

Science Summit of the South

# Federal R&D Funding

Dr. G. Wayne Clough

President, Georgia Institute of Technology

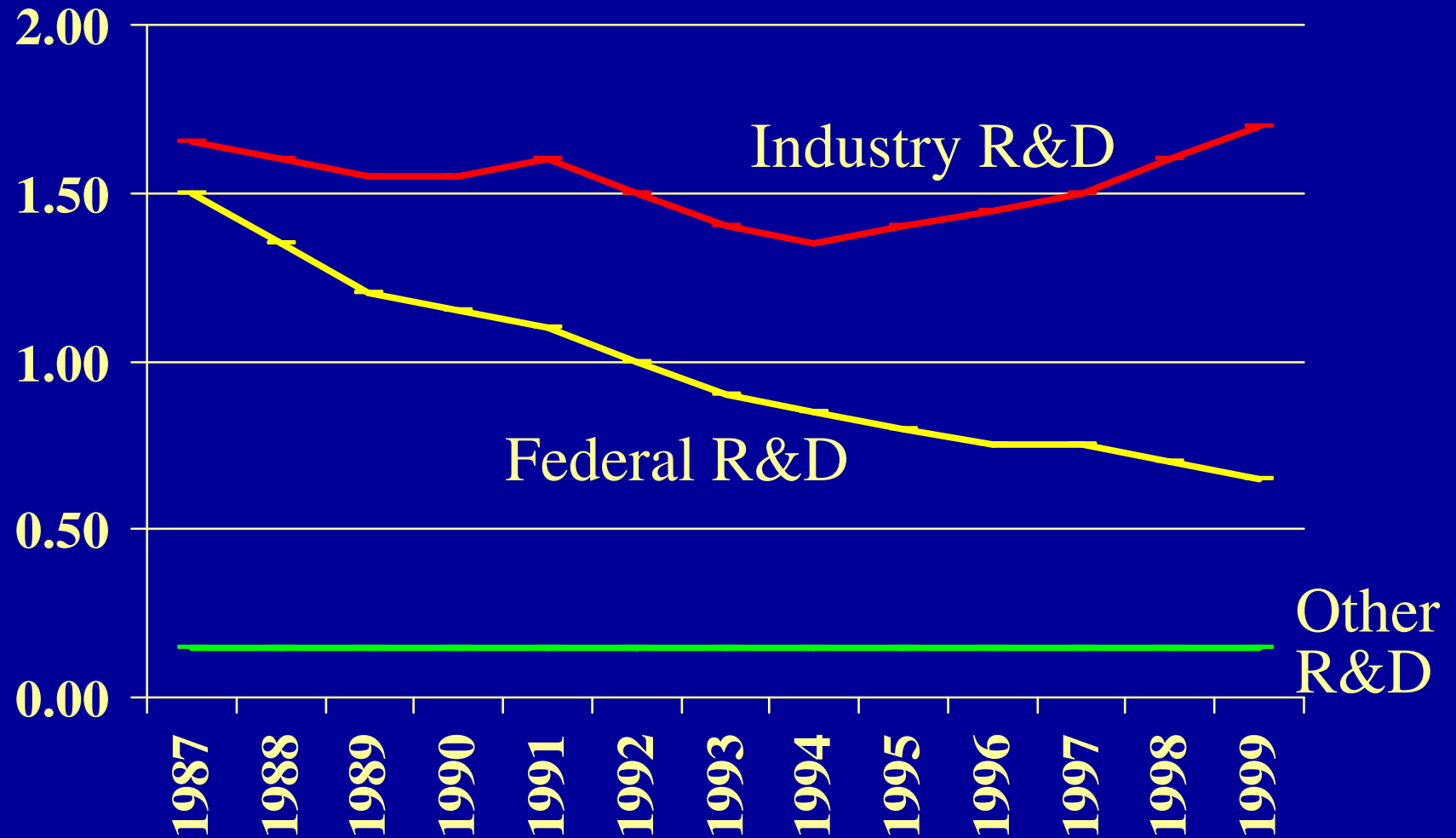
Washington, D.C., April 25, 2001

# Tracing the Trendline

- In the heyday of defense research, the federal government funded **70%** of nation's R&D portfolio. By 1985, it had dropped to **46%**, and by 1999 to **27%**.
- Federal R&D funding is now **less than 1%** of the Gross National Product -- lowest level since the 1950s.

# Federal and Industry R&D

## Percentage of the Gross Domestic Product



*U.S. Competitiveness 2001*, Council on Competitiveness

# Setting the Context

- Innovation is the driving force of the global economy.
- The growing R&D investment by private industry does not replace federal funding.
- **73%** of patent applications filed by private industry cite fundamental research funded by the federal government as the basis for their invention.

