WHITE HOUSE PERSPECTIVES ON FUTURE AGRICULTURAL RESEARCH AND EXTENSION

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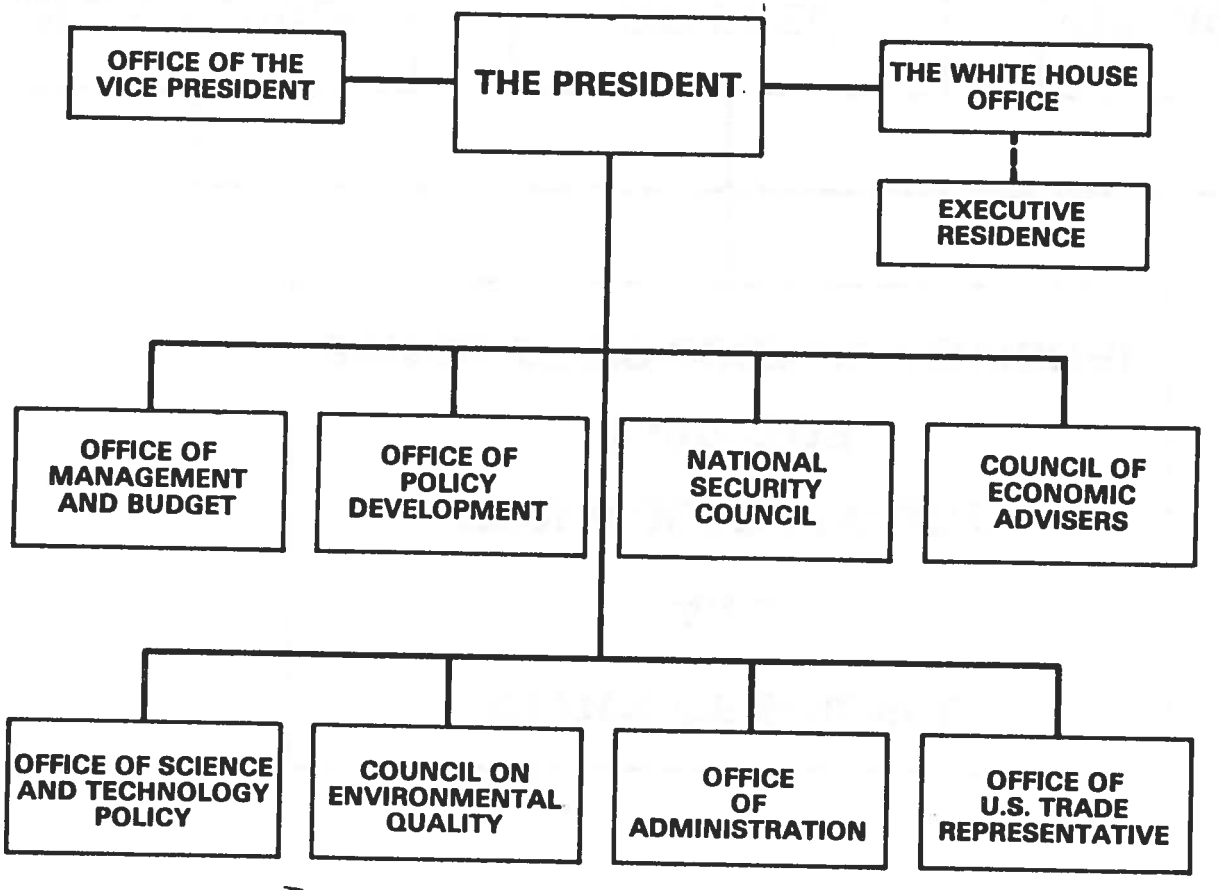
EXECUTIVE OFFICE OF THE PRESIDENT
WASHINGTON DC 20506

