasonable differences of judgment about the appropriateness of allocation in the areas of overlapping usage.

E. Negotiation of Rates and Management of Revenues

Every major research university has a rate established for the current fiscal year for recovery of indirect costs associated with sponsored research. In all instances, these rates have evolved, institution by institution, over the last 30 to 40 years as a result of direct interaction with the cognizant federal agency. The outcomes clearly reflect the attitudes and practices within the particular federal agency involved. Attitudes within a given university also affect the indirect cost rates that have evolved.

A number of state institutions have complicated relationships with their state governments regarding allocation of funds. Some operate very much like private universities, where all indirect cost recoveries flow into the institution's general fund. At others, indirect cost recoveries are assigned directly to the state treasury.

Clearly, a university that keeps all of its indirect cost recovery has a much greater incentive to provide the necessary documentation to recover costs as fully as possible. Universities whose funds flow back into the state treasury may find it hard to justify the costs of personnel and systems needed to document more complete recovery. Some state institutions have a combination of these two models.

In many universities, both private and public, the institution allocates discretionary funds to a principal investigator in proportion to his or her success in attracting external research funding. In some cases, this is overtly described as returning some part of the overhead to the faculty member. This creates potential for confusion within and outside the institution.

Institutions should be more precise in their characterization of the practice of using institutional funds to assist individual research faculty. The frequent description of refunding a portion of the overhead is not correct and is easily misinterpreted. Many institutions choose to allocate general funds equal to a portion of their indirect cost recovery to support their faculty's research. We suggest these allocations be more carefully labeled to describe their actual purpose.

F. Cost-sharing

Even though one of the principles underlying OMB Circular A-21 is full cost recovery, cost-sharing has been a fact of life for as long as the federal government has sponsored university research.

Independent research and development funds are one example of costs that are not allowed to universities. Other forms of cost-sharing result from the negotiation process. There have been times when cost-sharing has been required by Congressional action. Agencies also have introduced their own requirements. Cost-sharing has not been restricted to large programs. It also has been required on individual investigator grants for more than 20 years.

Particularly in times of tight budgets, the government focuses on indirect costs as the most likely area where universities can forego payment. The intent is to provide the full level of direct funding to principal investigators while the university gives up some indirect cost reimbursement.

G. Vulnerability of Rates and Components

The university community can expect that tensions over indirect cost recovery will persist, and that it may be easier politically to constrain payment of those costs than to limit outlays for direct research support. If the university community cannot easily explain and defend the payments in this category, it should reasonably expect difficulty in sustaining them. On the other hand, the community should insist that the process be conducted openly and without acrimony.

IV. DIFFERENCES IN INDIRECT COST RATES

There is a wide range of indirect cost rates among the nation's research universities. Most noticeable is the difference, on average, in rates between public and private universities, although there are anomalies within each group. Clearly, institutional peculiarities lead to differences in various components of the rate. Total rates vary by more than a factor of two from the highest to lowest, and individual components of the rates can differ by more than a factor of ten.

The dominant reasons for variation in rates are: (1) real and significant differences in facilities-related costs, (2) tacit or overt underrecovery by some universities, (3) imposition of arbitrary limits by some government agencies in the negotiation process, and (4) diversity in assigning component costs as direct or indirect.

V. CONCLUSIONS

A. Basic Relationship

It would be in the best interests of both the federal agencies who sponsor research and the university community to acknowledge explicitly that teaching and research functions are inextricably intertwined. It also needs to be acknowledged that there is mutual benefit to the government and the university community in this system.

Furthermore, it should be accepted that there are complications in all attempts to allocate costs precisely between teaching and research functions.

Periodic contentiousness on the matter of indirect costs is due in part to fundamental differences of opinion on the nature of the basic relationship between the federal government and research universities.

B. System for Recovering Indirect Cost

It is very likely that there will always be concerns and controversies over the administrative, library, and student services components of the indirect cost rate, as long as universities and federal negotiators are required to agree on an allocation of those costs among research, instruction, and other functions. The facilities-related components of the indirect cost rate are much less controversial. There are sound practices underlying reimbursement for facilities-related costs on the basis of documented and allocated costs incurred, and the outcomes should reflect each university's special circumstances. Moreover, there may be some merit in exploring the possibility of directly charging certain elements of facilities-related expenses.

1. Full Recovery of Costs of Research

The principles of full cost recovery have not been met in practice, and there is a loss of credibility in urging the position of full cost recovery, either for direct or indirect charges, except as an abstract limit.

2. Changes That Will Affect Indirect Cost Rates

Aging laboratory facilities and equipment are a major concern. Both public and private universities will need to increase indirect cost recoveries in order to meet debt and depreciation costs for new and renewed science and engineering facilities. All involved parties would be well served if these changes were openly acknowledged and accurately described.

3. Variation in Rates

Apparent variations in rates do not conceal overrecovery by some universities. To the contrary, no single institution is approaching full recovery; many are very significantly underrecovering for actual costs incurred. The university community would be well served by making it more apparent that administrative costs are relatively constant across all public and private universities, but that the overall variations in rates are significantly affected by true differences in facility cost, by arbitrary outcomes imposed by federal negotiation process, and by voluntary underrecovery by certain universities.

4. Faculty Involvement

There should be less emphasis on attempting to educate faculty on the narrow issue of indirect costs, and more emphasis on involving them in discussions of indirect costs in the broader context of the university's financial welfare.

VI. RECOMMENDATIONS

The current system for identifying, allocating, and recovering the costs of sponsored research should not be abandoned. However, changes could be made that would enhance the system's clarity and improve its credibility. Moreover, it may be possible and reasonable to narrow the range of rates charged by different universities. Both the federal government and the university research community have a stake in making the system simpler, more transparent, and more credible. The Committee makes its suggestions with the sole intention of improving the system. The suggestions are not intended to generate more funds for universities or to save money for the government.

Recommendation 1

✓ The indirect cost rate should be split into two new rates which are additive: a facilities and equipment rate, which includes operation, maintenance, and depreciation (or its equivalent), and a rate that includes all other components, such as administration, library, and student services.

A number of campuses are incurring indebtedness to construct new science complexes, and there will be a natural tendency for them to apportion some of the costs of this indebtedness to research budgets. If such charges become a source of pressure for overall rate increases, it will be better to identify this pressure openly as facility-driven rather than to confuse it with administrative costs and other items.

The second rate contains those costs which are less easy to define in terms of their attribution to research activity. Therefore, it is somewhat more likely to be controversial and subject to review and modification. However, the components of this rate, in general, have come into reasonable equilibrium and will not be subject to much pressure for increases in the near future on a nationwide basis.

Recommendation 2

✓ Threshold rates should be established for the administrative, library, and student service cost components of the indirect cost rate.

These rates could be claimed without further documentation, or be supplanted by a higher rate if documentation were supplied. Implementation of this recommendation would allow universities to recover reasonable costs incurred, and at the

same time help provide simplification and removal of contention over something that never will be exact. To that end, *both* parts of this recommendation are essential, i.e., there must be a right to invoke a threshold rate schedule or to recover in excess of that, based on documentation. The schedule of threshold rates should reflect the average or prevailing practice, or perhaps just slightly below, since a radically reduced schedule would be accepted only by a handful of institutions.

Recommendation 3

Universities and the federal government should be encouraged to negotiate multiple-year rates.

There has been an increased practice in the last several years of negotiating firm rate schedules for as much as three to five years in advance. In such a process, both the federal government and the universities are reasonably well served.

If there is agreement on a set of threshold rates for administrative, library, and student services components, then setting of forward rates would primarily involve facilities-associated expenses, which are particularly amenable to reasonably accurate projection.

Recommendation 4

The averaging principle for indirect costs, which tends to produce one rate per campus, should be reaffirmed and accepted by all government agencies.

Widespread use of multiple rates would, on balance, do much more harm than good. The damage from increased contention, distortion of incentives, destabilization of rates, and the extra cost of administering such a system far outweigh any advantage. This is especially apparent when the system is viewed on a governmentwide basis, where departures from the average tend to cancel themselves out. There is sometimes reason for separate rates, but fragmentation of rates on a single campus should be avoided.

Recommendation 5

The cut-off for invoking the short form allowed by Circular A-21 for recovery of indirect costs should be raised to \$10 million in total annual federally sponsored research volume so that a greater number of smaller universities can avail themselves of this arrangement.

Recommendation 6

More costs should be charged directly.

In current practice, costs that are charged directly at one university may be recovered through the indirect cost rate at another. More consistent practices would be fairer to both universities and federal sponsoring agencies and would help reduce some of the variation in rates. It should be noted, however, that there is significant faculty concern about such a move.

Recommendation 7

There should be greater uniformity in what is included in the base of direct research expenditures.

While all universities exclude certain costs in the base, significant differences still exist in the way each university "modifies" the total direct costs of its research program. This is another factor contributing to the variation in rates nationwide. This recommendation is critical to the implementation of Recommendation 2.

Recommendation 8

There should be greater consistency in negotiating rates among cognizant agencies and their geographic field offices, as well as a more effective appeal process.

Rates should not reflect idiosyncratic views of negotiating officers positioned in agency field offices. There should be an appeals system which provides for timely and accessible review by a neutral third party.

Recommendation 9

Technological obsolescence should be factored into use allowances for research facilities and equipment, and reasonable transition rules should be adopted when switching from use allowance to depreciation.

Aging facilities and obsolete equipment are major problems. In addition to providing direct support, the government should permit buildings to be amortized over a more realistic, 20-year life instead of the present 50-year life. Equipment should be amortized over four to seven years instead of the present 15-year life. The government also should make it easier to use the depreciation method by recognizing that OMB Circular A-21 permits recovery of the acquisition cost of buildings and equipment acquired with university funds.

Recommendation 10

The federal government should not attempt to meet budget targets by tampering with generally accepted accounting principles.

The principles of accounting for indirect costs must be separated from decisions about how costs should be shared between sponsors and the universities.

Confusing budget and management objectives can, in fact, drive up the overall cost of research, add unnecessary administrative burdens, and decrease productivity. If there is less money available for support of research, Congress should make that decision in concert with the federal science agencies, and the entire science community should accept the outcome.

Recommendation 11

Universities should find ways for interested faculty to become more aware of the financial processes of the university.

There is need for education about the total costs of research, how these costs are incurred, how they are distributed between direct and indirect categories, and the effects of changes in funding on the financial health of universities. Education is needed both within the federal government and within the university research community.

Recommendation 12

Universities should consider new and innovative techniques to hold down costs, and the federal government should be more aware of the cost impact of its regulations on universities.

The best way to contain indirect cost *rates* is through containment of indirect *costs*. Universities should consider development of incentive systems for control of not only general administrative and facility costs but also those which specifically impact research programs and pass-through costs.

The university community should attempt to convey factual and consistent information to federal officials on not only the monetary impact but also the general consequences of any proposed rule changes.

Recommendation 13

A limited amendment of OMB Circular A-21 is necessary to achieve the recommendations contained in this report.

Some of the specific changes that are possible are alluded to in the preceding recommendations. Many improvements in practice could be brought about within the university community through voluntary guidelines developed perhaps by COGR, by the federal agencies with changes in their rules, or by mutual agreement of both universities and the federal government. However, changes proposed in Recommendations 1, 2, and 5 would only be achieved by rewriting selected portions of OMB Circular A-21.

SCIENTIFIC AND ENGINEERING RESEARCH FACILITIES AT UNIVERSITIES AND COLLEGES: 1990

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NSF 90-318

EXECUTIVE SUMMARY

In order to sustain a strong academic research capability and to enable the expansion of the nation's research capacity, the facilities that house the research enterprise must be maintained and replenished. The size, condition, and adequacy of these research facilities impact on the quantity and quality of the research conducted at our nation's universities and colleges. In recognition of the need for objective and systematic information on the status of academic research facilities, Congress directed the National Science Foundation (NSF), in the Authorization Act (P.L. 99-159, section 108):

...to design, establish, and maintain a data collection and analysis capability... for the purpose of identifying and assessing the research facilities needs of universities and colleges... The Foundation, in conjunction with other appropriate Federal agencies, shall conduct the necessary surveys every 2 years and report the results to the Congress.

This report is the third in this biennial series, due to Congress in September 1990. It is based on NSF's 1990 Survey of Scientific and Engineering Research Facilities at Universities and Colleges. This is the second full-scale study involving research space by science/engineering field and type of institution.

The survey data on new and deferred construction, new and deferred repair/ renovation, and the condition and adequacy of existing research facilities are based on both quantitative and qualitative assessments provided by academic research institutions. Although some of these data are by their very nature subjective, they do capture an overall picture of the current status of facilities. However, this report does not, nor was it intended to, assess the impact of facilities on the quality of research being conducted at academic institutions.

Amount, Condition, and Adequacy of Research Space

Amount of Research Space

- There are an estimated 116 million net assignable square feet (NASF) of research space available at the nation's research-performing institutions in 1990. There was

very little overall change from 1988 to 1990, either in the total amount of space assigned to science and engineering (S/E) disciplines or in the total amount of space used for organized research.

- As in 1988, the 100 largest R&D performers accounted for the majority of all academic R&D space in 1990 (70 percent); they accounted for 84 percent of total R&D expenditures.
- More than 85 percent of the current academic research space is concentrated in five S/E fields; the biological (22 percent), agricultural (18 percent), and medical (17 percent) sciences, engineering (15 percent) and physical sciences (14 percent).

Of a total 276 million net assignable square feet of space in science and engineering fields at American universities and colleges, 116 million square feet (about 40 percent) is allocated to research.¹ This is not appreciably different from the amount of R&D space reported in 1988. The vast majority of the research space was located in doctorate-granting institutions (96 percent). Three-fourths of all academic research space was in public institutions, somewhat higher than the share of total R&D spending (65 percent) that occurs in these institutions.

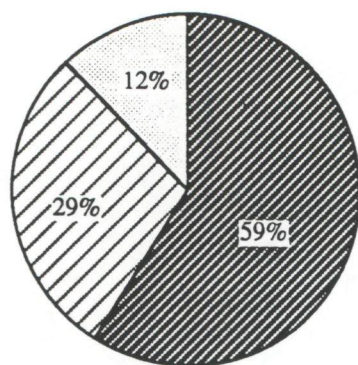
Seventy percent of this R&D space (81.7 million NASF) is housed in the 100 largest research-performing institutions, based on total R&D spending in science and engineering fields (Chart 1).² They have a mean of 800,000 square feet of research space per institution. Other doctorate-granting institutions account for 25 percent of total R&D space, with an institutional mean of 150,000 square feet. Non-doctorate granting institutions continue to account for less than 5 percent of all academic research space (5.2 million NASF), with an average of 22,000 square feet per institution.

¹ All estimates of research space are based on net assignable square feet (NASF) assigned to organized research. See Appendix pages A-6 and C-2 for definitions.

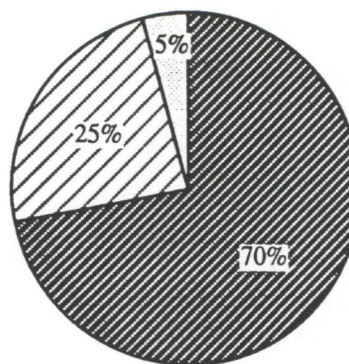
² The "largest 100 R&D performers" (based on total research expenditures in science and engineering) were selected as an analytical grouping because they represent significant proportions of R&D expenditures (83 percent) and space (70 percent). They are also referred to as the "top 100 research institutions" throughout this report.

Chart 1
Distribution of space assigned to science/engineering (S/E) disciplines
by institution type: 1990

NSF



All assigned S/E space
(276 million square feet)



R&D space
(116 million square feet)

Top 100 R&D
 Other doctorate-granting
 Non-doctorate-granting

Source: National Science Foundation, SRS

Adequacy of the Current Amount of Research Space

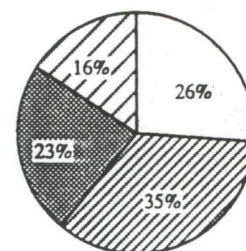
- In each of the five largest S/E disciplines, 40 to 60 percent of the institutions that perform research in the discipline reported need for more research space.
- In most fields and in most institution types, however, the reported need for increased amounts of research space does not appear to have grown from 1988 to 1990.

In each of the major S/E disciplines, upwards of 40 percent of the institutions that perform research in the discipline reported in the 1990 survey that they need more research space. Reports of inadequate amounts of research space were most prevalent among medical schools (for both biological and medical sciences), and such reports were more widespread in 1990 than in 1988. In most disciplines, however, the need for more research space does not appear to have grown since 1988. By discipline, ratings of "generally adequate" or better in relation to the **amount** of space ranged from a low of 48 percent of institutions with programs in medical sciences to a high of 68 percent of those with programs in psychology. In a few fields (e.g., the physical sciences and engineering), the number of schools reporting a need for more space has declined slightly since the 1988 survey.

Condition of Current Research Space

- The proportion of total R&D space that institutions reported to be in need of limited or major repair/renovation in 1990 was 39 percent, the same percentage as reported in 1988 (Chart 2).

Chart 2
Institution-assessed quality/condition of academic research facilities: 1990



(base = 116.3 million sq. ft.)

