

The Impact of the Department of Homeland Security on the Science Community

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My Assignment

- To tell briefly current interactions between the science community and the DHS. Main point: the general points of tension between science and security have existed for a number of years. Enforcement has stepped up to a level not seen since the early 1980s, and new tools for processing/tracking visitors are now in place
- We will briefly look at:
 - Money
 - Classified, the “Sensitive but Unclassified” debate
 - Entry to the United States

Who is the Science Community?

**Table 1. Persons employed in S&E occupations, by occupation and highest degree type:
1999**

S&E Occupation	Total ^{\$}	Highest Degree		
		Bachelor's	Master's	Doctorate
Total	3,540,800	1,994,400	1,032,100	484,100
Computer and mathematical scientists	1,167,400	740,500	354,100	67,100
Life and related scientists	341,900	135,500	72,500	121,100
Physical and related scientists	297,900	139,600	73,000	84,900
Social and related scientists	166,400	39,300	53,500	68,900
Psychologists	197,000	32,100	102,400	58,000
Engineers	1,370,300	907,400	376,500	84,200

^{\$}Total includes first professional degree

Note: Details may not add to total due to rounding.

Source: National Science Foundation, Division of Science Resources Statistics

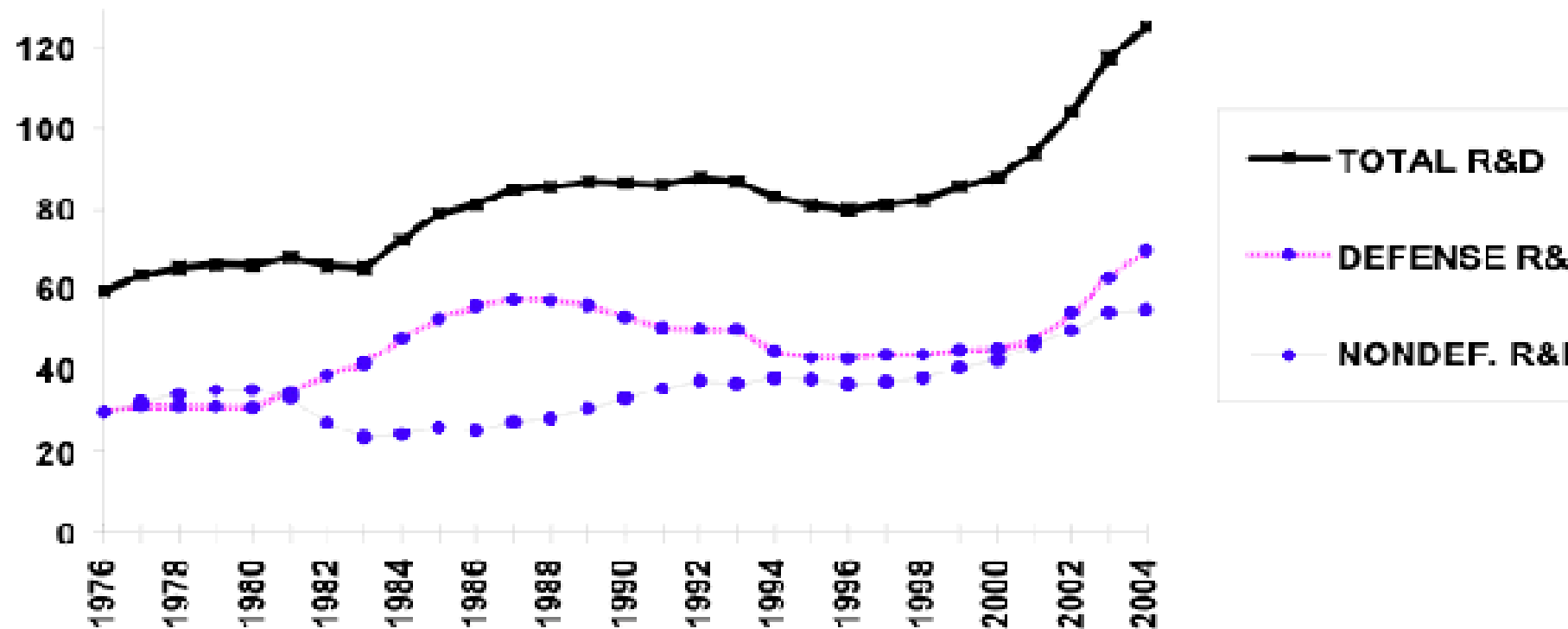
What is the Dept of Homeland Security?