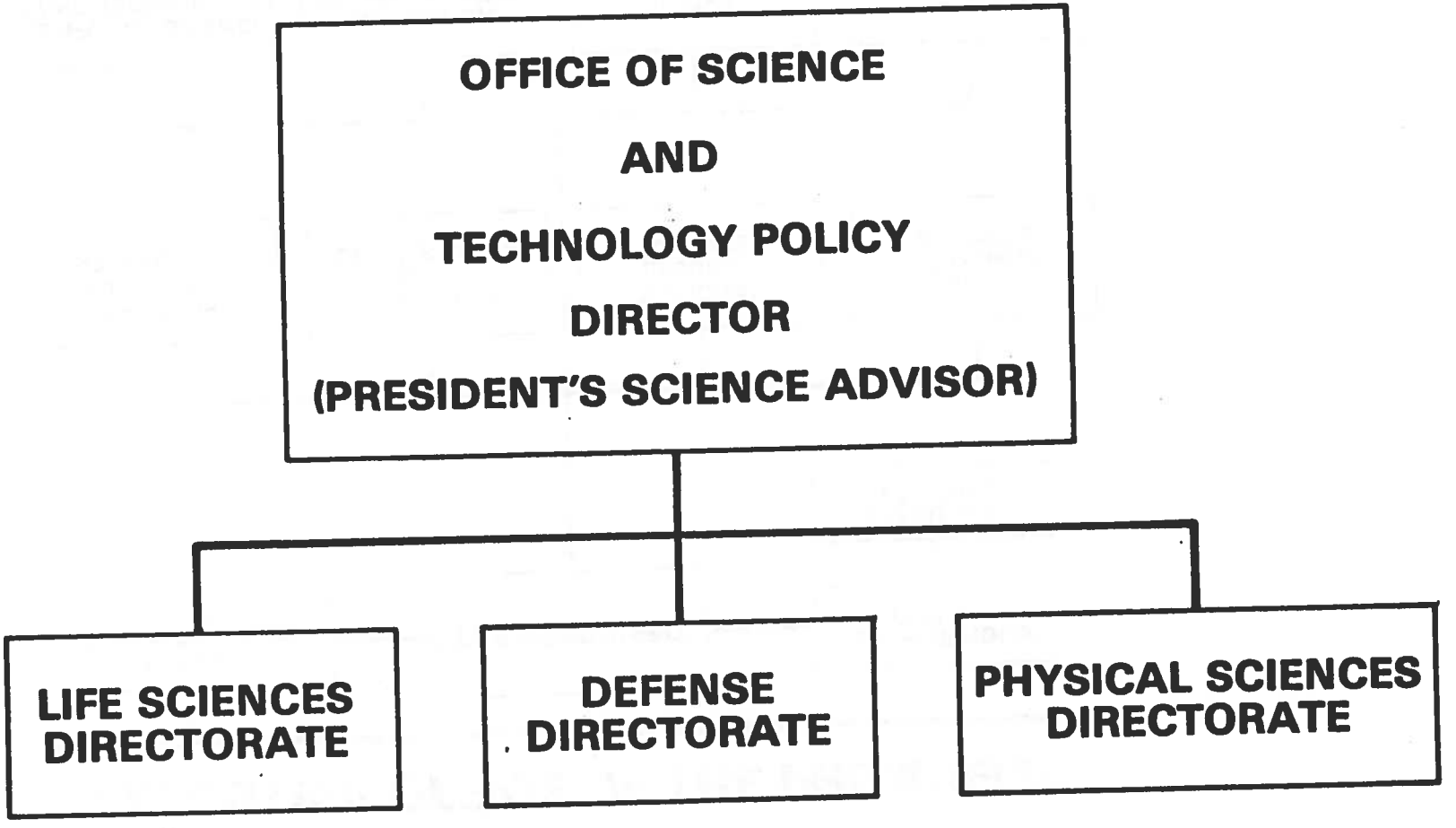
"CONTINUING STRONG SUPPORT FOR OUR NATION'S SCIENCE AND TECHNOLOGY HAS BEEN AND WILL CONTINUE TO BE A POLICY OF THIS ADMINISTRATION. THE GOALS OF THIS SUPPORT ARE ENHANCED NATIONAL SECURITY, IMPROVED QUALITY OF LIFE AND INCREASED INTERNATIONAL COMPETITIVENESS. TODAY MORE THAN EVER BEFORE WE MUST USE OUR TECHNOLOGICAL RESOURCES AGGRESSIVELY IN ORDER TO RETAIN INTERNATIONAL LEADERSHIP."

— RONALD REAGAN, 1986

EXECUTIVE OFFICE OF THE PRESIDENT



JANUARY 1982


OFFICE OF SCIENCE
AND
TECHNOLOGY POLICY
DIRECTOR
(PRESIDENT'S SCIENCE ADVISOR)
LIFE SCIENCES DIRECTORATE
DEFENSE DIRECTORATE
PHYSICAL SCIENCES DIRECTORATE

OSTP FUNCTIONS

1. ADVISE THE PRESIDENT OF SCIENTIFIC AND TECHNOLOGICAL CONSIDERATIONS RE:

- THE ECONOMY
- NATIONAL SECURITY
- HEALTH
- FOREIGN RELATIONS
- THE ENVIRONMENT
- RECOVERY AND USE OF RESOURCES

OSTP FUNCTIONS
(Continued)