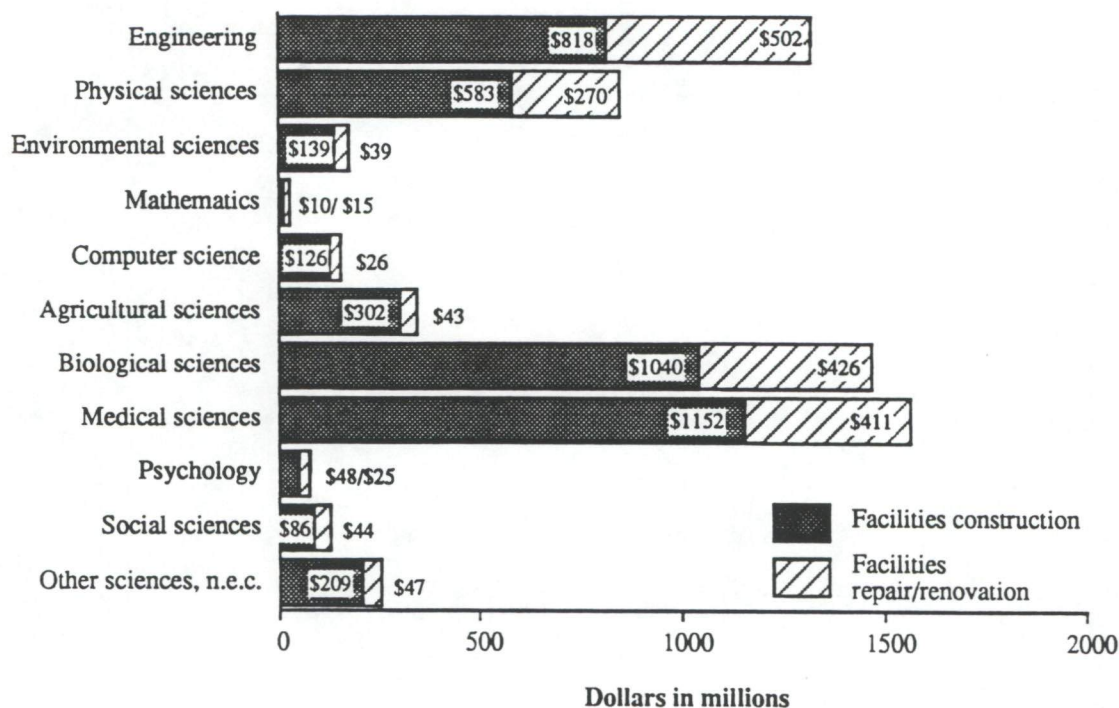
Suitable for use in most sophisticated research
 Effective for most uses
 Needs limited repair/renovation
 Needs major repair/renovation

Source: National Science Foundation, SRS

- At the other end of the quality/condition spectrum, there may have been a slight overall increase in the amount of space that institutions reported as being suitable for

Chart 3
Total spending for construction and repair/renovation of
academic research facilities by discipline: 1986-89

NSF



Source: National Science Foundation, SRS

the "most highly developed and scientifically sophisticated research"; the estimates increased from 24 percent of R&D space in 1988 to 26 percent in 1990. In absolute terms, the total amount of research space rated in this category rose about 12 percent. Absolute increases were seen across almost all institution types and all S/E fields.

- Institutions in the top 100 reported a larger proportion of their research space as "suitable for the most highly developed research" (27 percent) than was found at other doctorate (24 percent) or non-doctorate institutions (19 percent).

Capital Projects To Maintain, Improve, or Expand Research Space

- Institutions spent a total of \$6.4 billion for construction and repair/renovation of S/E research facilities over the four-year period 1986-89. This estimate excludes all construction, repair, or renovation projects that cost less than \$100,000.

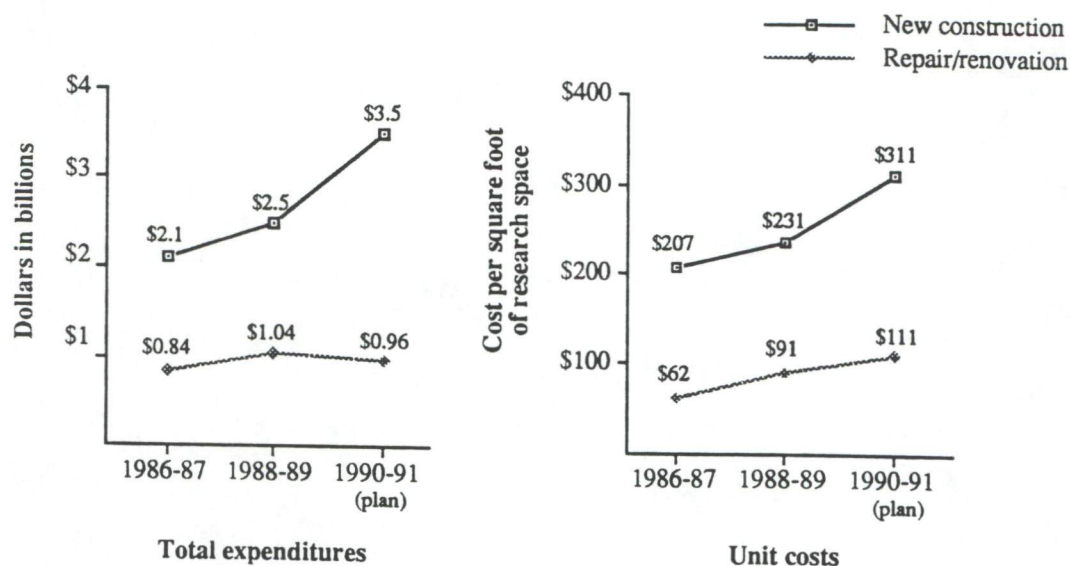
- New facilities construction accounted for over 70 percent of these capital project expenditures (\$4.5 billion).
- These capital projects were heavily concentrated in four disciplines, the medical, biological, and physical sciences and engineering, which collectively accounted for 80 percent of all construction expenditures and 87 percent of all repair/renovation expenditures (Chart 3).

Construction of New Research Facilities

- Institutions reported groundbreaking for new construction projects totalling about \$4.5 billion over the 1986-89 period. About \$2.0 billion was reported for projects begun in 1986-87 and \$2.5 billion in 1988-89. When completed, these projects will produce over 20 million square feet of new R&D space.
- The actual construction activity in 1988-89 as reported in the 1990 survey was not as extensive as institutions had planned for

Chart 4

Total expenditures and unit costs for recent and planned capital projects: 1986-91



Source: National Science Foundation, SRS

1988-89 as reported on the 1988 survey. The shortfall was greater for level of expenditures (27 percent less than planned) than for amount of space (10 percent less than planned). Approximately \$1.0 billion in planned new construction for 1988-89 did not take place, mainly due to funding constraints.

- The unit cost (the average cost per square foot) of the R&D components of the construction projects actually undertaken in 1988-89 (\$231/square foot) was 12 percent higher than the average unit cost of the projects initiated in 1986-87 (\$207/square foot). Costs are estimated to rise an additional 35 percent for 1990-91 projects, to \$311/square foot (Chart 4).
- Although high levels of construction activity occurred over the 1986-89 period, comparable increases were **not** seen either in the total amount of R&D space or in the proportion of top quality R&D space. This suggests that much of the new construction is used to replace obsolete or inadequate

facilities rather than to increase institutions' total amounts of research space.

- Spending for new construction in 1990-91 is projected by institutions to grow by over 40 percent, to a total of almost \$3.5 billion.

About 43 percent of all academic research institutions broke ground for new R&D related construction projects in 1988-89, up from 37 percent in 1986-87.³ Construction activity was most prevalent among the largest 100 research performers, 71 percent of which initiated projects in 1988-89. New construction begun during 1988-89 will produce a total of 10.6 million NASF of new

³ All data on construction and repair/renovation projects are based on the institutions' fiscal years in which the projects were, or will be, initiated. For simplicity, references to the periods in which construction or repair/renovation begins omit the notation "FY"; it is understood that all such dates refer to the institutions' fiscal years.

research space when completed.⁴ This represents a 7-percent increase in research NASF when compared to projects initiated in 1986-87, but falls short of the 11.8 million NASF that had been planned as reported by institutions on the 1988 survey. Costs for the 1988-89 projects totalled \$2.5 billion, considerably less than the \$3.4 billion that had been projected two years earlier. Inability to obtain sufficient funding was the principal reason given by respondents for postponing or scaling back planned construction projects.

Institutions projected in the 1990 survey that they plan to spend approximately \$3.5 billion on new construction projects in 1990-91. This represents a 40-percent increase in expenditures over the 1988-89 level for construction of 11.2 million NASF of new research space, the equivalent of 10 percent of existing research space.

The rising construction expenditures can be attributed to two factors: (1) the steady annual growth in the **amount** of research space under construction, and (2) the rapid growth in the **unit cost** of research space. Costs per square foot for new construction grew from \$207/square foot in 1986-87 to \$231/square foot in 1988-89; costs are estimated at \$311/square foot for 1990-91 projects (Chart 4).⁵

Institutions have consistently reported that construction costs are driven not only by the need for more research space, but by the need for upgrading the **quality** of the space. Costs are driven by Federal, state, and local government safety and regulatory requirements as well as by the need for high-tech facilities. Institutions repeatedly mentioned the need to upgrade animal care facilities, toxic and hazardous waste storage and disposal facilities, and telecommunication

capabilities as contributing to rising construction costs. Geographic and local differences in regulatory and safety codes--e.g., seismic safety codes--often result in regional average unit costs that are markedly higher than those seen elsewhere.

Repair/Renovation of Existing Research Facilities

- Spending for facilities repair/renovation grew from \$840 million in 1986-87 to \$1.04 billion in 1988-89, in contrast to institution projections that had envisioned decreased spending (Chart 4).
- The total space affected by these repairs, however, decreased somewhat, resulting in higher average unit costs for the R/R projects actually undertaken in 1988-89 than had been projected two years earlier--\$91/square foot versus \$80/square foot.

Expenditures for R/R activities in 1988-89 were higher than projected by institutions in the 1988 survey--\$1.04 billion versus a projection of \$754 million. The total space affected by these repairs increased somewhat, from 9.4 million NASF to 11.5 million NASF. This suggests that institutions may underestimate the extent to which future R/R projects are needed in response to technical, regulatory, or emergency requirements.

Similar to the 1988 survey, institutions report that plans for R/R in 1990-91 will decline by 9 percent over 1988-89 levels. Unit costs for R/R activities, however, are projected to increase substantially.

Deferred Capital Projects

- An estimated \$15.6 billion would be required to address institutions' currently reported needs for additional research space and for repair/renovation of existing research space. Since institutions plan to spend a total of \$3.6 billion for research-related capital projects in 1990-91, this leaves an estimated \$12.0 billion backlog of needed but unfunded capital projects (Chart 5).

⁴This does not necessarily imply a direct increase in the total amount of space available for research purposes, as much of this new space will be used to replace other aging or inadequate space, or space that will be converted to other uses.

⁵It should be noted that these unit costs are presented as analytic constructs only, and are used to make descriptive comparisons. They should not be construed to represent actual unit costs for any specific construction project, but are useful in tracking broad cost trends over time. Unit costs for capital projects are highly variable, depending on the specific requirements of the particular project and on S/E field and geographic region of the country.

Chart 5
Trends in deferral of needed research facilities capital projects: 1988 to 1990

Type of capital project	Survey year	
	1988	1990
	(Dollars in billions)	
New construction		
Needed at time of survey	\$8.1	\$10.6
Planned for two years following the survey *	- \$2.3	- \$2.6
Deferred	\$5.8	\$8.0
Repair/renovation		
Needed at time of survey	\$3.5	\$5.0
Planned for two years following the survey	- \$0.8	- \$1.0
Deferred	\$2.8	\$4.0
Capital projects, total		
Needed at time of survey	\$11.6	\$15.6
Planned for two years following the survey	- \$3.0	- \$3.6
Deferred	\$8.6	\$12.0

* For those institutions that reported they need additional research space and plan new construction projects.

Source: National Science Foundation, SRS

- The current \$12 billion level of deferred capital projects represents a 40-percent increase over the level found in 1988 (\$8.6 billion).
- As in 1988, about two-thirds of the current capital project backlog is in the area of deferred construction (\$8 billion of \$12 billion).

Deferred New Construction

- If all institutions were able to construct additional research space in the S/E disciplines that report an inadequate current amount of space, at the same average cost as for the construction projects that are being planned for 1990-91, the estimated total would be \$10.6 billion. Of this, \$2.6 billion of needed expansion is being planned for 1990-91; the rest, \$8.0 billion, is being deferred into the indefinite future.
- The current level of deferred construction (\$8 billion) is 38 percent above the level found in 1988 (\$5.8 billion).

- The current overall level of deferred construction means that, for every dollar of planned new construction in 1990-91, \$3.11 of needed construction will be deferred (up from \$2.48 in 1988).

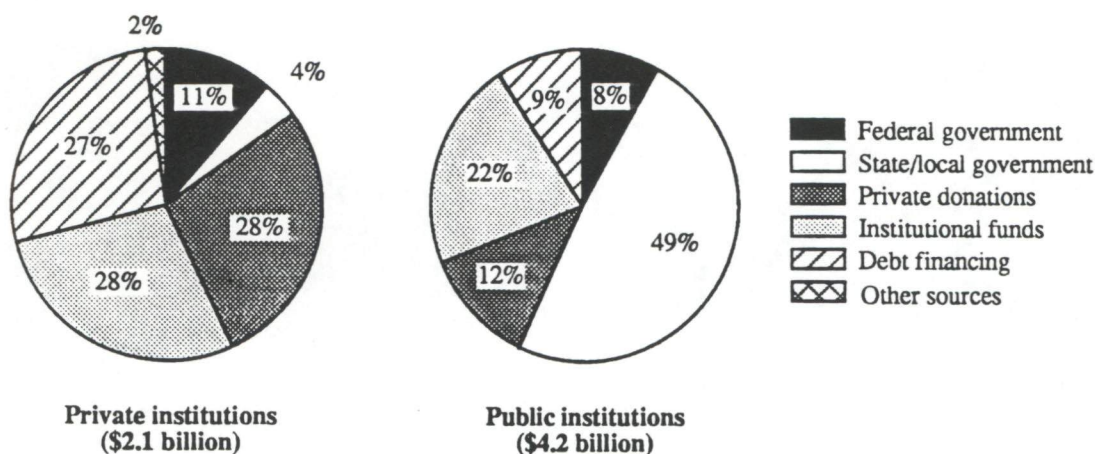
Although the numbers of institutions reporting inadequate amounts of research space did not change much from 1988 to 1990 in most S/E disciplines, actual and planned construction costs have increased significantly. Consequently, the estimated cost of addressing unmet needs for facilities expansion has also increased, and this is reflected in the deferred construction figures given above.

Deferred Repair/Renovation

Institutions have consistently expressed concern over the backlog of needed repair and renovation activities for research facilities.

- In the 1988 survey, the anticipated deferred R/R in 1988-89 (i.e., the difference between the projected total cost of all needed R/R and the anticipated cost of all planned R/R) was \$2.78 billion. According to 1990 survey

Chart 6
Relative sources of funds for research facilities capital projects begun in 1986-89



Source: National Science Foundation, SRS

data, the amount of deferred R/R will rise to more than \$4.0 billion by the end of 1991.

- The amount of R&D space needing R/R is slightly larger in 1990 than it was in 1988. Also, the anticipated unit cost of R/R for 1990-91 is higher than it was two years ago for 1988-89 (\$111/square foot versus \$91/square foot).

The amount of R/R now planned for 1990-91 is lower than was planned in 1988 for 1988-89 (8.6 million NASF versus 9.4 million NASF). The result is that the estimated cost of the backlog--the R/R that will be deferred in 1990-91--has risen to \$4.06 billion. Thus, if all research space needing R/R in 1990 (39 percent of existing research space) were to receive it, at the same cost per square foot as was found in institutions actually planning such projects, the cost would be \$5.0 billion, roughly 5 times the amount institutions plan to spend. Therefore, it is estimated that institutions will defer about \$4.25 in needed R/R for every \$1.00 that will be spent.

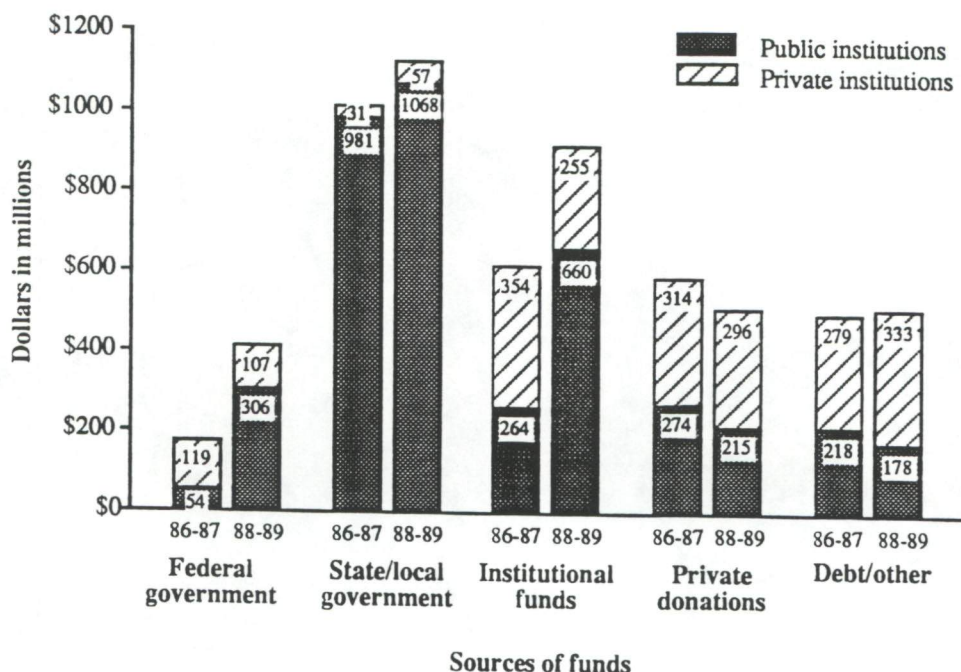
Sources of Funds

- Similar to the findings in the 1988 study, major sources of funds for new construction projects in 1988-89 came primarily from three sources: state/local governments, private donations, and debt financing. Public institutions acquired nearly half of their funding from state/local governments, while private institutions depended mainly on private donations (Chart 6).
- Both public and private institutions depended primarily upon institutional funding for R/R projects.
- The Federal government provided a comparatively small share of total direct funding for both new construction and R/R projects in 1988-89, about 14 and 6 percent, respectively.⁶ Still, in absolute terms, Federal funds for new construction of research facilities more than doubled over

⁶ This report includes data on the direct costs of construction and repair/renovation and the sources of funds for these direct costs. No attempt was made to quantify future indirect cost pressures resulting from current or planned projects.