- has three primary missions
- Prevent terrorist attacks within the United States
- Reduce America's vulnerability to terrorism
- Minimize the damage from potential attacks and natural disasters.

Trends in Federal R&D, FY 1976-2004

in billions of constant FY 2003 dollars

Trends in Federal R&D FY1976-2004



Source: AAAS analyses of R&D in AAAS Reports VIII-XX/III. FY 2004 and FY 2003 figures are AAAS estimates of final appropriations

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AMERICAN ASSOCIATION FOR THE
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Table 2: FY 2004 Department of Homeland Security Budget (in millions of dollars)

Total R&D	1044
Science and Technology	869
Biological countermeasures	197
Nuclear and radiological countermeasures	126
Chemical countermeasures	52
High explosives countermeasures	9
Threat and vulnerability assessments	93
Conventional missions	34
Rapid prototyping	75
Standards/state and local	39
Emerging threats	21
Critical infrastructure protection	66
Countermeasures center**	87

**Construction costs for the National Biodefense Analysis and Countermeasures Center in Fort Detrick, MD

Source: Physics Today magazine, February 2004.

“Strict military security in the narrow sense is not entirely consistent with the broader requirements of national security. To be secure as a Nation we must maintain a climate conducive to the full flowering of free inquiry. However important secrecy about military weapons may be, the fundamental discoveries of researchers must circulate freely to have full beneficial effect. Security regulations therefore should be applied only when strictly necessary, and then limited to specific instruments, machines or processes. They should not attempt to cover basic principles of fundamental knowledge.”

President's Scientific Research Board report on *Science and Public Policy*
(1947)

Secrecy and Openness

“Continuous research by our best scientists is the key to American leadership and true national security. This work may be made impossible by the creation of an atmosphere in which no man feels safe against the public airing of unfounded rumors, gossip and vilification.”

President Truman 1946

What restrictions have been placed in the past?

- Executive Order No. 9835 -- The Loyalty Order - no person shall be employed in a federal post if he is believed to be disloyal to the government of the United States.

History of “Sensitive but Unclassified

- The 1980s saw a deterioration in U.S. - Soviet relationships leading to fears of U.S. technology transfer being transferred to the Soviets.
- April, 1982, E.O. 12356, broadened authority to classify information; included:
 - “Basic scientific research information not clearly related to national security may not be classified.”
 - The meaning of this was widely debated.

“The Raid at San Diego”

August, 1982: The first 2 papers were withdrawn from 26th annual Society for Photo-Optical Instrumentation Engineers (SPIE) conference; in all, more than 100 papers were withdrawn at government request.

Corson Panel of NAS/NRC, Spring 1982

- Mandate:
 - Examine evidence of technology leakage and methods of controlling it;
 - Seek policy measures by which competing national goals of defense and intellectual freedom could be accommodated satisfactorily.

18 Months After Corson Report, May 1984

- After four attempts to formulate a new policy, “hope has faded”. M. Wallerstein, *Science*, May 4, 1984
 - Interagency review (National Security Decision Directive 14-82, NSDD 1-830), remained incomplete and the process itself classified;
 - DOD internal reviews continued;
 - Incidents of forced withdrawal of papers continued.
 - April 17, 1984: “sensitive but unclassified” effort abandoned in favor of only two categories “classified” and “unclassified”.

NSDD 189: September 21, 1985

“It is the policy of this Administration that, to the maximum extent possible, the products of fundamental research remain unrestricted. ...that where the national security requires control, the mechanism for control of information generated during federally-funded fundamental research in science, technology, and engineering at colleges, universities and laboratories is classification.

NSDD 189, con't

Each federal government agency is responsible for:

- a) determining whether classification is appropriate prior to the award of a research grant, contract, or cooperative agreement and, if so, controlling the research results through standard classification procedures;
- b) periodically reviewing all research grants, contracts, or cooperative agreements for potential classification.

NSDD 189 con't

No restrictions may be placed upon the conduct or reporting of federally-funded fundamental research that has not received national security classification, except as provided in applicable U.S. Statutes.”

Ronald Reagan, September 21, 1985

The current day

- Moves to classify documents are up 400% from 10 years ago, to more than 23 million such actions in 2002 (data from the Information Security Oversight Office, a division of the national archives).
- Problems remain: The Center for Strategic and International Studies in Washington DC wrote a handbook for fire-fighters and first responders on how to react to a chemical attack—the defense dept classified it.
- Over 6,600 public technical documents that deal mainly with the production of germ and chemical weapons have been reclassified

The George Mason University case

“He should turn it in to his professor, get his grade—and then they both should burn it”

Former white house cyberterror czar Richard Clarke in the
Washington Post.