2. EVALUATE THE SCALE, QUALITY, AND EFFECTIVENESS OF THE FEDERAL EFFORT IN SCIENCE AND TECHNOLOGY AND ADVISE ON APPROPRIATE ACTIONS

3. ASSIST OMB AND THE AGENCIES IN SCIENCE AND TECHNOLOGY BUDGET PREPARATION AND EVALUATION

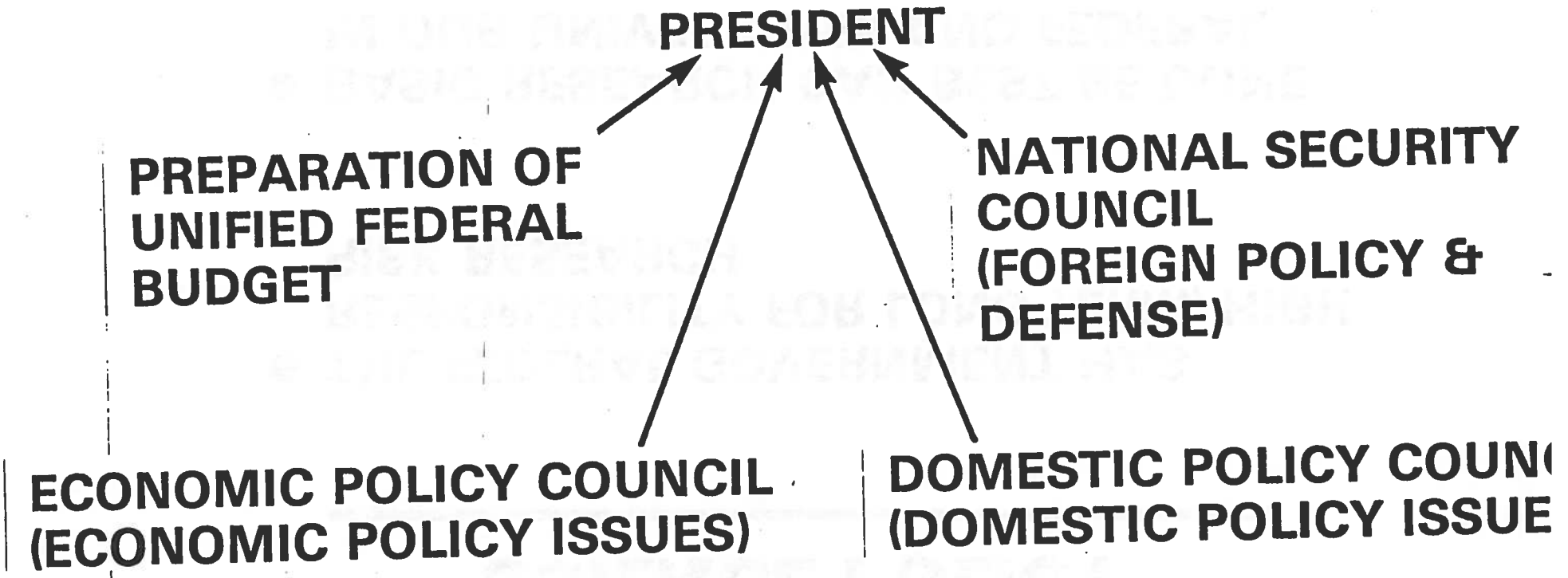
4. ASSIST THE PRESIDENT IN PROVIDING LEADERSHIP AND COORDINATION OF THE FEDERAL RESEARCH AND DEVELOPMENT PROGRAMS

THE ADMINISTRATION'S SCIENCE POLICY

- THE FEDERAL GOVERNMENT HAS RESPONSIBILITY FOR LONG-TERM, HIGH RISK RESEARCH

- BASIC RESEARCH CAN BEST BE DONE IN OUR UNIVERSITIES AND FEDERAL LABORATORIES.

HOW DO ISSUES REACH THE PRESIDENT FOR DECISION?



ADVISORY SYSTEM

WHAT AN ADVISORY SYSTEM CAN DO IS PROVIDE FOR INFORMED DECISIONS. THAT SHOULD BE ITS PRIME OBJECTIVE.

CONSEQUENCES OF CHOICE

IT IS IMPORTANT TO HAVE INFORMATION REGARDING HOW THE CONGRESS AND OUTSIDE INTEREST GROUPS AND THE PUBLIC AT LARGE WILL LIKELY REACT TO ALTERNATE COURSES OF ACTION.