Chart 7
Sources of funds for research facility
capital projects begun in 1986-87 and in 1988-89 by control of institution*

NSF



* Data include expected total project costs of R&D components of new construction and repair/renovation projects begun in the specified two-year periods.

Source: National Science Foundation, SRS

the 1986-89 period. The increase was seen mainly at public institutions (Chart 7).

- Private institutions' use of tax-exempt bonds and other debt financing for new construction projects doubled from \$124 million in 1986-87 to \$254 million in 1988-89. Much of this increase (\$87 million) involved non-tax-exempt debt.
- The increasing use of taxable bonds and other debt may be related to the fact that, of the 30 private institutions that are among the 100 largest research performers in the nation, nearly two-thirds had reached the \$150 million statutory limit on tax-exempt bonds in 1990.

Private institutions expended \$738 million for new construction projects in 1988-89 while public institutions invested \$1.7 billion. Substantially different patterns of funding support were reported.

Private institutions depended mainly on private donations (36 percent) and debt financing (34 percent) to support new construction in 1988-89. This funding pattern is consistent with findings for 1986-87 projects with two exceptions: institutional

funding dropped somewhat, and the use of debt financing other than tax-exempt bonds grew from less than 1 percent in 1986-87 to 12 percent in 1988-89.

Public institutions, in contrast to private institutions, acquired almost half of all new construction funding from state/local governments. The Federal government provided the second largest portion in 1988-89, growing from a 3-percent share in 1986-87 to 16 percent. Only 9 percent of construction costs were secured from debt financing.

Expenditures for repair/renovation of research facilities for both private and public institutions totalled \$1 billion in 1988-89. Both types of institutions obtained over half of their R/R funding from institutional funds. The second largest source for private schools was debt financing (24 percent), while public institutions depended more upon state/local governments (33 percent). The Federal share of costs for R/R activity, 6 percent, doubled in absolute terms over 1986-87 levels, with most of the increase going to private institutions.

Private institutions reported that they plan to float \$350 million in tax-exempt bonds for new construction projects in 1990-91, more than twice

the value of bonds issued during 1988-89. For private institutions only, recent legislation has placed a \$150 million limit on outstanding tax-exempt bonds. Among the 30 private institutions in the top 100, 16 had reached the cap by 1988; 19, by 1990; and another 3 expect to do so in the next two years.

Research Facilities at Historically Black Colleges and Universities

- While historically black colleges and universities (HBCUs) reported a 30-percent overall increase in the total amount of research space available in 1990, they continued to account for just over 1 percent of total research space for all academic research institutions.
- In 1988-89, HBCUs obtained about 80 percent of their research facilities construction and R/R funding from either Federal or state/local government sources, similar to levels reported for 1986-87 projects.

Historically black colleges and universities reported high levels of research facility construction activity over the 1986-89 period, resulting in a 30-percent overall increase in the total amount of research space available in 1990. The 1.4 million NASF used for research represents just over 1 percent of total NASF for all academic institutions, similar to the HBCU share of total academic R&D spending. These proportions have not changed significantly since the 1988 survey.

HBCUs obtained more than 80 percent of total research facilities funding from government sources. The Federal government accounted for 53 percent of total funding over the 1986-89 period, while state/local government sources provided 29 percent.

Facility condition ratings were generally more positive for HBCUs than were seen in most other institution categories. However, the proportion of R&D space rated as being "suitable for the most highly developed and scientifically sophisticated research" declined somewhat, from 36 percent in 1988 to 31 percent in 1990. The amount of space requiring limited or major R/R remained constant at 25 percent.

Methodology

The Survey of Scientific and Engineering Research Facilities at Universities and Colleges is conducted every two years. The first full-scale baseline study was conducted in 1988 and a report was submitted to Congress in September of that year. The 1990 study was conducted during the fall and winter of 1989-90 with a report due to Congress in September 1990.

Prior to the 1988 survey, NSF developed the research facilities survey questionnaire in cooperation with several higher education associations, university representatives, and an expert advisory panel. The survey universe includes doctorate- and non-doctorate-granting institutions as well as historically black colleges and universities (HBCUs) that perform research in science and engineering.

The 1990 survey collected quantitative as well as qualitative data for individual science and engineering fields. This provided a detailed picture of the amount and condition of available research space, recent and planned repair/renovation and construction activities, and sources of funds for these capital projects for the years 1988 through 1991. There was little difference between the 1988 and 1990 survey questionnaires. Additional detail was added to the "sources of funds" questions to gather needed information of specific private sources. Also, the data for main institutions and associated medical schools, which were collected on separate questionnaires in 1988, were combined into one questionnaire for the 1990 survey.

The data in this report were obtained from a stratified probability sample of 253 universities and colleges in a universe of 525 institutions. The universe datafile included all universities and colleges that offered a master's or doctoral degree in the sciences and/or engineering, all others that had separately budgeted S/E research and development (R&D) expenditures of \$50,000 or more, and all historically black colleges and universities (HBCUs) reporting any R&D expenditures. Within strata, institutions were sampled with probability proportionate to the size, based on R&D expenditures in science and engineering. The institution sample for the 1990 survey was essentially the same as for the 1988 study. All of the schools ranked in the top 50 and 98 of the top 100 were sampled. The 253

institutions in the sample accounted for more than 75 percent of total academic R&D expenditures and at least 70 percent of spending in each S/E discipline. The 1990 study included the same 29 HBCUs that were surveyed in the 1988 study.

Findings from the 1990 study are statistically weighted to provide national estimates for all schools that perform R&D activities. The response rate was 94 percent for all universities and colleges. The overall item nonresponse rate was less than 1 percent.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

FILE
PCAST

March 18, 1991

MEMORANDUM FOR DISTRIBUTION

FROM: TOM WELCH *Tom*
SUBJECT: PCAST EXECUTIVE ORDER

Attached is the current Executive Order and Charter for PCAST. You will notice that they expire on June 30, 1991. Since it is complex and quite time-consuming, we would like to begin the extension process now.

Therefore, we are asking for any comments or suggestions you may have on the Charter and Executive Order. We are interested in all comments whether substantive, technical, or editorial. Please submit your comments to the PCAST office as soon as possible, but no later than Monday, April 1, 1991. This will allow for discussion at the April PCAST meeting.

Thank you very much for your help.

Attachment

Distribution:

Associate Directors
Assistant Directors
Maryanne Bach
Barbara Ferguson
Bill Wells
Ken Yale

January 19, 1990

For Immediate Release

EXECUTIVE ORDER

- - - - -

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to establish, in accordance with the provisions of the Federal Advisory Committee Act, as amended (5 U.S.C. App. 2), an advisory committee on science and technology, it is hereby ordered as follows:

Section 1. Establishment. There is established the President's Council of Advisors on Science and Technology ("Council"). The Council shall be composed of not more than 15 members, one of whom shall be the Director of the Office of Science and Technology Policy, and 14 of whom shall be distinguished individuals from the private sector to be appointed by the President. The Director of the Office of Science and Technology Policy shall serve as Chairman of the Council. The Vice Chairman shall be appointed by the President from among the 14 private sector members. The Chairman shall report directly to the President.

Sec. 2. Functions. (a) The Council shall advise the President on matters involving all areas of science and technology.

(b) In the performance of its advisory duties the Council shall conduct a continuing review and assessment of developments in science and technology, and shall, through the Chairman, report thereon to the President whenever requested.

(c) The Chairman may, from time to time, invite experts to investigate and report to the Council on specific issues of national consequence.

Sec. 3. Administration. (a) The heads of Executive agencies shall, to the extent permitted by law, provide the Council and its panels such information with respect to scientific and technological matters as required for the purpose of carrying out its functions.

(b) Members of the Council shall serve without any compensation for their work on the Council. However, members appointed from among private citizens of the United States may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by law for persons serving intermittently in the Government service (5 U.S.C. 5701-5707).

(c) Any expenses of the Council shall be paid from the funds available for the expenses of the Office of Science and Technology Policy.

(d) The Office of Administration shall, on a reimbursable basis, provide such administrative services

Sec. 4. General. (a) Notwithstanding any other Executive order, the functions of the President under the Federal Advisory Committee Act, as amended, except that of reporting to the Congress, which are applicable to the Council, shall be performed by the Office of Administration in accord with the guidelines and procedures established by the Administrator of General Services.

(b) The Council shall terminate on June 30, 1991, unless sooner extended.

GEORGE BUSH

THE WHITE HOUSE,
January 19, 1990.

#

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

CHARTER

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

1. Committee's Official Designation:

President's Council of Advisors on Science and Technology (PCAST). The Council was established by Executive Order Number 12700, dated January 19, 1990.

2. Objective and Scope of Activities and Duties:

- The purpose of the PCAST is to advise the President on all matters involving science and technology.
- In furtherance of this mission the PCAST shall conduct a continuing review and assessment of developments in science and technology and the chairman may invite panels of experts to investigate and report to the Council on specific issues of national importance.

3. Duration

The Council will have continuing responsibility for advising the President. The Council will terminate on June 30, 1991, unless sooner extended.

4. Official to Whom the Council Reports:

The PCAST will report to the President, through the Chairman of the Council.

5. Agency Responsible for Providing Necessary Support for this Council:

Office of Science and Technology Policy (OSTP).

6. Description of Duties:

The Duties of the Council are solely advisory and are stated in paragraph 2 above.

7. Costs:

The estimated annual operating cost of the Council is \$375,000, including 2 man years of support staff activity.

8. Estimated Number and Frequency of Meetings:

The President's Council of Advisors on Science and Technology shall normally meet twelve times each year at regular intervals, and at such other times as may be called by the President or the Director, OSTP. In addition, 10-15 meetings each year by Panels are anticipated.

9. Panels:

Panels may be formed to conduct studies on specific issues assigned by the President or the Director, OSTP.

10. Members:

PCAST members shall be appointed by the President from the private sector. The PCAST shall consist of no more than 14 members and the Chairman. The Director, OSTP shall serve as Chairman of the Council, and the Vice Chairman shall be appointed by the President from the members of the Council.

The Council may utilize additional technical experts as needed to constitute its panels and study groups. These technical experts shall be appointed by the Chairman and shall serve at the pleasure of the Chairman.

This Charter for the Advisory Committee named above is hereby approved:

Signed:


D. Allan Bromley

Assistant to the President for Science and Technology, and
Director, Office of Science and Technology Policy, and
Chairman, President's Council of Advisors on Science and
Technology.

Date signed: January 23, 1990

Date filed: January 24, 1990

DRAFT

May 6, 1991

DRAFT PCAST MEMORANDUM

FROM: JOHN McTAGUE, ON BEHALF OF PCAST

SUBJECT: INVESTING IN THE FUTURE - FOLLOW THROUGH WITH CONGRESS

The Council reiterates its support for the important investment in the future proposed in your FY 1992 Budget submission, particularly in the areas of research and development. At the March PCAST meeting you noted the lack of a natural political constituency for research, especially individual investigator efforts. This makes all the more important strong White House follow-up with the Congress, particularly as consideration moves to the appropriation process.

From the authorization hearings and budget resolutions to date, it is becoming increasingly clear that sustaining your R&D priorities will require your personal and visible participation. If you were to call together both Republican and bipartisan Congressional leaders to highlight the priority this investment has for the nation it would be particularly effective. The Council recommends such an action, realizing the many demands on your time and political capital.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20508

*File
PCAST*

May 6, 1991

MEMORANDUM FOR THE PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE
AND TECHNOLOGY

FROM: TOM WELCH, EXECUTIVE DIRECTOR *Tom*
SUBJECT: Follow-on Actions From May PCAST Meeting

As you are aware, there are many follow-on items from the May meeting. Because of the complexity of some of these tasks and since Dr. Bromley will be leaving for the Soviet Union on Friday, May 10, he has asked that three of these items be given your priority attention so that they can all be adequately addressed before his departure. This means that a deadline for completion of each of these items will be no later than 12:00 NOON on Thursday, May 9, 1991.

The first item is the preparation of the briefing memoranda for the President. As discussed during last week's meeting, designated members will compose a short memorandum as part of a package to the President on behalf of the entire Council. Dr. Bromley will compose a cover memorandum for the package. Please note that we will need to put each memorandum in a standard format and on appropriate stationery for the final package to the President. In order for this to occur, we must adhere to a strict time line. First, Dr. Bromley has requested to see a draft of each memorandum prepared by the members as discussed during the May meeting no later than 12:00 NOON on Tuesday, May 7. This will allow for any comments to be faxed back to your office by close of business on Tuesday. Last, to meet the Thursday deadline, the final copy should be sent by fax no later than 12:00 NOON on Wednesday, May 8. Please send all faxes to the PCAST staff office at (202) 395-1575.

The second item is the notification of Panel member nominees. In order for us to send nominees the required forms before Dr. Bromley leaves, we request that each Panel chairman fax their final list of Panel members with their affiliations and addresses as soon as possible, but again no later than 12:00 NOON on Thursday. At minimum, the name and phone number for each Panelist is necessary.

The third item is final approval of Panel Terms of Reference. During the meeting, minor changes were suggested for several of the Panel TORs. Working with the OSTP sponsor for each Panel, we will send the updated version to the appropriate Panel chairmen for final comment. Unless otherwise requested, the final Terms of Reference will be signed by Dr. Bromley on Thursday, May 9, 1991.

Your cooperation on these 3 items will be greatly appreciated. Please note we will also be sending you further information on the procedures and guidelines for future Panel meetings. If you should have any questions or require assistance, please call me or the designated OSTP sponsor.

THE WHITE HOUSE
WASHINGTON

May 8, 1991

MEMORANDUM FOR THE PRESIDENT

FROM: JOHN McTAGUE, ON BEHALF OF PCAST
SUBJECT: Investing in the Future - Follow Through With Congress

The Council reiterates its support for the important investment in the future proposed in your FY 1992 Budget submission, particularly in the areas of research and development. At the March PCAST meeting you noted the lack of a natural political constituency for research, especially individual investigator efforts. This makes all the more important strong Administration follow-up with the Congress, particularly as consideration moves to the appropriation process.

From the authorization hearings and budget resolutions to date, it is becoming increasingly clear that sustaining your R&D priorities will require your personal and visible participation. If a White House meeting were called together, with both Republican and bipartisan Congressional leaders to highlight the priority this investment has for the nation, it would be particularly effective. The Council recommends such an action, realizing the many demands on your time and political capital.

FILE
peasi

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

Ron Welch -

I have looked over the
Comany Megaprojects draft.
It needs a lot of work.
I'll give it attention on
my return from the USSR

JR
5/9/91

cc: Ken Yale

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

May 7, 1991

MEMORANDUM FOR J. THOMAS RATCHFORD

FROM: TOM WELCH *Tm*
SUBJECT: Draft PCAST Memorandum on Megaprojects

As you are aware during last week's PCAST meeting Dr. Bromley asked several members to draft memoranda to the President on selected issues on behalf of the entire Council. Attached is a first draft of the memorandum on Megaprojects as composed by Ralph Gomory.

It would be very helpful if you could provide comments or suggestions on this draft and get them back to the PCAST office by close of business today. This will help enable us to forward the draft memorandum with the comments back to the author and get a response before Dr. Bromley leaves for the Soviet Union on Friday.

Thank you very much for your cooperation.

Attachment

CC: Ken Yale

*Needs Much
Work*

DRAFT

May 7, 1991

DRAFT PCAST MEMORANDUM

FROM: RALPH GOMORY, ON BEHALF OF PCAST
SUBJECT: Megaprojects

The Federal Government can be proud of its role in supporting research since World War II. This research has had to two components, support of individual investigators and support of Megaprojects. While both components have had significant successes, the historical record shows that the most far reaching successes have clearly come from the individual investigator component. We need only mention the work on solid state physics that made the transistor possible, or the fundamental work on molecular biology leading to the transistor. ?

PCAST is concerned that the working of the principal investigator system is under great stress and is further threatened by the planned out-year growth of Megaprojects.

all
Some of the Megaprojects are bonafide - if expensive - scientific projects from which significant results can be expected. The Superconducting Super Collider is an example of this. However others, the Space Station is an example, which can make at best a minor scientific contribution. Given their great expense, such projects can not be justified on scientific grounds, and their continuation needs to be based on something else. *Safely*

While in the past Megaprojects were affordable, and their out-year growth could be dealt with in expanding budgets, this is no longer the case in this time of limited budgets. PCAST is concerned that the impact is and will be felt on what has historically been the most productive component, the individual investigator.

PCAST believes that priorities will have to be set and choices made among the megaprojects. PCAST recognizes the sensitivity of this issue, and the fact that we are dealing with major legacy decisions.