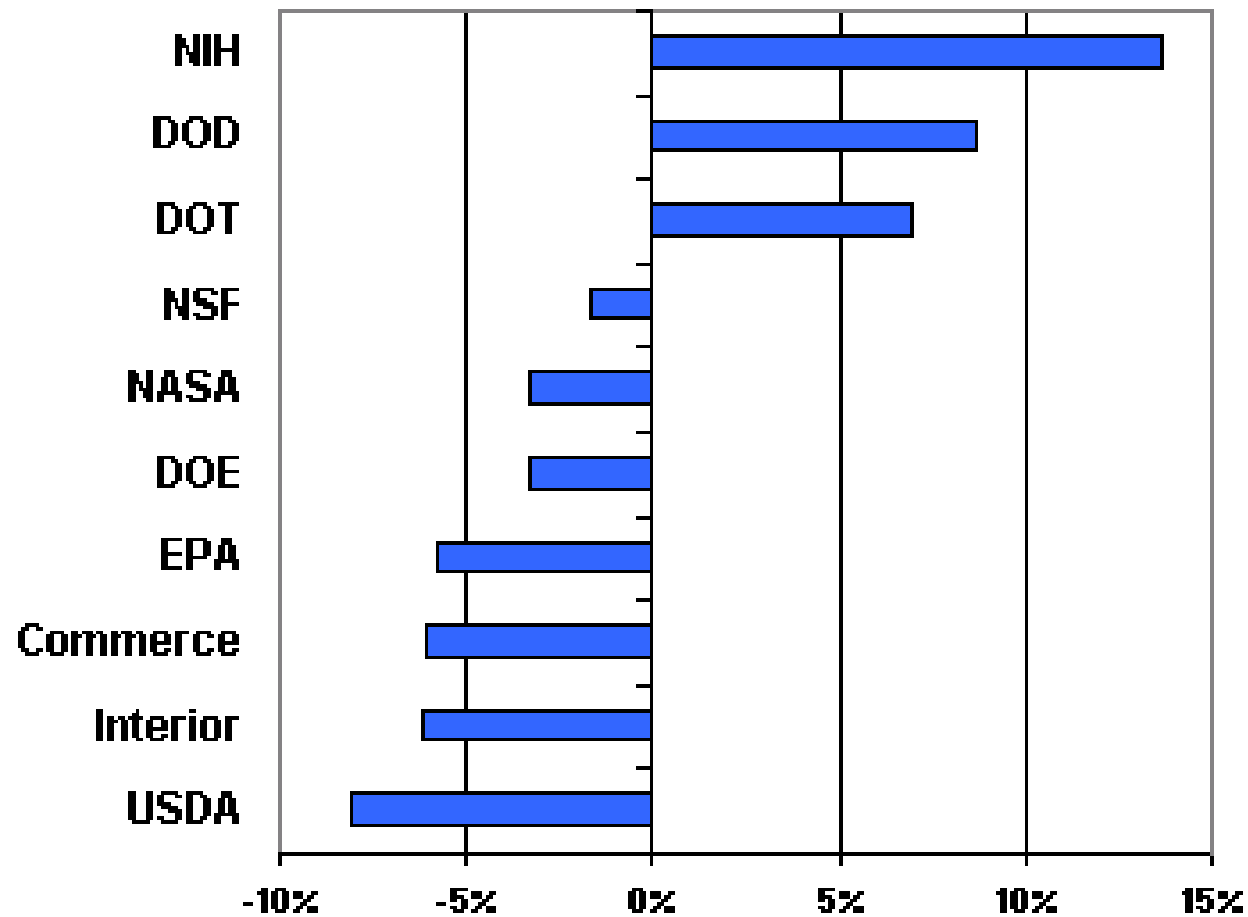
“In the long run, the eroding base for innovation is the real challenge and the abiding constraint on our standard of living.”

Michael Porter, Harvard University  
*U.S. Competitiveness 2001*  
Council on Competitiveness

# Bush Proposal: FY 2002

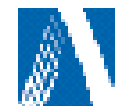
- Overall increase for R&D of \$5.2 billion (5.8%).
- R&D Increase for DoD and NIH of \$6.3 billion means that other funding agencies combined will experience a loss.
- Of non-defense R&D, NIH to receive 13.6% increase, while other non-defense R&D falls by 4.2%.

## FY 2002 R&D Request Percent Change from FY 2001



Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2002.