ACTIONS OF THE CONGRESS

THE CONCERN MUST BE "TO PROMOTE THE GENERAL WELFARE" RATHER THAN THE PROMOTION OF SPECIAL INTEREST.

- THE PROBLEM HOWEVER IS THAT: THE U.S. HOUSE OF REPRESENTATIVES HAS 150 SUBCOMMITTEES AND 35 CAUCUSES OR COALITIONS

NATIONAL GOALS FOR SCIENCE

1940'S & 50'S	— MILITARY AND SPACE TECHNOLOGY
1960'S & 70'S	— HEALTH AND ENVIRONMENTAL CONCERNS
1980'S	— IMPROVING THE COMPETITIVENESS OF U.S. INDUSTRIES

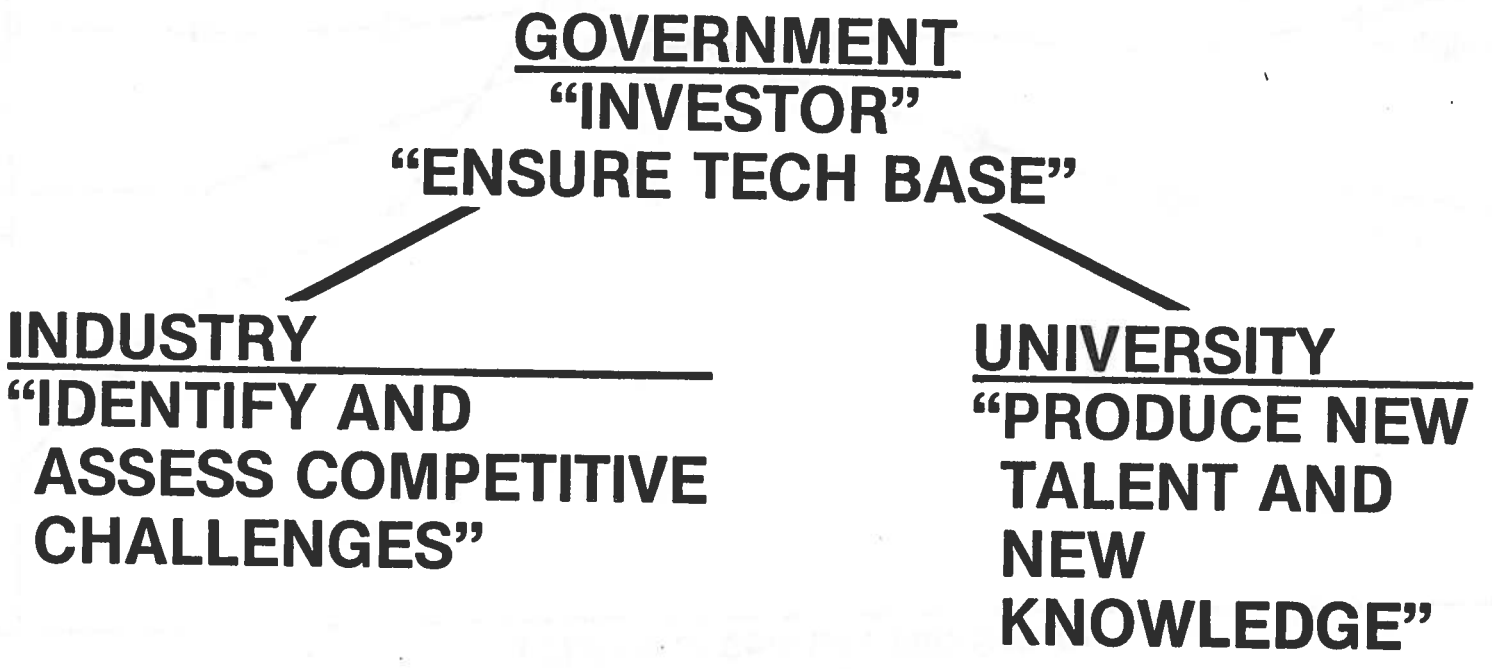
FOUR GENERAL FACTORS DETERMINE INTERNATIONAL COMPETITIVENESS