Nevertheless PCAST would be willing to contribute its views on these necessary choices if the President finds that useful.

OSTP STAFFING SHEET

SUBJECT: Procedures for PEAST Panels

ORIGINATOR: Tom Welch PHONE: _____

DATE ORIGINATED: 6/4 DATE DUE: 6/4 cob CORR TRACKING NO.: _____

EXTERNAL COORDINATION: _____

	COMMENTS	DATE
DIRECTOR		
CHIEF OF STAFF		
GENERAL COUNSEL		
EXEC. ASST.		

ACTION REQUESTED:

*Clear/comment to Bill Snyder by cob (5 p.m.)
today, 6/4/91*

COORDINATION	DATE	COMMENTS
✓ Henderson, D. A. Concur _____ Nonconcur _____		_____
✓ Phillips, W. Concur _____ Nonconcur _____		
✓ Ratchford, J. T. Concur ☒ Nonconcur _____		
✓ Wong, E. Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		
Concur _____ Nonconcur _____		

*I have no specific suggestions
except that the Panel chairmen
should review in draft before
the memo is issued - even
~~the~~ better, all PEAST members
should review in draft.*

THE WHITE HOUSE

WASHINGTON

June 4, 1991

MEMORANDUM FOR THE PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE
AND TECHNOLOGY AND THE OSTP STAFF

FROM: D. ALLAN BROMLEY

SUBJECT: Procedures for PCAST Panels

Now that the PCAST Panels are taking shape I believe it important to review the procedures and guidelines which are necessary to the operation of the Panels. PCAST Panels will be composed of PCAST members only and outside expert witnesses presenting testimony to the Panel. The two exceptions are the Technology and National Security Panel which will have non-PCAST members appointed as consultants to the Office of Science and Technology Policy and the High Performance Computing and Communications Panel which will have both consultants and witnesses. The consultant approach is necessary for these Panels because of the need for repeated, consensus building among the PCAST and the other members of the Panel. It is important to keep in mind while the structure of the Panels may differ, the following procedures and guidelines will apply to all Panels.

Requirements under the Federal Advisory Committee Act

All PCAST Panels, regardless of their structure, and Panel sub-groups come under the Federal Advisory Committee Act (FACA). In general, FACA requirements apply to all advisory groups which meet two criteria: (1) the group provides advice and recommendations to a Federal official; and (2) the group has at least one non-Federal member. There are exceptions, however none of which apply to the PCAST Panels or Panel sub-groups.

Each group under FACA must satisfy several requirements, including:

- o Each Panel must publish a notice in the Federal Register of all meetings and make them open to the public. Three original copies of the announcement signed by Damar Hawkins must be given to the Federal Register 15 days before each meeting. There are exceptions when meetings may be in closed session. Tom Welch can discuss the requirements for closed meetings with each of the Panel chairmen.
- o Each Panel must keep detailed minutes of all meetings and make them available to the public. These minutes must include the time and place, list of attendees, and copies of all documents dispersed during the meeting. There are a few exceptions where portions of the minutes can be withheld from the public, but regardless of the circumstance minutes must always be taken.

- o Each Panel must have a designated Federal official present during all meetings. In most cases, this will be the Office of Science and Technology Policy sponsor for the Panel or their designee.

These meetings should be conducted using the model of a congressional hearing with expert witnesses or industry representatives presenting testimony to the Panel chairmen. There may also be question and answer sessions. The presenters may be brought in on multiple occasions.

The National Science Foundation has prepared a very thoughtful document which carefully outlines procedures for managing advisory committees which you may find useful. It has been included for your future reference. Also enclosed is a booklet on FACA published by the General Services Administration.

Travel

As is the case with all PCAST meetings, invitational travel orders will be issued by the OSTP in order for members of the Panel and presenters to be reimbursed for per diem and travel expenses at a government determined rate. (A sample letter of invitation for Panel witnesses is attached)

To help ensure the successful implementation of these procedures and guidelines, I ask that the Panel chairmen notify the PCAST staff office, (202) 395-5101 at least 3 weeks in advance of all Panel meetings.

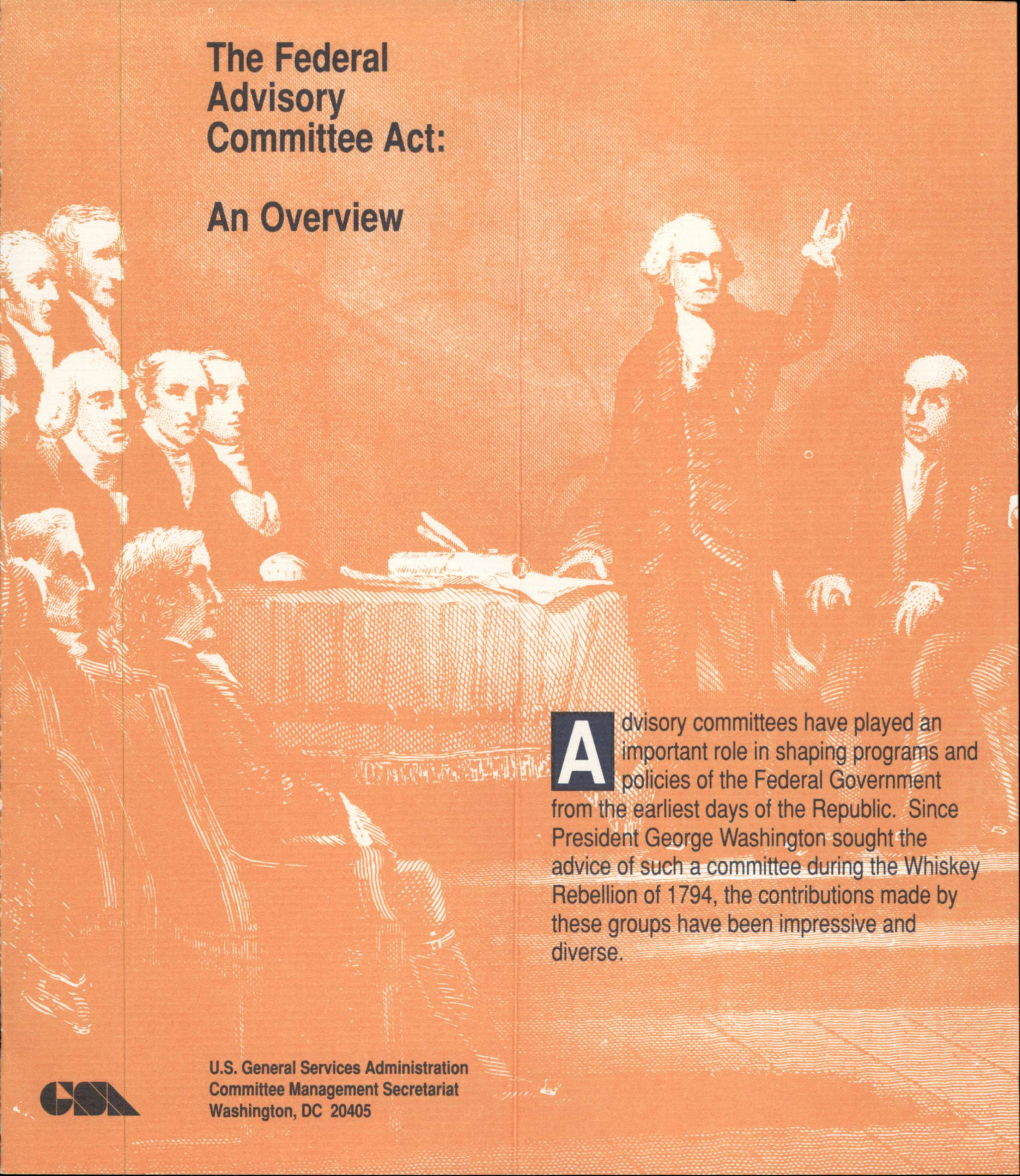
If you should have any questions or concerns about the operations of the Panels, please let me know and I will try to help.

These success of these Panels will be vital to the continued success of PCAST in maintaining its mission of advising the President. I look forward to hearing about your progress.

Attachments

The Federal Advisory Committee Act:

An Overview



Advisory committees have played an important role in shaping programs and policies of the Federal Government from the earliest days of the Republic. Since President George Washington sought the advice of such a committee during the Whiskey Rebellion of 1794, the contributions made by these groups have been impressive and diverse.



U.S. General Services Administration
Committee Management Secretariat
Washington, DC 20405

Through enactment of the Federal Advisory Committee Act (FACA) of 1972 (Public Law 92-463, October 6, 1972), the U.S. Congress formally recognized the merits of seeking the advice and assistance of our Nation's citizens. At the same time, the Congress also sought to assure that advisory committees:

- Provide advice that is relevant, objective, and open to the public;
- Act promptly to complete their work; and
- Comply with reasonable cost controls and recordkeeping requirements.

Role of Federal Advisory Committees

With the expertise from advisory committee members, Federal officials and the Nation have access to information and advice on a broad range of issues affecting Federal policies and programs. The public, in return, is afforded an opportunity to participate actively in the Federal Government's decisionmaking process.

Federal Agency Responsibility

Each Federal agency that sponsors advisory committees must adhere to the requirements established by the FACA, as well as those administrative guidelines provided by the U.S. General Services Administration's (GSA) Committee Management Secretariat. GSA has had the responsibility for overseeing the FACA since 1977.

GSA's Role Under the FACA

With approximately 1,000 advisory committees in existence at any given time, special attention is required to assure compliance with the FACA, the Freedom of Information Act, and related regulations, as well as to encourage effective and efficient use of committee resources.

While Executive Branch departments and agencies are responsible for continually reviewing committee performance in these areas, the General Services Administration was designated by the President in 1977 to monitor committee activities governmentwide. As part of this responsibility, GSA:

- Conducts annual reviews of advisory committee accomplishments;
- Responds to inquiries from agencies on establishing new committees or the renewal of existing groups; and
- Prepares an annual report covering a summary of committee activities.

Together, GSA and the Federal community work together to eliminate the overlap or duplication of advisory bodies, terminate unnecessary or inactive committees, and develop committee management regulations, guidelines, and training in response to requirements of the Executive Branch and Congress.

Complying with FACA

Any advisory group, with limited exceptions, that is established or utilized by a Federal agency and that has at least one member who is not a Federal employee, must comply with the FACA. To find out if a group comes under the FACA, any individual may contact the sponsoring agency's Committee Management Officer, or the GSA Committee Management Secretariat at FTS/202 523-4884.

Requirements for Establishing and Managing Advisory Committees

Under the Federal Advisory Committee Act, advisory committees can be created only when they are essential to the performance of a duty or responsibility conveyed upon the Executive Branch by law. Before committees can be set up, high-level officials within the sponsoring agency must review and approve the request. Once a committee is approved, a charter is prepared outlining the committee's mission and specific duties and the charter is then forwarded to GSA's Committee Management Secretariat and to the U.S. Congress for final review. Following a required public notification period, the committee may begin operation.

Committee Management Officer and Designated Federal Official

The Federal Advisory Committee Act also provides that each agency sponsoring a Federal advisory committee must appoint a Committee Management Officer to oversee the administration of the Act's requirements.

In addition, a Designated Federal Official must be assigned to each committee to:

- Call and adjourn committee meetings;
- Approve agendas;
- Maintain required records on costs and membership;
- Ensure efficient operations;
- Maintain records for availability to the public; and
- Provide copies of committee reports to the Committee Management Officer for forwarding to the Library of Congress.

Termination of a Committee's Charter

Unless the renewal of a committee charter is justified under the FACA, the charter is automatically terminated after a two-year period (or as otherwise provided by law).

Advisory Committee Members

Federal advisory committee members are drawn from nearly every occupational and industry group and geographical section of the United States and its territories. The FACA requires that committee memberships be "fairly balanced in terms of the points of view represented and the functions to be performed."

As a result, members of specific committees often have both expertise and vocational skills that parallel the program responsibilities of their sponsoring agencies. In balancing committee memberships, agencies are expected to assure that major--and sometimes strongly opposing--viewpoints are represented to provide a foundation for developing advice and recommendations that are fair and comprehensive.

Appointing Committee Members

Agency officials, Members of Congress, the general public, or professional societies or current and former committee members may nominate potential candidates for membership.

Selection of committee members is made based on the FACA's requirements and the potential member's background and qualifications. Final selection is made by agency heads or their delegates.

Prior to accepting an appointment with a Federal advisory committee, each prospective member should meet with the appropriate agency Committee Management Officer and designated ethics officials to discuss duties and obligations, allowable expenses and compensation limitations.

Federal Conflict of Interest Laws

Agency officials must provide prospective advisory committee members with information regarding any applicable standards of conduct--including those imposed by Federal conflict of interest statutes. In some instances, members may be subject to special limitations during the course of their service on an advisory committee. For some members, these restrictions also may apply (for limited periods) after their committee assignments have ended.

Some agencies may impose additional administrative requirements as well. To avoid potential conflicts, each advisory committee

member should assure that he or she receives adequate information from the sponsoring organization and completes any required appointment papers and disclosure forms prior to service on a committee.

Oral briefings and other explanatory material may be obtained through the sponsoring organization's designated ethics official, Committee Management Officer, or from the Office of Government Ethics, which has governmentwide jurisdiction on Federal ethics issues.

Limits on Membership Terms

Each agency sets limits on the lengths of terms for serving on advisory committees to allow for continually new membership. Generally, members are appointed to a two-year term.

Open Access to Committee Meetings and Operations

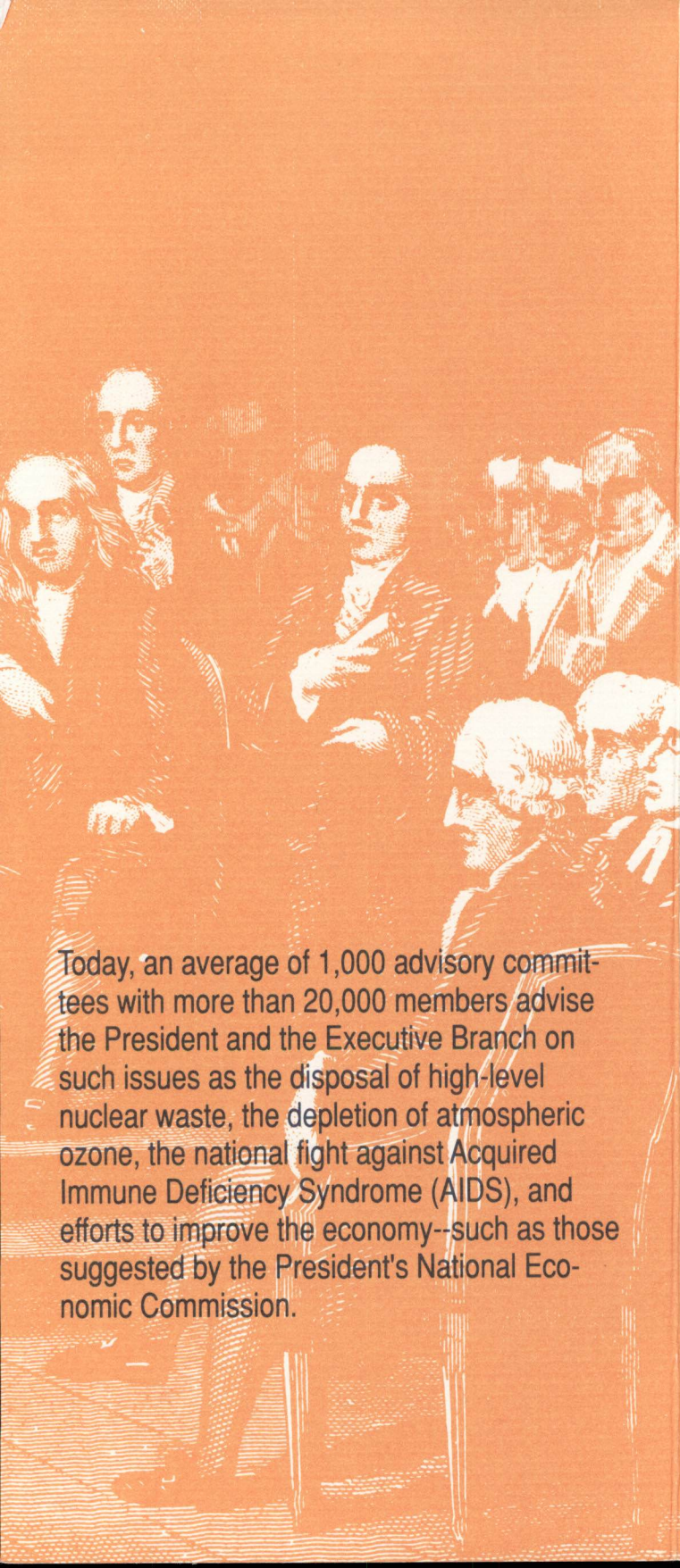
Under the provisions of the Federal Advisory Committee Act, Federal advisory committees must:

- Arrange meetings for reasonably accessible and convenient locations and times;
- Publish adequate advance notice of planned meetings in the Federal Register;
- Open advisory committee meetings to the public (with some exceptions--see the section on "Government in the Sunshine Act" below);
- Make available for public inspection all papers and records, including detailed minutes of each meeting; and
- Maintain records of expenditures, with limited exceptions, for public inspection.

Government in the Sunshine Act

Advisory committee meetings are closed or partially closed to the public based upon provisions of the "Government in the Sunshine Act" (Public Act 94-409, September 13, 1976). Examples of meetings that may be closed under the FACA are:

- Those including discussions of classified information;
- Reviews of proprietary data submitted in support of Federal grant applications; and
- Deliberations involving consideration of personnel information protected by the Privacy Act (Public Act 93-579, December 31, 1974).