The Thomas Butler Affair

“How could I possibly permit my students and myself be subject to the same nightmare if we also made an inadvertent mistake”

Stanley Falkow, Stanford University in a letter to John Ashcroft,
18 September 2003.

Homeland Security Presidential Directive-2, 10-29-01

“3. Abuse of International Student Status...

The program shall identify sensitive courses of study, and shall include measures whereby DOS, DOJ, and U.S. academic institutions, working together, can identify problematic applicants for student visas and deny their applications...the Sec.State, AG, Sec.Ed shall consult with the academic community and other interested parties.”

Three New Statutes

- USA Patriot Act, P.L. 107-56, 10-26-01
- The Enhanced Border Security and Visa Entry Reform Act of 2002, P.L. 107-173, 5-14-02
- The Public Health Security and Bioterrorism Preparedness and Response Act of 2002, P.L. 107-188, 6-12-2002
- Problems appear to be greater in implementation than suggested by the legislation.

The Growing Effects of Post-911 Fears

- Access by foreign students and scholars to U.S. institutions, organizations and conferences denied.
- Students and researchers denied return visas.
- Objectionable clauses are inserted into contracts.
- First-time security concerns in the life sciences; e.g., select agents, inventory controls, approved persons, laboratory security.
- In November, only 2000 of the 9000 researchers listed as needing security clearance for their research, had received them, which in turn is impacting on the speed of research, and whether researchers want to work in this area.

Effects, con't

- “sensitive but unclassified” again is bubbling up.
- Classes, laboratories disrupted.
- Enforcement mechanisms are slowly but steadily being broadened bottom up without consultation.
- Technology Alert List is a creeping blanket across science, engineering; e.g., civil engineering, urban planning, landscape architecture.
- SEVIS implementation is plagued with problems.
- Well-intentioned individuals in the system are making self-protective conservative decisions.

List of Programs Affecting Visa Applications

- CONDOR (new program)
- MANTIS (new program)
- IPASS (Interagency Panel on Advanced Science & Security) - identify risky students
- CLASS (Consular Lookout Automated Support System)
- SEVIS (Student and Exchange Visitor Information System) - track & register students

CONDOR

- CONDOR is a completely new program and is devoted to identifying terrorists (active June 2002).
- In the past if no agency queried a applicant in MANTIS, then the visa was approved. With CONDOR, all agencies must sign off on an applicants visa before processing.
- CONDOR has brought about massive delays in visa approval

MANTIS

- MANTIS, designed to exclude applicants who it is believed to violate or evade laws for the export of goods, technology, or sensitive information. It is based on a Technology Alert List (TAL).
- In 2000, 1000 cases were reviewed under MANTIS and 2500 in the following year.
- In 2002, 14,000 cases were reviewed, overloading the system
- 1000 cases are in MANTIS at any one time

IPASS

- IPASS identifies sensitive courses of study and includes measures for the Dept of State, Justice Dept, and U.S. academic institutions working together to identify problematic applicants.
- Prior to 9/11, 75,000 institutions were certified to admit students, after 9/11, the number dropped to 8,000
- Although the rejection rates for science and science related activities remains small- the number of cases for review have increased.

CLASS

- All visa applicants checked in CLASS which links to the FBI criminal database and the intelligence communities TIPOFF database.
- Process usually concluded within 30 days before passing onto MANTIS

Recent DHS-Science Community Initiatives

- More meetings on this issue than one can possibly attend.
- GAO studying the effects of the visa backlog.
- CSIS-National Academies 2-year collaboration on
 - how to manage risks of malevolent use of “sensitive unclassified information”;
 - how to address international peer-to-peer contacts and visits while ensuring a thriving and secure scientific environment;
 - fostering dialogue & analysis - science and security;
 - respected co-chairs: Harold Brown, David Baltimore.

Unexpected Side effects

- The drop in student numbers could eventually have a significant impact on the U.S. science community
- A large proportion of the federal Science and Engineering workforce will retire in the next 5-10 years.
- Unfilled posts are already harming the ability of the U.S. government to respond to emergencies, and one reason is the strict new visa regulations

Conclusion

- The DHS has only been around for a year. Its bound to improve
- Despite all the new restrictions, the science community is generally trying to work with the government to find ways to smooth these issues.
- But the fixes will have to be done quickly. The U.S. has scientific competitors who are exploiting the current bureaucratic visa application process to obtain the best researchers and students for themselves