- COST OF LABOR
- COST OF CAPITAL
- STRENGTH OF CURRENCY
- DEVELOPMENT AND USE OF TECHNOLOGY

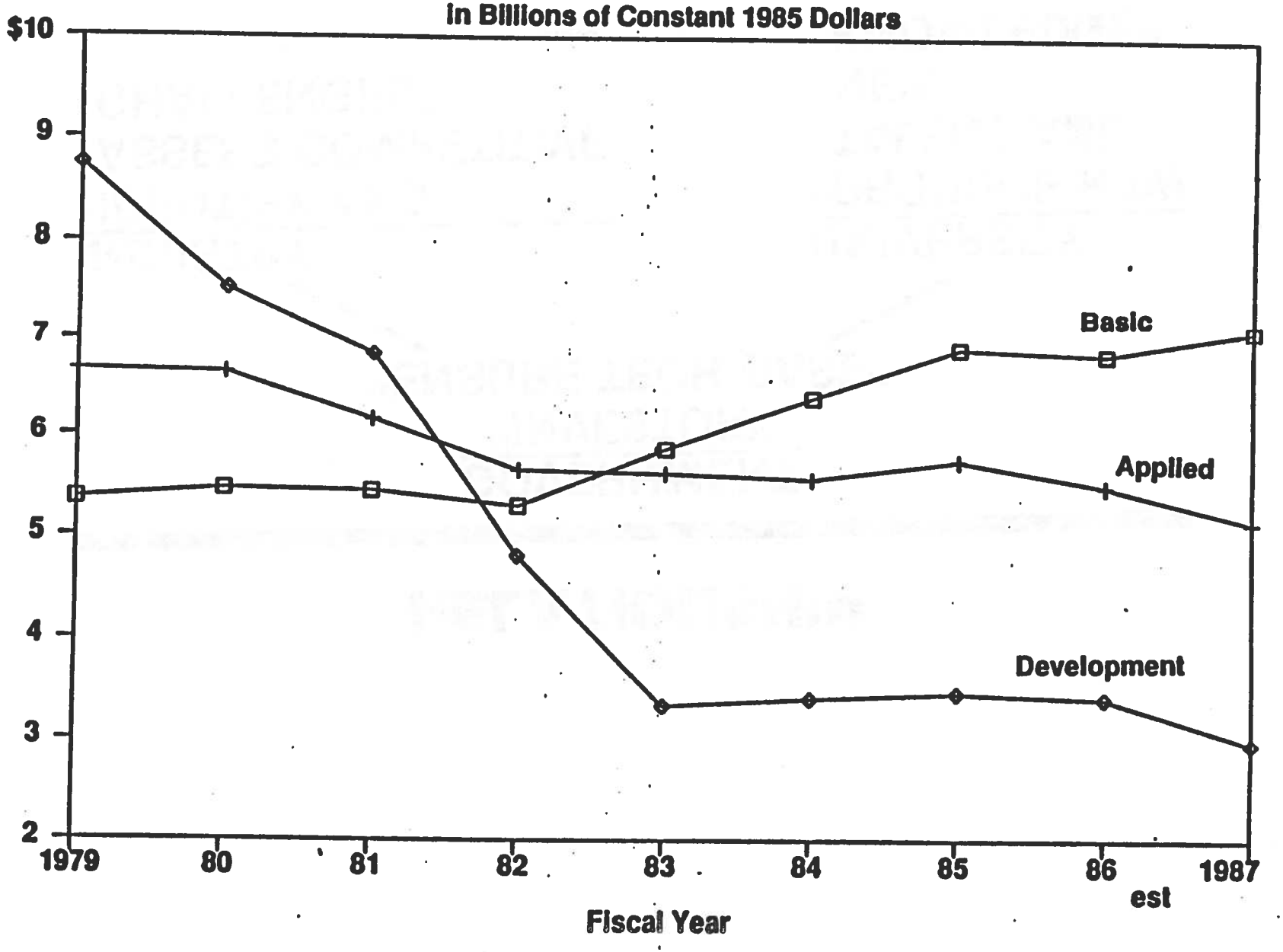
ALL SECTORS

GOVERNMENT, UNIVERSITY, AND INDUSTRY — SHARE THE RESPONSIBILITY FOR THE STEWARDSHIP OF THE SCIENTIFIC AND ENGINEERING ENTERPRISE AND FOR ENSURING ITS CONTINUING CONTRIBUTIONS TO THE NATIONAL WELL-BEING.