Today, an average of 1,000 advisory committees with more than 20,000 members advise the President and the Executive Branch on such issues as the disposal of high-level nuclear waste, the depletion of atmospheric ozone, the national fight against Acquired Immune Deficiency Syndrome (AIDS), and efforts to improve the economy--such as those suggested by the President's National Economic Commission.

For More Information...

For more information on the requirements of the Federal Advisory Committee Act, contact the General Services Administration's Committee Management Secretariat at FTS/202 523-4884.

Copies of the following information materials also may be obtained through the Committee Management Secretariat:

- *Annual Report of the President on Federal Advisory Committees* (for current fiscal year)
- Federal Advisory Committee Act (is in *Annual Report*)
- Government in the Sunshine Act (excerpt is in *Annual Report*)
- GSA Final Rule on Federal Committee Management (is in *Annual Report*)
- List of agency committee affiliations (is in *Annual Report*)
- *The Federal Advisory Committee Act: An Overview*

Other materials, such as samples of nominating letters and charters, are available from each agency or call GSA's Committee Management Secretariat at FTS/202 523-4884.

Cover engraving: *Washington Presiding in the Convention, 1787*, J. Rogers after Wageman. No date.



Committee Management Guide

REVISED AUGUST 1990

**Prepared by the
Division of Personnel and Management**

FOREWORD

This Guide is written primarily for the Designated Foundation Officials of NSF advisory committees and panels, but contains useful information for anyone working with committees in other capacities.

Contents are based on pertinent laws (the Federal Advisory Committee Act (FACA) and the Government in the Sunshine Act), regulations (GSA Regulations on Advisory Committee Management), and NSF policy and procedures embodied especially in NSF Manual 1, Chapter IV-100, "Committee Management," NSF Manual 15, "NSF Conflict-of-Interest Rules and Standards of Conduct," and NSF Manual 10, "Proposal and Award Manual".

The Forms Window has copies of ADM IV-100 and other NSF issuances. The Committee Management Officer (CMO) and the Office of the General Counsel have copies of the GSA Regulations, FACA, and the Government in the Sunshine Act.

This revision of the Guide incorporates the new consultation form that replaces the letter of consultation and charter, and includes guidance for subcommittees and the new Special Emphasis Panels, as well as how to select the proper type of group for advice.

If you have any questions, please contact Ms. Becky Winkler, the Committee Management Officer, in the Management Analysis Branch of the Division of Personnel and Management. She can be reached at 357-7363, in Room 208.



Margaret L. Windus
Director, Division of Personnel
and Management

Revised: August 1990

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CHAPTER I - INTRODUCTION

A. BASIC INFORMATION

1. What is an advisory committee?

An advisory committee is any group formed or used by a Federal agency with one or more non-Federal members that is asked to give an agency advice.

The name or designation of the group does not in any way affect whether the group is an advisory committee. Just because you call the group something other than "advisory committee," does not mean it is not legally an advisory committee. See Appendix J for guidance on which type of group to use.

2. What is "FACA"?

The Federal Advisory Committee Act (FACA) is the law on which the Committee Management Regulations and NSF policies and procedures are based. All Federal advisory committees are subject to the requirements of FACA. (See 4., below for exceptions.)

3. What are the requirements under FACA?

Advisory committees must:

- a. be chartered (see Chapter II);

- b. publish a notice in the Federal Register of their establishment and renewal (see Chapter II);

- c. publish a notice in the Federal Register of all meetings which must be open to the public with few exceptions (see Chapter III);

- d. keep minutes of all meetings and make them available to the public with few exceptions (see Chapter III);

- e. be renewed every 2 years or they terminate (see Chapter V); and

- f. at least annually, account for each committee's costs, activities, and members (see Chapter IV).

Further details and instructions for each of these requirements are located in the remaining chapters, as indicated above, and in appendices to this Guide.

4. Are there circumstances when a committee would not be subject to FACA?

Yes. The following criteria define when an advisory committee must comply with FACA, but there may be exceptions:

1. group provides advice and recommendations to a Federal official;

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- and -

2. group has at least one non-Federal member.

Examples of exceptions to these criteria are provided below.

1) FACA would not apply where advice and recommendations are sought from only one individual, e.g., a single person advises a Program Officer in the conduct of a site visit.

2) An exclusion of criterion 1 is if advice is sought from individual attendees at a meeting without the benefit of discussion or deliberation. The reason is that the group had not been used to obtain advice or recommendations. If, however, discussion occurs, the assumption is that this is a "source of advice and recommendations" regardless of whether or not the group actually comes to a consensus.

3) Criterion 1 is not met where advice is not given at meetings, e.g., a) Federal and non-Federal officials exchange facts or information, or b) a group requests a meeting with a Federal official to express the group's views.

4) Criterion 2 is not met where all members of the group are Federal employees.

In summary, FACA has jurisdiction over any group that:

- an NSF official convenes or uses,

- consists of one or more non-Federal members, and

- discusses and deliberates on any subject.

5. Is there any reason to charter a committee even though it wouldn't be required?

Yes. You might want to charter a committee if you want to have its meeting(s) publicized or if you expect the committee's recommendations to be controversial (and therefore, might have widespread and/or long-term attention).

6. What about subcommittees; do they have to be chartered?

It depends on whether you want the advice directly or not. A subcommittee may function independently of its parent committee or may offer recommendations to the Foundation officials through the parent committee. NSF cannot accept or use advice directly from a subcommittee unless that subcommittee is separately chartered under FACA. Otherwise, the work of a subcommittee must be given to the chartered parent committee for consideration before it is accepted by NSF.

A subcommittee may be composed of members drawn in whole or in part from the parent committee.

7. If I don't have to charter my subcommittee, is there anything else I need to do?

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A subcommittee, whether chartered separately or not, must comply with the requirements of FACA including publishing notice of meetings at least 15 days before all meetings. A meeting must be open to the public unless it, or a part thereof, is closed pursuant to law with the explicit approval of the Office of the General Counsel. Even if closed in its entirety, notice must be published in the Federal Register.

All records, including everything received by a committee and everything it produces (e.g., drafts and detailed minutes of meetings), must be kept until the committee is disbanded.

All records also must be available to the public for inspection and copying unless they, or portions of them, must be withheld under one of the statutory exemptions such as where disclosure would constitute an unwarranted invasion of personal privacy.

8. Do I have to charter a site visit group?

Site visit groups must be chartered under FACA:

- if they have one or more members who are not employees of the Federal Government and
- if the group's discussion or deliberation is used as a source of advice or recommendation, even if the group does not give specific advice or recommendations.

However, you need not consider chartering where a non-Federal person advises a Program Officer since this is not a "group" but one person advising the Government.

Like other advisory committees, a site visit group must be balanced in its membership in terms of the points of view represented and the functions to be performed.

9. What alternatives to chartering do I have?

You could use an existing NSF committee, use another agency's committee, or you could hold public hearings.

In fact, as part of the consultation form in the establishment process, you have to tell GSA why you decided not to use another method to meet your needs instead of setting up a new committee. (See Appendix J for alternatives.)

10. Who can establish an advisory committee?

The Director, NSF, has delegated to Assistant Directors and Staff Office Directors responsibility for establishing, as well as renewing and terminating, committees. (See Appendix A, Signature Authorities for Advisory Committee Documents.)

11. If I need to charter a committee, what do I have to do to establish it and how long does it take?

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It takes about 2 months to set up a committee. (See Appendix E for timetable.) Briefly, you have to:

- a. provide the CMO with information about the proposed purpose, membership, meeting frequencies, costs, etc. and obtain internal (Division Director and Assistant Director) approval;
- b. consult with GSA by a consultation form/charter (the CMO handles this), signed by the Division Director and Assistant Director (see Appendix B);
- c. notify the public by publishing a Notice of Establishment in the Federal Register (the CMO handles this) (see Appendix D); and
- d. file the consultation form/charter with Congress (the CMO handles this).

See Chapter II and Appendices B - E for specific details and requirements for establishing an advisory committee.

12. Who prepares the paperwork?

The program official who wants the committee prepares the documents. However, once the documents are signed, the CMO processes them and serves as liaison with the GSA Committee Management Secretariat, Office of the Federal Register, Library of Congress, etc.

13. How are advisory committees structured at NSF?

Basically, NSF uses two names for advisory groups -- advisory committees and advisory panels.

Advisory committees generally operate at the directorate or division level and provide advice, recommendations, counsel, and critical review for specific program, division, and directorate activities.

Advisory panels, on the other hand, generally operate at the program level and are mostly involved with proposal review activities.

Both committees and panels can be used for program oversight.

A new type of advisory panel is the Special Emphasis Panel (SEP). The SEP is designed to encompass review of proposals and applications for the various special initiatives in the Agency, e.g., PYI, ROW, and SBIR. Only one SEP is established in each division with special initiative proposals for review. The membership of the SEP depends upon the types of proposals needing review.

See Appendix C for more information on SEP's.

14. What would happen if I had an advisory committee that wasn't established under the Federal Advisory Committee Act?

The committee would be illegal but you probably wouldn't go to jail.

However, you might be charged for the illegal committee's expenses and

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you could be sued, particularly if the committee gave advice on policy, money, or regulations.

Also, the advice and recommendations of the committee might be considered invalid.

If you discover you have a group that should be chartered, contact the CMO.

B. RESPONSIBILITIES

1. Assistant Director or Staff Office Director oversees compliance with FACA in his or her organization.

2. Designated Foundation Official (DFO) is the full-time or permanent part-time NSF staff member designated by the Assistant Director/Staff Office Director to be responsible for the committee.

The DFO:

- a. approves or calls and attends committee meetings;
- b. approves the agenda;
- c. ensures that the Notice of Meeting is published in the Federal Register and that minutes are prepared and certified by the Committee Chair on a timely basis;
- d. ensures that all committee members are instructed on current ethics laws and regulations;
- e. guards against committee member conflicts of interest;

f. adjourns the meeting when he or she determines that adjournment is in the public interest;

g. assures that the committee's recommendations are reviewed promptly and accepted advice is implemented as appropriate;

h. maintains and provides minutes, reports, documents (subject to FOIA), costs, and other information about the committee;

i. assures the committee's efficient operation and that the FACA requirements are met; and

j. is familiar with the openness provisions of FACA. (See Chapter III.)

3. Committee Management Officer (CMO) is designated by the Director to ensure that legal and regulatory requirements are met, to provide advice and guidance to NSF officials, and to serve as liaison with other agencies about NSF advisory committees.

The CMO:

a. reviews all proposed establishments, renewals, or charter amendments for overall compliance with FACA, GSA Regulations, and NSF policy;

b. coordinates and/or summarizes input to required committee management reports;

c. maintains a central repository for committee management documents,

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e.g., charters (or consultation forms) and membership lists;

d. provides information to the public on how to obtain copies of reports and minutes of each committee; and

e. makes determinations to close meetings to the public when the meetings are concerned with proposal review or program oversight. Determinations for closing meetings for other reasons must be made by the Director, NSF.

4. Committee Management Secretariat (CMS) is part of the General Services Administration and is responsible for overseeing and reporting on Federal advisory committees.

5. OMB Budget Examiner for NSF programs and activities reviews all NSF requests to establish advisory committees.

6. Chairperson presides over committee meetings and certifies to the accuracy of minutes by signing minutes.

Advisory committees are usually chaired by a member of the committee and selection (or election) of a chairperson is local option. In some cases the chairperson is elected by the committee; in others, the responsible Division Director or Assistant Director selects the chairperson.

Advisory panels usually are chaired by an NSF staff member, usually the Designated Foundation Official.

7. Office of the General Counsel (OGC) provides legal advice and interpretation of FACA and reviews all requests to close committee meetings to the public.

CHAPTER II - ESTABLISHING AN ADVISORY COMMITTEE

A. OVERVIEW OF THE ESTABLISHMENT PROCESS

1. What documents are required to establish an advisory committee?

As stated in Chapter I, to establish an advisory committee you need a completed consultation form (which replaces the letter of consultation and charter) and a Notice of Establishment.

See question 3., below for details of the process.

2. How long can an advisory committee be in existence?

Advisory committees are established for a maximum of 2 years. However, a committee can be renewed, in 2-year increments, for as long as there is a need for it. You may also have a much shorter duration, depending upon the time required for the committee to accomplish its objectives.

3. Exactly how does the establishment process work in terms of paperwork flow?

The CMO will give you instructions on what information is necessary for establishment and will work with you in creating the consultation form. For SEP's, the CMO will give you a partially completed consultation form for completion and approval within your directorate (see Appendix B for the consultation form and Appendix

C for examples of information to include on the consultation form). The CMO will also ask you to prepare a notice of establishment (see Appendix D for a sample Notice of Establishment).

Once you have completed the consultation form and your division and directorate officials have signed it, the CMO handles the concurrence process.

GSA reviews the documents for compliance with FACA and sends a copy of the consultation form/charter to the NSF Budget Examiner at OMB. The Budget Examiner uses a working knowledge of NSF to determine the real need for a committee. The Budget Examiner and GSA will jointly decide concurrence in the establishment.

When GSA concurs, the CMO publishes the Notice of Establishment in the Federal Register.

The CMO files the consultation form/charter with Congress, GSA, and the Library of Congress 15 calendar days after the Notice appears in the Federal Register.

The committee is effective on the "file date" (date consultation form is sent to the Library of Congress) which the CMO types in the upper right corner of the consultation form/charter. The

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CMO will also send you a copy of the filed charter.

If you have any questions, contact the Committee Management Officer.
(See Appendix E for the timetable.)

4. Who signs the consultation form/charter and Notice of Establishment?

a. For a director-level advisory committee, the Assistant Director signs the Sponsoring Official block and the Other Concurring Agency Official block is left blank.

b. For all other committees and panels, the cognizant Division Director signs the Sponsoring Official block and the Assistant Director signs the Other Concurring Agency Official block.

In all cases, the position title of the Designated Foundation Official is put in the Remarks section.

In addition to signing the consultation form, the CMO signs the Notice of Establishment.

5. How will I know when the committee is established?

The CMO will call you as soon as GSA informs her of their decision. (GSA must decide within 15 days from receipt of consultation form.) GSA also follows up with a letter to the Assistant Director/Staff Office Director and with a copy to the CMO.

If OMB or GSA has questions or problems with the establishment, they call the CMO. The CMO either serves as liaison between you and GSA or asks you to call OMB/GSA to provide additional information.

6. Suppose I have to get a committee established in a hurry, what do I do?

If you need a committee established in less than 2 months, contact the CMO immediately. In emergency situations GSA will take less time for their review and will waive some of the time requirements for Federal Register notices. See Appendix E for a detailed timetable and summary of procedures and review levels involved in establishing a committee and announcing its first meeting.

NOTE: If your first meeting will have a closed session, let the CMO know so that the determination to close the meeting to the public can be made 30 days before the meeting date.

7. Who keeps the records of a committee and what must be kept?

The CMO is responsible for some documents, you are responsible for the others. The CMO maintains a central repository of all advisory committees' original charters and consultation forms, other documents related to the establishment, renewal, and/or termination, and administrative reports such as those required by FACA or GSA Regulations.

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You must keep all other records until the committee terminates. (See V-B.2 for information on records retention.) Records include reports, transcripts, minutes, appendices, working papers, drafts, studies, agenda, or other documents that were made available to or prepared for or by your committee.

Additionally, all records must be available to the public for inspection and copying unless they, or portions of them, must be withheld under one of the statutory exemptions such as where disclosure would constitute an unwarranted invasion of personal privacy.

For SEP's, where different Program Officers manage different panel meetings, the DFO should be careful to ensure that each Program Officer provides to the DFO copies of these documents for reports and retention. There should be only one location designated for the retention of SEP records in each division.

B. DESIGNATING MEMBERS

1. Do I have to wait until my committee is effective before I can designate my members?

No, you can carry out all administrative tasks, including designating members, before the committee is established. You may not, however, operate, meet, or take any action as a committee until it is established (i.e., "filed" with Congress following GSA's review and publication of Notice).

2. What do I need to consider when selecting members?

You need to consider: a) balanced membership, b) number of members needed to perform the function, and c) terms of service. These considerations are described below.

a. Balanced Membership. FACA and Federal Advisory Committee Management Regulations require that Federal advisory committees maintain balanced membership.

This means you need to consider a cross-section of those directly affected, interested and qualified, as appropriate to the nature and functions of the committee. Committees requiring technical expertise should include persons with demonstrated professional or personal qualifications and experience relevant to the functions and tasks to be performed.

NSF has specific guidance on the selection of members in Chapter I of the Proposal and Award Manual (PAM).

The Director, NSF, is interested in maintaining balanced membership on NSF committees and at least annually reviews with each Assistant Director the statistical report on composition for his/her advisory committees. (See Chapter IV B for more on this report.)

Below are general guidelines on balanced membership.

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(1) Individual qualifications - each member should have recognized pertinent expertise or should have demonstrated ability as a reviewer.

(2) Fields of expertise - within reasonable limits, members' fields of specialty should be complementary within the group.

(3) Public impact - where pertinent, members should be representative of geographic regions, organizations, or segments of the public especially where directly affected by issues under consideration.

(4) Academic and nonacademic impact - members from the academic community should represent small, medium, and large institutions, including PUI's, as well as public and private institutions.

Whenever possible, concurrent or successive designations of individuals from the same institution should be avoided. Representatives from outside the academic community are also desirable in most instances.