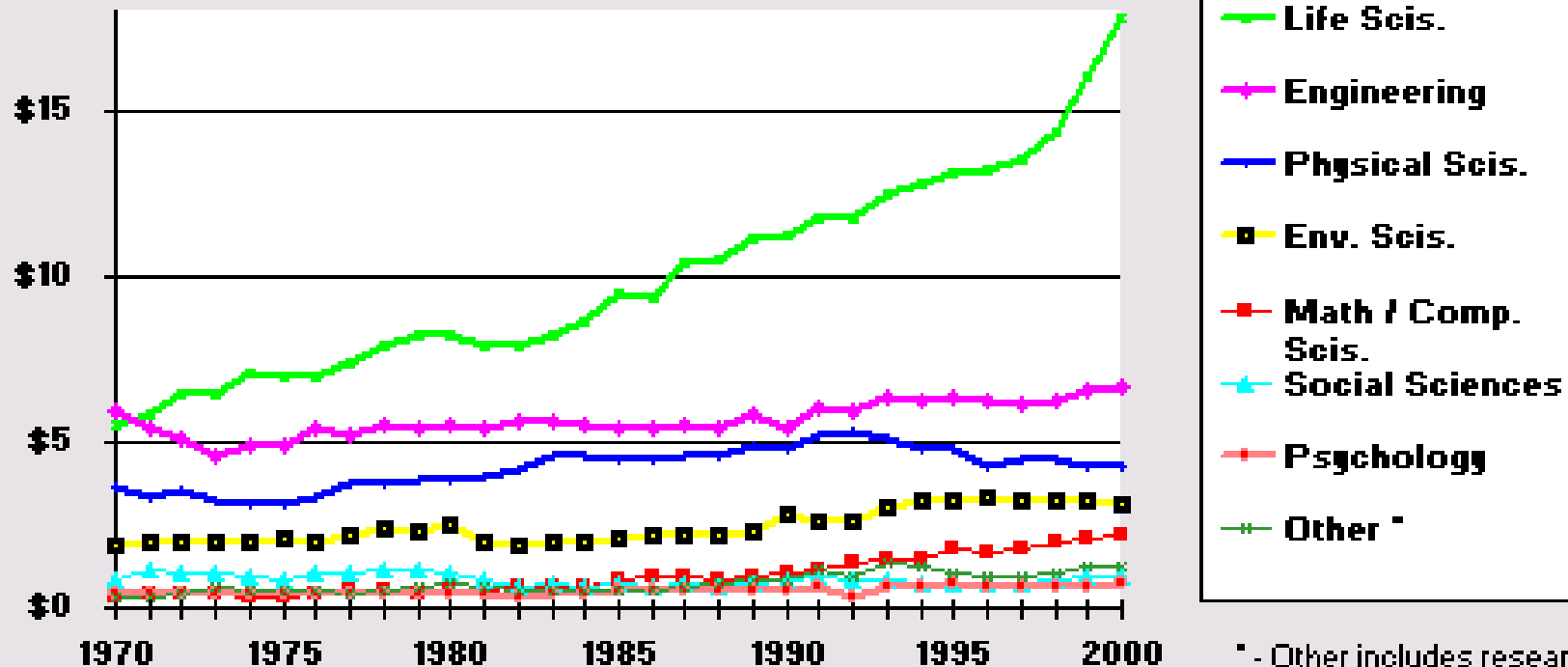
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ADVANCEMENT OF SCIENCE

## Trends in Federal Research by Discipline, FY 1970-2000

obligations in billions of constant FY 2001 dollars



\* - Other includes research not classified (includes basic research and applied research; excludes development and R&D facilities)

Source: National Science Foundation, *Federal Funds for Research and Development FY 1989, 2000, and 2001*, 2001. FY 2000 data are preliminary. Constant-dollar conversions based on OMB's GDP deflators. APRIL '01 © 2001 AAAS



“The National Institutes of Health receives over half of the federal academic research pie. But that will continue to work only if we maintain a healthy foundation of basic science and engineering research from which the life sciences can draw.”

Dr. Rita R. Colwell  
Director, National Science Foundation

# The Importance of NSF

- Accounts for less than 4% of federal R&D spending, but roughly 50% of the non-medical fundamental research at universities.
- Primary source of federal funding for non-medical research in life sciences.
- Primary source of federal funding for fundamental research in other sciences, engineering, and computer science.

# Focusing on the South

- Defining the South: overlay of SGA and SURA regions = 17 states plus D.C.
- One-third of the nation's states.
- One-third of the nation's population.
- Half (23) of the nation's 50 largest cities.
- Strong population growth during the 90s:
  - Half (9/17) of the states with population growth above the national average.
  - Half (27) of the nation's 50 fastest-growing cities.

# Patents as a Measure of Innovation

- 22% of patents issued in 1999 went to the 17 SGA/SURA states.
- 3 SGA/SURA states among the top 25 states in the nation in patents per million population.
- 4 SGA/SURA states among the 22 that exceeded the 77% national growth rate for patents, 1990-1991.
- 5 states with the least patent growth 1990-1999 were all in the SGA/SURA region.

# Patents by Metro Areas

- 20% (10/50) of the metro areas with the most patents in 1999 were in the SGA/SURA region. They were located in 5 states.
- 16% (8/50) of the 50 metro areas with the fastest patent growth 1990-1999 were in the SGA/SURA region.
- 24% (5/21) of the cities that exceed the 77% national growth rate for patents 1990-1999 were in the SURA/SGA region.

# Federal Research Funding

- Johns Hopkins long-time #1 (Applied Physics Lab). Beyond that, the SGA/SURA region has only one university in the top 20.
- Deleting health research: 28% (23/82) of universities receiving more than \$10 million in federal research funds last year were in the SGA/SURA region.
- These 23 universities received 28% of the funding.

# Challenge for the South

- Overcome tradition as an economic laggard and leapfrog other regions to become leader in technology and economic strength.
- Partnership between higher education, government, and private industry.
- Coordinated effort to generate the IT infrastructure and research we need.