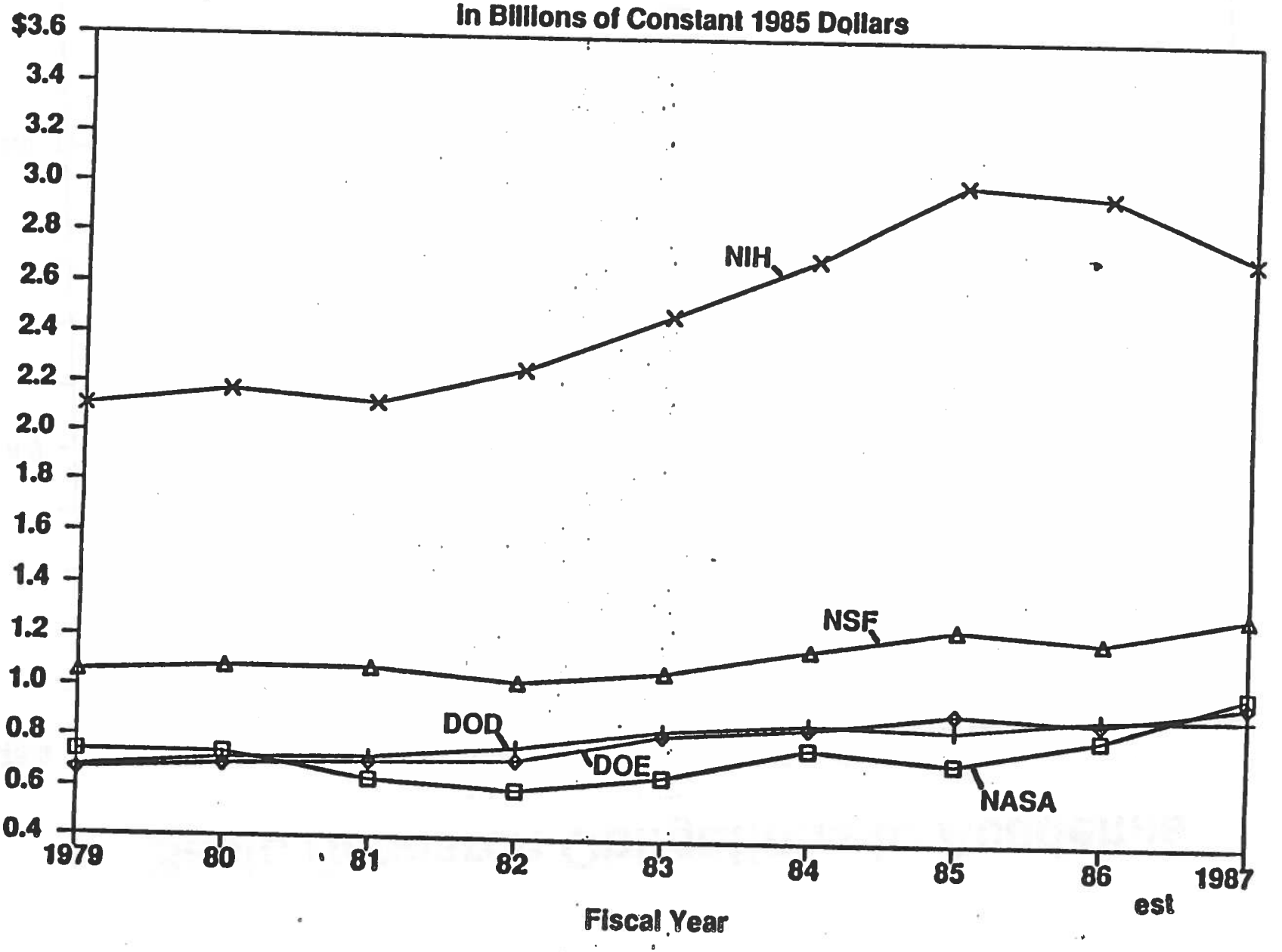
RELATIONSHIP



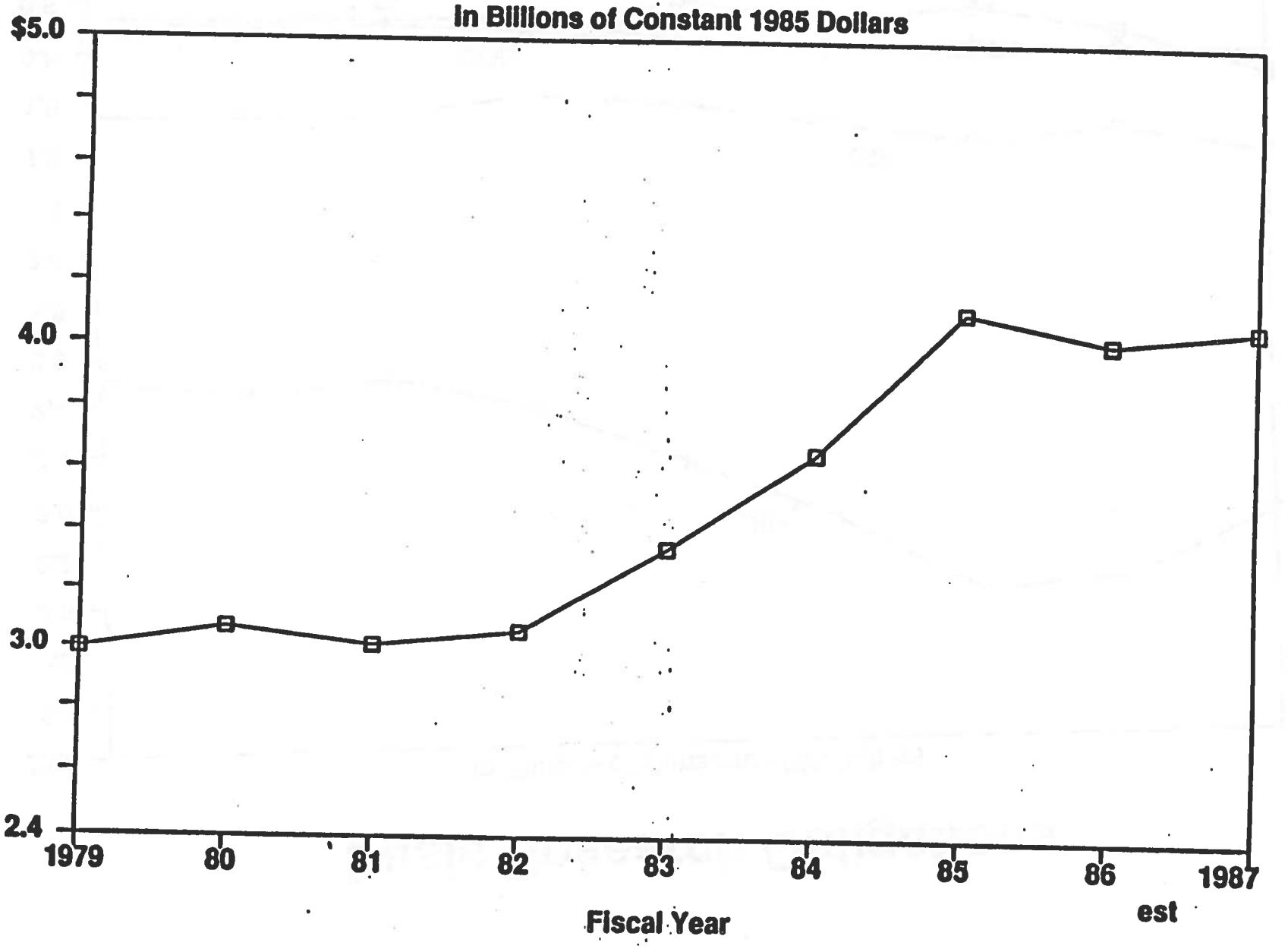
Federal R&D Obligations (Nondefense)



Basic Research Obligations



Basic Research Obligations to Academia



FUNCTIONS IN THE TECHNOLOGY INNOVATION PROCESS

WORLD STOCK OF KNOWLEDGE	RESEARCH	TECHNOLOGY DEVELOPMENT	TECHNOLOGY TESTING	TECHNOLOGY ADAPTATION	(POLICY-MARKET FARM SYSTEM) INTEGRATION	DIFFUSION	COMMON PRACTICE

- 18% OF THE NATIONS SCIENTISTS AND ENGINEERS ARE EMPLOYED IN FEDERAL LABORATORIES

- FEDERAL LABORATORIES HAVE A COMBINED BUDGET OF $18 BILLION/YR

PRODUCTIVITY OF U.S. SCIENCE AND ENGINEERING IS IN PART DUE TO THE RESEARCH COMMUNITY'S ADHERENCE TO STANDARDS OF EXCELLENCE AND TO INSTITUTIONAL ARRANGEMENTS THAT HAVE ENCOURAGED INNOVATION.

IS THE AMERICAN AGRICULTURAL RESEARCH SYSTEM PREPARED TO PROVIDE THE SCIENTIFIC AND TECHNICAL TALENT TO PRODUCE THE NEW KNOWLEDGE NEEDED TO REMAIN PREEMINENT IN AN AGE OF RAPID TECHNOLOGICAL CHANGE AND INTENSE COMPETITION?

AGRICULTURAL RESEARCH

"WE ARE SPENDING THE PRINCIPAL AT A FASTER PACE THAN THE INTEREST IS ACCRUING."