(5) Underrepresented views - special attention should be paid to obtaining qualified persons from underrepresented groups such as minorities, women, younger age groups, and the disabled.

b. Number of Members. GSA suggests a maximum of 25 members for committees with an Agency-wide mission and 12 for all others. The average number of members per committee at NSF is 12 with a range of 20 for a directorate-wide

committee to 5 for proposal review panels.

The exceptions are the Special Emphasis Panels that have many more members serving during an entire year because the membership is fluid, depending upon the agenda for the meetings.

c. Terms of Designation. Members normally serve up to 3 years. Membership should be staggered so that approximately one-third of the membership is replaced annually.

Again, exception is made for SEP's, where members serve only during the particular meeting for which they are designated.

3. How do I get members "on board"?

Members, including Federal members, are designated by a letter of designation. Each directorate/office has its own internal requirements for selection approval. Once the selection is approved, you prepare a letter of designation. The letter is signed by the respective program official, but usually not lower than the division director level.

4. What kind of information do I need to include in the designation letter?

In addition to informing the prospective members of their duties, obligations, and term of designation, you should ensure that both Federal members and non-Federal members are aware of allowable expenses and

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compensation limitations as well as NSF's conflicts requirements.

5. What are the conflicts requirements?

Before any member (including Federal members) can serve, you, as Designated Foundation Official, must ensure that each potential member has read and signed NSF Form 1230, "Conflicts of Interest Statement for NSF Advisory Committee/Review Panel Members." (See Appendix H for copy of NSF Form 1230.)

After reading and signing the Statement, members return the form to you to resolve any future conflicts issues. You must retain the forms and record any action taken. (See NSF Manual 15, Subpart B., Section 681.20 (e).) Also, at meetings you must resolve conflicts questions.

For SEP members, you will need to get new submissions of NSF Form 1230 each time they are designated.

See Chapter III for more information and NSF Manual 15, Subpart B., Section 681.20 (c).

6. Are there any other forms concerning conflicts that are needed?

Yes. If a member is from a state university system that has several semi-autonomous campuses, before the meeting you complete an NSF Form 1216, "Multi-Campus System Waiver." (See Appendix L.) You should keep one copy in the committee files and send the other to

OGC. Be sure the information on that form is complete and accurate.

For SEP members, you will need to get new submissions of NSF Form 1216 each time they are designated, where appropriate.

7. Are all advisory committee members paid a fee for their services?

No. There is no requirement to pay advisory committee members. Some members will not want compensation and some are not allowed to be paid. Federal members, for instance, are not offered compensation by law (5 USC 5533, 5536; 31 USC 484).

You should generally assume that all non-Federal members wish to be paid our standard \$100 a day fee unless they tell you otherwise.

Regardless of whether members are paid a fee or not, they are currently authorized to be reimbursed up to \$160/day for costs of hotel accommodations, meals, taxis, and miscellaneous expenses when in travel status.

8. How are advisory committee members paid?

Members are paid under the guidance of FIN I Section 170.

Essentially, advisory committee members are paid from PD&M funds and advisory panel members from program funds.

Formal paperwork to compensate members is under a travel

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authorization and reimbursement obtained through a memorandum to DFM for non-Federal members. The Division Director (or cognizant Assistant Director) signs the reimbursement memorandum.

Federal members must submit a travel voucher and attach appropriate receipts.

The DAS travel contractor will obtain airline tickets for you.

You should contact your Administrative Officer for specifics on preparing travel authorizations and reimbursing members and latest cost levels for fees, travel, and other expenses.

C. CHARTER PREPARATION

1. How do I know what to include in my consultation form (previously a charter)?

The CMO will provide you with a form to complete and give you advice on filling it out. See Appendix B for the format to use for the consultation form and Appendix C for examples of information to include on the form.

This section provides information on areas you need to address when requesting GSA concurrence on establishing a committee.

Basically, what GSA needs to know is what the committee will do, how long will it exist, why another existing group can't do it, what its membership will be, who's going to be

responsible for it, and what is it going to cost.

2. How can I know what costs my committee will have before it's in operation?

Part of the decision process in determining if you need a committee, includes thoughts about activities you would want a committee to perform as well as the amount of resources (staff time and member costs) available to you for the committee. Using this information, you can estimate committee costs.

3. How do I calculate personnel payments, as listed on the consultation form?

Personnel Payments include:

- non-Federal member compensation;
- Federal members prorated salary including fringe benefits (includes NSF staff who are chairpersons);

Note: This category includes members from other Federal agencies and any NSF employees who are considered full-voting members of an advisory group. In most cases, this applies to Program Officers who serve as chairpersons of proposal review panels. You should compute Federal member compensation, including fringe benefits, as you would staff costs, except you don't compute the person years. (See 7, below.)

- Federal staff. This is comprised of multiplying NSF staff time (see

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below) by the average annual salary of each staff member. The cost includes fringe benefits (calculated by multiplying the amount of compensation by 14%); and

- non-member consultant compensation.

You may estimate member costs using your own formula or you may follow the guide below.

Compensation: multiply the number of non-Federal members who will receive compensation by \$100 (fee). (See B.7. for who can receive compensation.) Then multiply the total compensation cost by the number of meeting days. You would use this procedure for determining non-member consultant costs as well.

4. How do I compute costs for Travel and Per Diem, as shown on the consultation form?

Travel and Per Diem is calculated for non-Federal and Federal members, NSF staff, and non-member consultants.

You may compute travel costs by multiplying the number of members on the committee by \$500 (average round-trip transportation cost and expenses).

5. What about "other" costs?

Other costs include items such as postage, rental of conference space in a hotel, printing costs, and court reporter fees.

6. What do I do to calculate staff support years?

Staff Support Years is comprised of any time Federal employees spend in support of the advisory committee. This includes time spent attending the advisory committee/panel meeting. (See 8., below for an exception.)

Do the following for each individual staff member:

a. **Total the estimated number of days** (or part of a day) that the staff member is expected to work on the committee, including meeting days.

b. **Multiply the estimated number of days** the staff member is expected to work on the committee **by 8 hours** to get the total hours/year.

c. **Divide the expected annual hours of work on the committee by 2087** (available hours per year) to get the percentage of a work year to be spent on the committee.

d. **Multiply this percentage by the respective staff member's annual gross salary** to get cost per year for that staff member's work on the committee.

Then, when you've done this for each staff member, **add all of the salaries and percentages of time** expected to be spent on committee work for the total staff costs and time.

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7. Give me an example of a Program Officer (who is not a member of the committee), Program Assistant, and Clerk-Typist who provide staff support for a committee that holds 3 2-day meetings a year.

DAYS PER POSITION

	Program Officer	Program Assistant	Clerk- Typist	Total Years and Costs
Attending Meetings	6	6	0	
+ Admin. Time	<u>6</u>	<u>6</u>	<u>15</u>	
= <u>Total Days</u>	12	12	15	
(X 8 Hrs/Day=) <u>Hrs/Staff/Yr</u>	96	96	120	
Divide by 2,087 Hrs/Yr = <u>Staff Time/Yr</u>	0.05	0.05	0.06	= 0.16 <u>per.yrs.</u> .2 Staff Years
X Anl Salary	<u>\$67,112</u>	<u>\$21,810</u>	<u>\$17,312</u>	
= <u>Personnel Cost</u>	\$3,355.60	+ \$1,090.50	+ \$1,038.70	= \$5,484.80
				x 14 % benefits
				\$ 767.87 benefits
				+ \$5,484.80 Pers. Cost
				\$ 6,252.67 Total Cost

Note: "Administrative time" could involve arranging meeting, assigning proposals for review, sending proposals out in advance of meeting, typing minutes, preparing reports, arranging/preparing travel documents, preparing agenda/meeting notice, etc.

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8. If a Program Officer is also a member of an advisory panel, e.g., chairperson, would you count the days he attends the meeting under "staff support" or "Federal member compensation"?

You would include meeting attendance under Federal member compensation. However, you would include his/her time due to "staff work" before and after the meeting under staff costs and staff years.

9. Do I have to break out all of the above costs in my consultation form/chapter?

Yes, as shown in Appendix B, the form submitted to GSA for concurrence includes cost estimates for the current and next fiscal year.

CHAPTER III - HOLDING MEETINGS

A. BEFORE THE MEETING

1. What is the first thing I should do to plan for a meeting?

If the committee is new, you should be sure it will be formally established ("filed") at least 20 days before you plan to meet. You may, however, designate members and determine meeting logistics (date, location, etc.) between the time the consultation form is delivered to GSA and the charter (consultation form) is filed.

When you inform members officially of the meeting and provide them with material to prepare for discussions, include NSF Form 1230 for signature and returning to you. Where appropriate, provide members with NSF Form 1216 also. (See II B-5 & 6; Appendices H and L for forms.)

At the same time you set the meeting date, you should decide on the type of meeting you need, i.e., open to the public, closed, or part open. See questions below for criteria and instructions for closing a meeting.

As soon as you've decided the meeting date, you should consider the timing for announcing the meeting in the Federal Register and requesting a determination to close the meeting, if necessary.

The CMO will sign and publish the notice of meeting and will process the determination, if meeting is to be closed or part closed to the public. As

mentioned earlier, more time is needed to process a meeting that is closed or partly closed to the public. See Appendix F for meeting notice requirements.

Instead of preparing a notice of meeting, program staff with SEP's may provide the CMO with meeting information, i.e., panel name, dates, times, agenda (e.g., PYI), type (e.g., closed to the public), and room number (and building, city, state, if not at NSF). The CMO will then prepare the notice of meeting and have it published in the Federal Register.

2. Do I have to open my meeting to the public?

Yes, the Federal Advisory Committee Act states that each advisory committee meeting shall be open to the public. However, FACA allows for the exemption of certain types of meetings from being open. At NSF, we use the below-listed exemptions from the Government in the Sunshine Act to close meetings for proposal review and oversight.

You may close a meeting, or part of a meeting, only where the specific agenda item addresses:

- trade secrets and commercial or financial information obtained from a

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person that is privileged or confidential (exemption 4); and

- information of a personal nature where disclosure would constitute a clearly unwarranted invasion of personal privacy (exemption 6).

Discussions of the general thrust of a program or programmatic changes should not be closed. Where possible, these discussions should be placed on the agenda in an open session.

There will be instances, though, where discussion of non-exempt material (e.g., proposals that have been awarded) is inextricably intertwined with the discussion of exempt material and no further separation is practical. When this happens, that portion of the meeting may be closed.

3. Can I close my meeting when the Committee of Visitors conducts oversight?

Yes and no. Generally, the above exemptions will not support closing an oversight meeting in its entirety; they will support only those portions in which specific declined proposals or particular peer reviews are to be discussed.

4. What do I have to do to close a meeting?

The procedures to close a meeting depend on the reason you want it closed. Generally, meetings are closed for proposal review or oversight. In those cases, you should

send your meeting notice (or pertinent data) to the CMO at least 30 calendar days before the meeting.

The notice or meeting data should **include a request to close all or part of the meeting and the reason (proposal review or oversight) and should be signed by the DFO or designee**. If the meeting is to be part open to the public, you should indicate which part is to be closed. This document serves as your request to close a meeting.

The CMO has been delegated authority to receive requests to close meetings for proposal review and oversight and to make determinations that these meetings can be closed to the public. In all cases, the CMO sends the request to the Office of the General Counsel for review. (See Appendix F for items required for notices.)

If your reason for closing a meeting (or part of a meeting) is for other than proposal review or oversight, you should submit a request to the Director at least 30 calendar days before the scheduled meeting. The request should state the dates and times of the meeting and should cite the specific exemptions of the Government in the Sunshine Act (Sunshine Act) that justify closure.

If the Director determines that the request is valid, he issues a determination that the meeting may be closed. A copy of this determination is made available to the public upon request. (OGC and

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the CMO maintain a copy of the Sunshine Act for your information.)

5. If committee members plan to discuss committee business at an informal gathering, should that discussion be made part of the formal agenda and meeting announcement?

Yes. You should discourage planned discussion of committee business outside announced meetings. The GSA Committee Management Secretariat believes that informal meetings or gatherings of committee members in which substantive committee business is discussed should be disclosed if they occur.

GSA recognizes the administrative difficulty in this area and believes that the sponsoring agency can best determine whether a specific gathering of committee members constitutes an advisory committee meeting. When in doubt, contact either the Office of the General Counsel or the Committee Management Officer.

6. Suppose it's not possible to send the meeting notice on time, what do I do?

You can still publish the notice and have your meeting but you must include the reason for being late with the meeting notice to be published in the Federal Register.

If your meeting is to be closed to the public, you should inform the CMO immediately even if you're not sure of the exact date of the meeting so the determination to close can be made.

7. What happens if the meeting has to be cancelled, postponed, or otherwise changed?

If there's time, the CMO will publish a cancellation or postponement notice in the Federal Register. The CMO could also publish an amendment to the notice for such things as significant changes in the agenda or type of meeting, or in the number of days the meeting is to be held.

If you want to change from an open to a closed meeting, contact OGC or the CMO immediately for guidance.

If you need to change the time of the meeting or room number at the last minute, you could phone those people you knew were planning to attend and post a sign on the door of the scheduled room directing people to the correct room. You would, of course, announce any changes in time at the meeting itself.

8. Why must I publish a meeting notice if the meeting is to be closed to the public?

FACA requires that notices of all meetings be published in the Federal Register, except for reasons of national security.

9. How many copies of the meeting notice do I need?

You need only send one copy whether you provide 1) just the meeting data, not in Notice format, or 2) the notice in the proper format.

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The CMO signs all notices of meetings and will have the notice reproduced and distributed to:

- Office of the Federal Register;
- Committee Management files (also documents determinations to close meeting); and
- Contact person listed in the meeting notice with date signed indicated.

Additional copies are sent to the Office of the Director, OBAC (for transmittal to the NSB), OLPA (for information to Congress), and to the NETWORK editor for internal publication.

10. Do meetings have to be held at NSF?

No. All you have to remember is that the meeting facility should be reasonably accessible to all who may attend (including disabled persons).

11. Do all meetings have to be held during the week and during normal working hours?

No. Some meetings start after 6 p.m. or are held on weekends. If prior arrangements are required for entry to the building after hours, you would indicate in the meeting notice that anyone planning to attend would have to notify you before the meeting. Then you would provide building security with a list of potential attendees.

12. What happens if I have to make a change in the agenda after the meeting has started?

You would make an announcement of the change as soon as you are aware of it. However, as stated earlier, you may not change from a closed to an open meeting because the public would not have had notice of an open meeting so they could attend.

13. If I need to have an emergency closed session at an open meeting, what should I do?

If the entire meeting was announced as open to the public, you probably won't be able to close the meeting. When in doubt, you should immediately contact the Office of the General Counsel or the CMO for guidance.

14. Suppose I have a 2-day meeting with the closed session scheduled for the second day but the first day's session ended early enough for me to begin the closed session. Could I begin the closed session or would I have to wait until the next day?

You could start the closed session early, since no members of the public would be invited to the closed session.

All you would need to do is announce that the business scheduled for the open session was completed and that the closed session would now begin. You would probably want to have a break at this point to allow members of the public to leave the meeting.

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15. If I had the reverse situation, could I do the same thing, that is, start the open session early?

No, since some members of the public may be planning to attend the open session. If you began the open session early, you'd run the risk of having adverse publicity or being sued. You should consult OGC before considering this course of action.

16. Do I have to notify anyone other than the CMO (for notice publication) when I hold a meeting?

Although the law does not require any other notification, you may wish to issue a press release or use the NSF electronic Bulletin Board to notify NSF staff. The CMO provides meeting notices of open/part-open meetings to the editor of the NETWORK for internal publication.

B. DURING THE MEETING

1. Do I have to attend the entire meeting?

Yes, according to FACA a designated officer or employee of the Federal Government shall chair or attend each meeting. That person is authorized to adjourn the meeting whenever he/she determines it to be in the public interest. "No advisory committee shall conduct any meeting in the absence of that officer or employee." (Public Law 92-463, Section 10 (e).)

"Federal official" includes IPA's and Visiting Scientists ("rotators").

2. What are some of the things I, as DFO, need to be aware of while the meeting is going on?

a. You should have all members, staff, and visitors sign a roster.

b. You must have someone take minutes, regardless of whether the meeting is open or closed. (This is required by law.) See 5., below, for content requirement for minutes.

c. If the meeting is for proposal review, the Conflicts-of-Interest Regulations require you to read to the panelists a statement concerning conflicts (see NSF Manual 15, Section 681.25(c)).

d. You must resolve all conflicts and record in the minutes the action taken.

3. Who should take minutes?

That varies. Some program officials have their support staff take minutes and some might do it themselves. For open meetings, some officials use a court reporter.

4. Must the minutes be verbatim?

No, just an accurate description of each matter discussed and the resolution, if any, made by the committee. And, it is not necessary to record individual votes, only the decision.

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5. What is required to be included in "detailed" minutes?

First, it should be noted that the "detailed minutes" that FACA requires may include information that may not be divulged to the public. (See IV-A.2 for information on dissemination to the public.)

FACA or the Committee Management Regulations require that minutes include:

a. time, date, and place (and room number) of meeting;

b. a list of committee members and agency employees who attended;

c. a list of members of the public who presented oral or written statements;

d. an estimated number of other members of the public present;

e. a complete and accurate description of each matter discussed and conclusions reached; and

f. copies of each report or other document received, considered, or issued by the committee.

In addition, NSF policy requires that proposal review meetings should include a statement to document certain conflict situations, such as when a panelist does not participate in discussions involving his/her institution or when a panelist has some affiliation with the proposer.

SUGGESTED WORDING AND FORMAT:

- The following person(s) had a conflict of interest:

<u>Member's Name</u>	<u>Proposal #</u>	<u>How Resolved (by DFO)</u>
John Doe	89-12345	left room
Jane Smith	89-56789	did not participate in discussion
Henry Clark	89-34545	nature of conflict was not so substantial to affect his judgment

Note: Before the minutes are distributed to the public, you should block out any information that could be used to identify proposals that have been declined.

Some divisions list panelist names and proposal numbers involved in conflict situations on a separate confidential list to guard against inadvertent disclosure of declines. (See NSF Manual 15, Section 681.25(d) and (e) for more information and Appendix I for suggested format for minutes.)

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6. If the meeting is closed to the public do I still have to have detailed minutes?

Yes. Minutes must contain all of the information listed in 5., above.

However, when considering what to send to the public, minutes of closed meetings should be reviewed to ensure that they do not divulge any information that should be protected. (See Chapter IV-A for discussion about releasing minutes and other information to the public.)

7. If I have an open meeting, do I have to allow members of the public to participate in the meeting?

FACA requires that:

- a. Each meeting be held at a reasonable time and in a place reasonably accessible to the public;
- b. Any member of the public be permitted to file a written statement with the committee; and
- c. Any member of the public be allowed to speak at the meeting if the agency's regulations so permit.

NSF has no standard guidelines on public participation in committee meetings. You (as DFO) should develop operating procedures that include provisions for appropriate opportunities for public comment. You may develop these procedures with your committee members.

The chairperson should let the public know at the beginning of the meeting

what the procedures are for public participation.

8. Can I have a working luncheon or dinner?

Yes, just make sure you include it in your meeting announcement.

9. What happens if someone disrupts the meeting?

If the situation warrants, you, as an officer of the Government, can adjourn the meeting if you believe it to be in the public interest to do so. You could also call building security (357-7919 at NSF).

C. AFTER THE MEETING

1. When are minutes due?

While there is no specific time requirement, minutes generally should be available 30 days after the meeting date.

However, if your committee has its minutes approved by the full committee at its next meeting and you're not sure when the next meeting will be held, you may get the minutes approved by mail or electronic message.

2. Who prepares and signs the minutes?

The Designated Foundation Official is responsible for assuring the preparation and distribution of minutes; the chairperson is responsible for certifying that the minutes are accurate.

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3. Who should receive copies of the minutes?

You should send minutes to the CMO and to anyone who asks for them, including the public, as well as to all committee members, and interested or affected staff.

4. If the minutes haven't been certified, and someone requests documents that were distributed at the meeting, can I send them out?

Yes. Do not hold these documents until minutes are ready for distribution unless the requestor asks that all material be sent at one time.

Remember, documents that were received, considered, or issued at the meeting or that were made available to committee members must be available to the public upon request unless they meet one of the exemptions of FOIA.

If the requestor also asks for minutes, you may tell him/her that you will send them after they are certified.

5. Are there other materials concerning the panel meeting that I need to distribute externally?

Yes. If your panel reviewed proposals, you automatically send the proposer verbatim copies of peer reviews and panel summaries, excluding the identity of the reviewer and the reviewer's institutional affiliation. Reports of site visit groups made in connection with the evaluation of a proposal must also be sent to the proposer. (PAM VII-713 and O/D 90-12.)

6. Are panel summaries the same as detailed minutes?

No. FACA requires minutes; NSF requires panel summaries to document proposal review and inform proposers.

CHAPTER IV - DISSEMINATING ADVISORY COMMITTEE INFORMATION TO THE PUBLIC

A. INFORMATION AT COMMITTEE MEETINGS

1. Besides minutes of meetings, what information do I have to give to a requestor?

Subject to the Freedom of Information Act, you must make available for public inspection the records, reports, transcripts, minutes, appendices, working papers, drafts, studies, agenda, or other documents that were made available to or prepared for or by your committee until the committee ceases to exist.

NOTE: If the request mentions FOIA, you must immediately send it to the NSF FOIA Officer in OLPA.

2. What about minutes of meetings that were closed to the public?

As stated in Chapter III-B, you will not be required to divulge any information that should be protected (trade secrets, confidential commercial/financial information, and personal information where disclosure would clearly constitute an unwarranted invasion of personal privacy).

If you have any of that material in your minutes, you must sanitize the minutes or other documents to remove it before sending a copy to the requestor.

Other information such as aggregate information for awards (or declinations or postpones) and general discussion about the proposals themselves would be valid information to send to the public. For example, you may include what research areas the proposals were from or possibly what research areas need more attention.

Appendix I provides an example of minutes of proposal review meetings and has areas noted that either must or may be withheld from the public. (See also IV-B.1.b., below for closed meeting report requirements.)

B. REPORTS ON COMMITTEES

1. What reports are required by FACA and GSA and when are they due?

There are three reports required but none have a specific due date. A description of each and the time of year they are due is as follow:

a. Annual Report of the President on Federal Advisory Committees. This fiscal year report is required by FACA and consists of data such as:

- the number and types of meetings held during the preceding fiscal year;

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- the number and titles of reports prepared by the committee;
- a detailed accounting of all costs incurred by the committee;
- the manner in which committee membership is balanced;
- the committee's accomplishments and justification for keeping it in existence; and
- the members' names and occupations.

GSA compiles individual reports from the agencies and departments into one report for the President to send to Congress.

Additionally, GSA uses this report as the basis for the annual review of advisory committees. By reading the justifications and committee accomplishments that agencies report, GSA determines if the committees are essential.

Congress and the Executive Office of the President also review this report for effectiveness and necessity of advisory committees in the Government.

This report is automated (but not on the NSF mainframe) and the CMO will send you detailed instructions for completing the report and the due date.

Generally, the report is due to the CMO by mid-October and to GSA the first week of November.

Because of the tight turnaround for completing this report, you should keep a running total of your committee's expenses.

It is especially important that DFO's maintain in one place data on all of the SEP meetings held during the fiscal year. Otherwise, just assembling the data alone could become a labor-intensive effort.

b. Closed Meeting Report. If your advisory committee holds one or more meetings that are closed (or partially closed) to the public, the advisory committee must issue a report at least annually. In accordance with FACA, the CMO sends 8 copies of the report to the Library of Congress for public inspection and use and keeps 1 copy in the committee file.

This report should set forth a summary of the committee's activities and related matters as would be informative to the public. No information should be released that would constitute an unwarranted invasion of personal privacy, that would divulge confidential business information or intellectual property, or that would interfere with NSF's ability to get candid reviews.

Call NSF's FOIA Officer in OLPA or the Office of the General Counsel if you are uncertain whether you can withhold something that you want to withhold.

See Appendix K for an example of a closed meeting report.

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The CMO sends out a reminder that these reports are due, usually in the spring.

2. Are there any other reports regularly required?

Yes, the Annual Report on Composition of NSF Advisory Committees is an internal report on committee membership. The Director, NSF, is interested in maintaining balanced membership on NSF committees and at least annually reviews a statistical report on composition.

The report contains an analyses on age, geographic distribution, gender, race, disability, affiliation, and field of science. Programs provide the raw data and the CMO prepares the report.

The data are collected simultaneously with the Annual Report of the President on Federal Advisory Committees. The report is distributed to the Director, Executive Council, Committee on Equal Opportunities in Science and Engineering, Division Directors, DFO's and other interested staff.

C. REPORTS BY ADVISORY COMMITTEES

1. What is the requirement concerning advisory committee reports?

Each time a committee issues a formal report to NSF, 9 copies should be sent to the CMO to be forwarded to the Library of Congress for public use and one copy filed in the committee file.

Reports should have a cover sheet indicating the name of the committee and name and date of the report.

2. What kind of reports do I have to submit?

Reports of Advisory Committees are usually Committee of Visitors oversight reports or studies addressed to the Assistant Director.

"Reports of meetings" (minutes) are not considered formal reports of committees.

CHAPTER V - RENEWING/AMENDING CHARTERS AND TERMINATING COMMITTEES

A. RENEWALS

1. When must I renew my committee?

A committee automatically expires 2 years after establishment unless it is renewed. (See C., below.)

2. How do I renew my committee?

The procedure for renewing a committee is the same as for establishing one (see Chapter II) with the following exceptions:

- The renewal consultation form/charter must be received by GSA at least 30 calendar days before the committee is scheduled to expire (generally 2 years from the Filed Date indicated on the consultation form).
- A Notice of Renewal (see Appendix G) rather than a Notice of Establishment is published in the Federal Register and there is no time requirement for the Notice to be published before the committee can meet. (For establishments, a committee must wait 15 days after publishing notice of establishment before it can meet.)

3. Does the CMO notify programs when a committee is up for renewal?

Yes, the CMO will send you notification before your committee expires in sufficient time for you to

decide if you want to continue it. The CMO also provides instructions on how to renew your committee.

B. AMENDMENTS

1. What do I need to do to amend my consultation form/charter?

For minor amendments, you need to send the CMO a copy of your consultation form with changes indicated in Remarks.

Examples of minor changes are: name changes, changes in the Designated Foundation Official, or slight increases (10% or less) in number of members or costs.

The DFO (or Sponsoring Official) and CMO sign the revised consultation form and the CMO files it with Congress, the Library of Congress, and GSA. The CMO provides you with a copy for your committee files.

For major changes, such as changes in the objectives and scope of the committee, you must provide the CMO with a copy of the consultation form with revised information in the appropriate blocks and identification of changes indicated in Remarks.

You and your Assistant Director/Office Director, (or Sponsoring Official), and CMO sign the revised consultation form. The

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CMO then forwards the form to GSA for concurrence.

After GSA concurs, the CMO files the revised consultation form/charter with Congress, the Library of Congress, and GSA. The CMO provides you with a copy for your committee files.

2. Does an amendment change the effective ("file") date of a committee?

No. The effective date remains the same as the date the original consultation form/charter was filed with Congress.

C. EXPIRATIONS AND TERMINATIONS

1. What happens if I don't renew my committee at the appropriate time?

Committees are distinguished by the designation "continuing" and "ad hoc". Identification of the type of committee is in block #10 of the consultation form.

A "continuing" committee expires if it is not renewed within 2 years of the filed date (in upper right corner of consultation form).

"Ad hoc" committees are designed to expire in less than 2 years, generally by the proposed termination date, located in block #7 on the consultation form. If you decide to continue an ad hoc committee beyond its proposed termination date, you must inform the CMO at least 30 days before that date.

2. How are advisory committees terminated?

You may terminate a committee when you determine that its advice is no longer essential. To initiate a termination, send the CMO a memorandum via your Assistant Director or Staff Office Director (for approval) giving a brief explanation of why the committee is no longer essential and the date the committee will terminate. The CMO will notify GSA.

3. After I've terminated my committee what should I do with the files I've accumulated?

Once the committee terminates, the records should be disposed of in accord with General Records Schedule No. 16, Section 8. Essentially, what this means is that most of the records can be destroyed after 3 years.

SIGNATURE AUTHORITIES FOR COMMITTEE MANAGEMENT DOCUMENTS

Responsibility for signing various committee management documents is indicated below:

Signature Authorities	Responsibilities
Director	Has overall authority of all NSF committees as outlined in FACA (delegated - see below); makes determinations to close meetings for other than proposal review and oversight.
Assistant Directors and Directors of Staff Offices	Sign consultation forms/charters for establishments/renewals/major amendments; approve requests from DFO's for terminations; and sign designation letters where appropriate.
Division Directors	Sign establishment/renewal/major amendment consultation forms/charters for division/program level committees, in conjunction with Assistant Directors. Sign designation letters for division/program level committees.
Committee Chair	Certify accuracy of minutes.
Committee Management Officer	Signs documents required to be published in the <u>Federal Register</u> (meeting notices, Notices of Establishment and Renewal), minor consultation form/charter amendments, and determinations to close advisory committee meetings for proposal review and oversight (Director signs any others).

CONSULTATION ON FEDERAL ADVISORY COMMITTEE 0304-GSA-XX

1. DATE OF CONSULTATION: _____ FILED DATE: _____
2. NAME OF COMMITTEE: _____
3. COMMITTEE STATUS: ☐ A. ESTABLISHMENT ☐ B. REESTABLISHMENT
☐ C. RENEWAL ☐ D. AMENDMENT TO CHARTER
4. AGENCY TO WHOM COMMITTEE REPORTS: National Science Foundation
5. AGENCY PROVIDING COMMITTEE SUPPORT: National Science Foundation
6. EST. DURATION OF COMMITTEE (YRS): _____
7. PROPOSED TERMINATION DATE: _____
8. EST. NO. OF TOTAL MEETINGS: _____
9. FREQUENCY OF MEETINGS/YEAR: _____
10. TYPE OF COMMITTEE: ☐ A. AD HOC ☐ B. CONTINUING
11. BRIEF STATEMENT COVERING COMMITTEE'S SCOPE AND OBJECTIVES OF ITS ACTIVITY.
12. DESCRIBE THE DUTIES AND RESPONSIBILITIES OF COMMITTEE AND INDICATE IF THE GROUP PERFORMS OTHER THAN ADVISORY FUNCTIONS.
13. WHY IS THE COMMITTEE ESSENTIAL FOR THE CONDUCT OF AGENCY BUSINESS AND IN THE PUBLIC INTEREST?
14. EXPLAIN WHY THE ADVICE OR INFORMATION CANNOT BE OBTAINED FROM OTHER SOURCES.
15. DESCRIBE THE AGENCY'S PLAN TO ATTAIN BALANCED MEMBERSHIP.
16. HAVE THE COMMITTEE AND SUBCOMMITTEE MEMBERS BEEN BRIEFED ON CURRENT ETHICS LAWS AND REGULATIONS? ☐ Yes ☐ No - Explain

APPENDIX B
(Continued)

SECTION B-COMMITTEE COST

	DESCRIPTION	CURRENT FY	NEXT FY (EST)
17. A. PERSONNEL PAYMENTS	(1) NON-FEDERAL MEMBERS (2) FEDERAL MEMBERS (3) FEDERAL STAFF (4) NON-MEMBER CONSULTANTS	\$	\$
B. TRAVEL AND PER DIEM	(1) NON-FEDERAL MEMBERS (2) FEDERAL MEMBERS (3) FEDERAL STAFF (4) NON-MEMBER CONSULTANTS		
C. OTHER	(RENTS, USER CHARGES, GRAPHICS, PRINTING, MAILING, ETC.)		
D. TOTALS		\$	\$

18. FEDERAL STAFF SUPPORT YEARS: (*in tenths*)

SECTION C - REMARKS/NARRATIVE RESPONSES

The Designated Federal Official is the (*position title*).

SECTION D - CERTIFICATION

19. SPONSORING OFFICIAL	SIGNATURE:	DATE:
TITLE: Director, Division of (<i>org title</i>)		
NAME: Dr. (<i>name</i>)		
20. COMMITTEE MANAGEMENT OFFICER	SIGNATURE:	DATE:
TITLE: Management Analyst		
NAME: M. Rebecca Winkler		
21. OTHER CONCURRING AGENCY OFFICIAL	SIGNATURE:	DATE:
TITLE: Assistant Director for (<i>directorate</i>)		
NAME: Dr. (<i>name</i>)		

EXAMPLE OF INFORMATION TO INCLUDE IN CONSULTATION FORM/CHARTER

A. SCOPE AND OBJECTIVES. (Item 11)

[Advisory Committees] To provide advice, recommendations, and oversight concerning support for research and research-related activities in the area of (discipline).

[Advisory Panels] Primarily, to advise on the merit of proposals for research and research-related purposes submitted to NSF for financial support. Additionally, the Panel provides general advice, and policy guidance to the (program name) Program.

[Special Emphasis Panels] To advise on the merit of special initiative proposals or applications submitted to NSF for financial support.

B. DUTIES AND RESPONSIBILITIES. (Item 12)

[Advisory Committees]

1. Advise NSF of the impact of its research support programs and other policies on the scientific community.
2. [If applicable] Perform oversight of program management, overall program balance, and other aspects of program performance.
3. [If applicable] Subcommittees may be formed to perform specific functions for the Committee. Subcommittees will not function independently of the Committee, i.e., they will send all recommendations to the Committee for consideration.

[Advisory Panels]

1. Evaluate proposals and provide written recommendations on those proposals as a part of the selection process.
2. Evaluate the state of the scientific field and the effectiveness of the Program in meeting the needs of the field.
3. Review procedures in the Program to assure that those proposals of highest scientific merit and with the greatest probability for future development of science are selected for financial support.

(Continued)

[Special Emphasis Panels] Review and evaluate proposals, which may include site visits, and provide written recommendations on those proposals as a part of the selection process for award.

C. BALANCED MEMBERSHIP. (Item 15)

Members are selected for their demonstrated scientific capability so as to represent a reasonable balance of capability in the various subfields of the (discipline). Careful consideration is also given to achieving age and geographical balance and to enhancing representation for women, minority, and disabled scientists, as well as scientists from predominately undergraduate institutions.

[Special Emphasis Panels] Membership will be selected on an "as needed" basis in response to specific proposals/applications/sites to be reviewed. About (number) individual panelists will be used each year. Members will be selected for their demonstrated scientific and engineering expertise so as to represent a reasonable balance of capability in the various subfields of the proposals to be reviewed. Consideration will also be given to achieving geographic balance and to enhancing representation for women, minority, younger and disabled scientists.

D. OTHER ITEMS USED IN SEP CONSULTATION FORMS.

Why is the committee essential? Outside expert advice on the merit and potential of proposals is an essential component of the division's funding decision. Discussion by panelists helps Program Officers to discern possible conflicts-of-interest or other sources of bias, calibrate the reviews, and resolve differences of opinion among the panelists.

Why the advice or information cannot be obtained from other sources? While ad hoc mail reviewers can be chosen to give a thorough technical review of a proposal, mail reviewer judgments are normally made about a single proposal viewed in isolation. Panel review in combination with mail review, can, in addition, provide judgments about the comparative merits within a group of proposals or within a single complex, multidisciplinary proposal or a facility. In addition, using existing NSF programmatic panels, where appropriate, would add an inordinately large workload to these panels and the applications to be handled by this panel are different in character from the research proposals handled by the existing programmatic panels.

Note: SEP consultation forms have standard language due to their uniform functions, only the scientific discipline and particulars such as number of members, meetings, and costs are different.

SAMPLE NOTICE OF ESTABLISHMENT

[Follow the instructions that appear in parentheses and select the appropriate wording if a choice is given.]

NATIONAL SCIENCE FOUNDATION

Committee Management
Notice of Establishment

The Assistant Director for (directorate) has determined that the establishment of the (name of Committee/Panel) is necessary and in the public interest in connection with the performance of duties imposed upon the Director, National Science Foundation (NSF), by 42 USC 1861 et seq. This determination follows consultation with the Committee Management Secretariat, General Services Administration.

NAME OF COMMITTEE: (Enter official name of Committee or Panel from consultation form/charter.)

PURPOSE: (Use wording from the Objectives and Scope section (#11) of the consultation form or charter.)

BALANCED MEMBERSHIP PLANS. (Following information provided in item #15 on the consultation form or in charter, describe your plan to attain balanced membership.)

RESPONSIBLE NSF OFFICIAL: (Name and telephone number of official responsible for responding to questions from, or for receiving comments provided by, any interested person.)

M. Rebecca Winkler
Committee Management Officer

Timetable for Establishing an Advisory Committee and Announcing First Meeting

STEP	EST. # DAYS	DESCRIPTION
1. Prepare consultation form & get directorate approval	5	Program informs CMO; prepares documents as described in Guide; obtains signatures. (See Chapter II and Appendices A - D.)
2. CMO reviews & signs	1	CMO receives signed package, reviews for compliance with FACCA, NSF policy, signs and has handcarried to GSA. (See Chapter II.)
3. GSA reviews	15	If ok, GSA sends copy to NSF Budget Examiner at OMB. If ok, OMB informs GSA who calls concurrence to CMO. If problem, GSA/OMB phones CMO who mediates to resolve problem. (See Chapter II.)
4. Publish Notice of Establishment	15 4 ^{1/}	When GSA concurs, CMO informs program, signs the Notice of Establishment and has published in the <u>Federal Register</u> . (See Chapter II and Appendix D.)
If meeting to be closed/part open, program should inform CMO at least 30 calendar days before meeting.		
5. File charter	(1) ^{2/}	CMO files consultation form 15 days after Notice is printed. "File date" of consultation form (date consultation form is sent to the Hill) is date committee is established. CMO sends copy of consultation form to program. (See Chapter II.)
(Designate members)	(15) ^{2/}	Program selects potential members, gets approvals, and sends letter of designation with conflict-of-interest form to members. (See Chapter II.)
6. Publish Meeting Notice	15 4 ^{1/}	Program prepares Notice, gets approvals; CMO signs and has published in the <u>Federal Register</u> . (See Chapter III and Appendix F.)
Total Est.	59	Days Required for "Routine" Establishment

^{1/} The Federal Register requires 4 workdays to process notices.

^{2/} May file consultation form and select and designate committee members during establishment process.

NOTE: If committee establishment is **required** in less time; contact the CMO immediately.

NOTICE OF MEETING FORMAT
(Follow the instructions that appear in parentheses)

**NATIONAL SCIENCE FOUNDATION
NOTICE OF MEETING**

The National Science Foundation announces the following meeting:

NAME: (Enter consultation form/charter name.)

DATE AND TIME: (Enter date(s) of meeting and time meeting starts and adjourns, e.g., July 8 and 9, 1990, 9:00 to 5:00 each day.)

PLACE: (Enter room number and street address. If meeting is being held in a hotel, include suite number, if possible, and street address.)

TYPE OF MEETING: (Enter Open, Closed, or Part Open. If Part Open, indicate times for open and closed portions.)

CONTACT PERSON: (List name, title, address, and phone number of person most knowledgeable about meeting.)

PURPOSE OF MEETING: (State purpose of meeting rather than purpose of committee/panel.)

AGENDA: (Only need a summary but every category that is to be discussed must be mentioned. May identify the type of proposals to be reviewed, e.g., PYI.)

SAMPLE NOTICE OF RENEWAL

(Follow the instructions in parentheses and select the appropriate wording if a choice is given.)

NATIONAL SCIENCE FOUNDATION**Committee Management
Notice of Renewal**

The Assistant Director for (directorate) has determined that the renewal of the (enter name of committee/panel) is necessary and in the public interest in connection with the performance of duties imposed upon the Director, National Science Foundation (NSF), by 42 USC 1861 *et seq.* This determination follows consultation with the Committee Management Secretariat, General Services Administration.

Authority for this (Committee/Panel) expires (give date of 2 years after file date or, if ad hoc, a shorter time) unless it is renewed.

M. Rebecca Winkler
Committee Management Officer

National Science Foundation

Washington, D.C. 20550

Conflicts-of-Interest Statement for NSF Advisory Committee/ Review Panel Members

Your designation as an advisory committee/review panel member requires that:

1. If you handle proposals or other applications, you must be aware of potential conflict situations. Examples of potentially biasing affiliations or relationships are listed on the back of this form. Should any conflict arise during your term, you must bring the matter to the attention of the person who asked you to serve as an advisory committee/review panel member. That official will determine how the matter should be handled and will tell you what further steps, if any, to take.

2. If your designation gives you access to information not generally available to the public, you must not use that information for your personal benefit or make it available for the personal benefit of any other individual or organization. This is to be distinguished from the entirely appropriate general benefit of learning more about the Foundation, learning from other advisory committee/review panel members, or becoming better acquainted with the state of a given discipline.

_____(TEAR HERE AND RETURN TO NSF)_____

I have read the list of possible conflicts on the back of this form and understand that I must contact the appropriate NSF official if a conflict exists or arises during my term of service. I also will not divulge any confidential information I may become aware of during my term. I further understand that I must sign and return this Conflicts Statement to the appropriate official before I may serve.

Name (Please Print): _____

Signature: _____ Date: _____

Advisory Committee/Review Panel: _____

Date Received from Member: _____

To Be Retained in Program File

AS AN ADVISORY COMMITTEE OR REVIEW PANEL MEMBER, PLEASE REVIEW THESE EXAMPLES OF POSSIBLE CONFLICTS PERIODICALLY DURING YOUR TENURE.

1. AFFILIATIONS WITH AN APPLICANT INSTITUTION. A conflict may be present if you have/hold:

- Current employment at the institution as professor, adjunct professor, visiting professor, or similar position. (This includes other campuses of a multi-campus system, but a waiver (NSF Form 1216) may be available.)
- Current employment or are being considered for employment at the institution. (This includes employment via a consulting or advisory arrangement.)
- Any formal or informal reemployment arrangement with the institution.
- Current membership on a visiting committee or similar body at the institution. (This is a conflict only for proposals or applications that originate from the department, school, or facility that the visiting committee or similar body advises.)
- Ownership of the institution's securities or other evidences of debt. (Minor or indirect holdings are not considered conflicts.)
- Any office, governing board membership, or relevant committee chairpersonship in the institution. (Ordinary membership in a professional society or association is not considered an office.)
- Current enrollment as a student. (Only conflict for proposals or applications that originate from the department or school in which one is a student.)
- Received and retained an honorarium or award from the institution within the last 12 months.

2. RELATIONSHIPS WITH AN INVESTIGATOR, PROJECT DIRECTOR, OR OTHER PERSON WHO HAS A PERSONAL INTEREST IN THE PROPOSAL OR OTHER APPLICATION.

- Known family or marriage relationship. (Conflict only if the relationship is with a principal investigator or project director.)
- Business or professional partnership.
- Employment at the same institution within the last 12 months.
- Past or present association as thesis advisor or thesis student.
- Collaboration on a project or on a book, article, report, or paper within the last 48 months.

3. OTHER AFFILIATIONS OR RELATIONSHIPS.

- Interests of the following persons are to be treated as if they were yours: Any affiliation or relationship of your spouse, of your minor child, of a relative living in your immediate household or of anyone who is legally your partner that you are aware of and that would be covered by Items 1 or 2 above (except for receipt by your spouse or relative of an honorarium or award).
- Any other relationship, such as close personal friendship, that you think might tend to affect your judgments or be seen as doing so by a reasonable person familiar with the relationship.

**Example of
Minutes of Proposal Review Meeting**

National Science Foundation
Advisory Panel for Widgets
Minutes

- (1) The Advisory Panel for Widgets met in closed session on May 19 and 20, 1990, from 8:00 to 5:00 each day in Room 1242, National Science Foundation, 1800 G Street, N.W., Washington, D.C. The meeting was devoted to the review and evaluation of research proposals.

- (2) Panel members** present during the meeting were:

Dr. George Hill	Northwestern University
Dr. Patricia Brook	University of Texas @ Austin
Dr. Cliff J. Cleggett	Pennsylvania State University
Dr. Lucy A. Parlett	Williams College
Dr. Mary C. Fose	University of Maryland @ College Park

- (3) Staff members present during the meeting were:

Dr. Harold West, Program Director, Widgets
Dr. April Posey, Assistant Program Director
Dr. Robert Fall, Associate Program Director

- (4) The meeting began with a reminder to panel members about possible conflicts of interests regarding the proposals to be reviewed. Members were cautioned about the confidential information in the files and in the panel's discussions and conclusions.

- (5) The panel reviewed and evaluated 229 research proposals and projects as part of the selection process for awards in the four program areas of the Widget Sciences Research Section. The proposals fell about equally among the four programmatic areas of the Section -- Physical Widgets, Chemical Widgets, Economics and Geography.

Of the 229 proposals reviewed, 120 were recommended for award subject to availability of funds and other considerations of the Program Officer, 60 were recommended for award if funds become available, and 49 were recommended for declination.

Panel discussion on proposals is summarized (panel summary**) and incorporated herein by reference. This panel summary is filed in the pertinent proposal jacket and a copy is sent to the proposer. When NSF makes an award, most information about the proposal becomes available to the public, but the recommendation of the panel is not disclosed to the public because it is a predecisional document in the deliberative process.

(Continued)

**Example of
Minutes of Proposal Review Meeting**

- (6) Members having a conflict and how the conflict was resolved are listed below (or is attached).

<u>Member's Name **</u>	<u>Proposal No.**</u>	<u>How Resolved</u>
Cliff Cleggett	WP 89-05844	did not participate in the discussion
Lucy Parlett	WP 89-94723	left the room
Mary Fose	WP 89-23455	DFO determined that the conflict was not so substantial as to affect her judgment
George Hill	WP 89-35984	left the room

- (7) These minutes are an accurate summary of the matters discussed and conclusions reached at this meeting.

Certified by:

(signature)
Harold West, Chairman
Advisory Panel for Widgets

Date:

**** Information may be withheld if it enables someone to associate a review with an individual panel member.**

Basic Information Required in Minutes by FACA, Committee Management Regulations, and/or NSF policy:

- (1) time, date, place of meeting
- (2) list of members present
- (3) Agency employees present
- (4) notation that Program Officer requested identification of potential conflicts *
- (5) accurate description of each matter discussed and resolution
- (6) documentation of conflict situations *
- (7) certification by chairperson

* Required by NSF policy.

TYPES OF GROUPS FOR GETTING ADVICE

If you need:	Use:	Your Responsibilities are:
1. advice " given <u>directly</u> to NSF	a chartered advisory committee that is: a. an <u>existing</u> NSF committee or another agency's committee. - OR - b. committee you <u>establish</u> solely for this purpose.	If you use an <u>existing</u> advisory committee, be sure you adhere to guidelines in CM Guide, e.g., announce meetings, keep minutes, monitor conflict-of-interest problems, and committee annually reports activities to GSA. If you establish your own committee, you must follow all guidelines in the CM Guide, e.g., a. Charter under FACA; b. Announce meetings in <u>Federal Register</u> , keep minutes, have balanced membership; c. Report activities annually via CMO to GSA; and d. File reports with Congress via CMO.
2. advice " <u>through another (parent) committee</u> , consisting of members, drawn in whole or in part from parent committee	a <u>dependent</u> (unchartered) subcommittee of an established (chartered) advisory committee	a. Ensure parent committee's charter authorizes it to establish subcommittees; b. Ensure parent committee considers subcommittee's recommendations before advice is given to NSF. c. Ensure subcommittee adheres to FACA requirements, see b-d above;

(Continued)

If you need:	Use:	Your Responsibilities are:
3. advice ^{1/} given <u>directly to NSF</u> from a subcommittee consisting of members drawn in whole or in part from parent committee	<u>independent</u> (chartered) subcommittee formally established under an existing advisory committee	a. Ensure parent committee's charter authorizes it to establish subcommittees; b. Ensure subcommittee adheres to FACA requirements, see a-d above.4. <u>advice from a group consisting of Federal members only</u>
4. advice from a group consisting of <u>Federal members only</u>	an advisory group that is <u>not subject to FACA</u>	a. Adhere to conflict-of-interest regulations; b. Adhere to other NSF policy, especially FOIA.
5. to share information about NSF programs and/or obtain <u>views</u> from the public, <u>not specific advice</u>	a public hearing, <u>not subject to FACA</u>	a. Ensure that hearing is widely announced to the public; b. Ensure that no <u>advice</u> be received, only opinions; c. Ensure public participation is open to all.

^{1/} These groups consist of at least one non-Federal member.

**Example of a Closed Meeting Report
(NSF Letterhead)**

**FY XXXX REPORT OF CLOSED MEETINGS OF THE
ADVISORY PANEL ON WIDGETS**

The Advisory Panel on Widgets met four times during FY 1990. The purpose of the panel is to review, evaluate, and discuss proposals submitted to the Widgets Program for financial support. All sessions of the panel were closed to the public because the panel was engaged in the review of proposals that included information of a proprietary or confidential nature, including technical information; financial data, such as salaries; and personal information concerning individuals associated with the proposals. These matters were within exemptions 4 and 6 of the Government in the Sunshine Act.

Each meeting began with reading of the NSF conflict-of-interest statement reminding panel members about possible conflicts of interests regarding the proposals to be reviewed. In accordance with Agency policy, members were cautioned about the confidential information in the files and in the panel's discussions and conclusions.

Throughout the fiscal year, the panel reviewed a total of 1,297 research proposals and projects as part of the selection process for awards in the four program areas of the Widget Sciences Research Section. The proposals fell about equally among the four programmatic areas of the Section -- Physical Widgets, Chemical Widgets, Economics, and Geography.

Of the 1,297 proposals reviewed, 390 were recommended for award subject to availability of funds and other considerations of the Program Officer, 667 were recommended for award if funds become available, and 240 were recommended for declination. A list of proposal numbers showing the panel's action on each was prepared. To protect the personal privacy of the proposers, this list is not available to the public. Lists of final award recipients are available when a final NSF decision is reached.

[NOTE: If the list of final award recipients is available, you may wish to attach it to your report.]

This report was prepared in accord with Section 10(d) of the Federal Advisory Committee Act.

(signature)

Harold West, Chairman
Advisory Panel for Widgets

Date:

Attachment

(Continued)

EXAMPLE OF CLOSED MEETING REPORT**FY 1990 REPORT OF CLOSED MEETINGS OF THE
ADVISORY PANEL ON WIDGETS**

Meeting Date	No. Members Present	No. Proposals Reviewed
10/3-4/89	6	463
2/6-7/90	8	521
6/28-29/90	5	245
9/15-16-90	6	68
TOTAL PROPOSALS REVIEWED		1,297

National Science Foundation MULTI-CAMPUS SYSTEM WAIVER

An NSF employee¹⁾ or advisory committee/review panel member²⁾ who has a continuing employment, retirement, or reemployment relationship with a multi-campus institution may be involved with proposals and other matters submitted to NSF from any campus of the institution *only* if a waiver is approved *before* his or her involvement, but he or she can not be involved for a campus where he or she has some direct affiliation.

CAUTION: A waiver cannot be granted for a person who participates in or advises on decision making that affects the system instead of affecting only the single campus. For example, a Department Chairperson advising on multi-campus budgeting or planning and a member of a multi-campus advisory panel would not be eligible for a waiver.

_____ is employed at _____,
(NSF employee or committee /panel member) (institution)
_____ and works in a position that serves only that campus.
(campus)

The NSF employee or committee/review panel member has been appointed/designated to serve the NSF from _____ to _____. In this position, he/she may be asked, as a Federal employee or committee/review panel member, to handle proposals or other matters from other campuses.

Pursuant to 18 USC 208(b)(1), and the authority delegated to me by the Director, I have determined that his/her interests in the other parts of the institution are not so substantial as to be deemed likely to affect the integrity of the services that the Foundation may expect from him/her.

Therefore, he/she is disqualified as to matters involving only the campus cited above and may participate in matters involving other parts of the institution.

(Signature and typed name of appropriate Assistant Director/Staff Office
Director or Division Director)

(Date)

¹⁾ NSF employee includes Visiting Scientist, IPA, and Special Government Employee (consultant/expert)

²⁾ Advisory Committee/Review Panel refers to members of advisory committees, advisory panels, review panels, and oversight groups.

White - Originating Office
Pink - OGC

All Previous Editions are Obsolete

NSF Form 1216 (7/90)

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