- ACCUMULATION OF KNOWLEDGE
- NATURAL RESOURCES
- SCIENTIFIC TALENT

AGRICULTURAL RESEARCH

- AGRICULTURAL RESEARCH SERVICE
- COOPERATIVE STATES RESEARCH SERVICE COMPETITIVE GRANTS
- ECONOMIC RESEARCH SERVICE
- FOREST SERVICE
- STATISTICAL REPORTING SERVICE
- EXTENSION SERVICE

COOPERATIVE STATE RESEARCH SERVICE

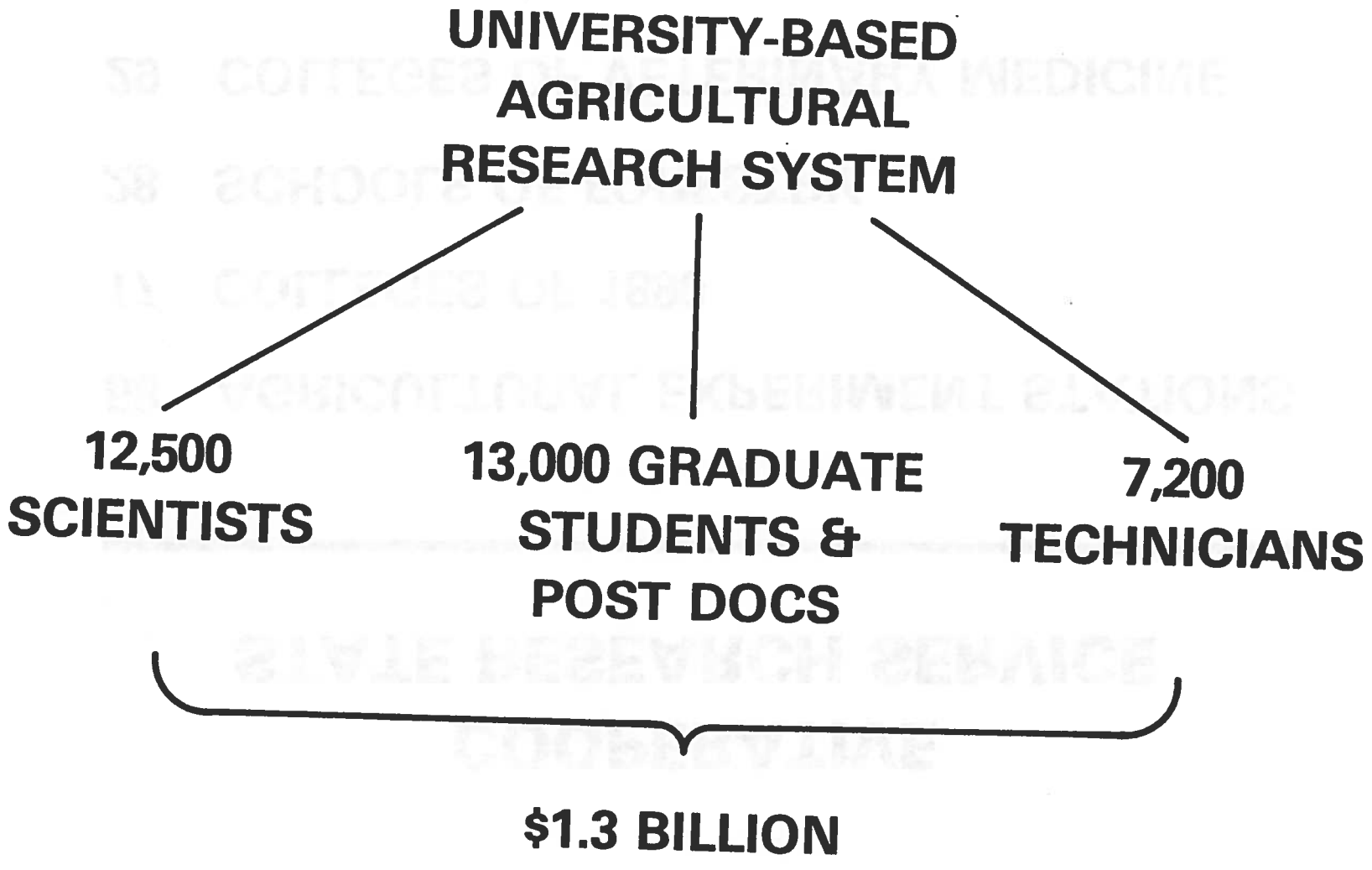
58 AGRICULTURAL EXPERIMENT STATIONS

17 COLLEGES OF 1890

28 SCHOOLS OF FORESTRY

29 COLLEGES OF VETERINARY MEDICINE

42 SCHOOLS OF HOME ECONOMICS

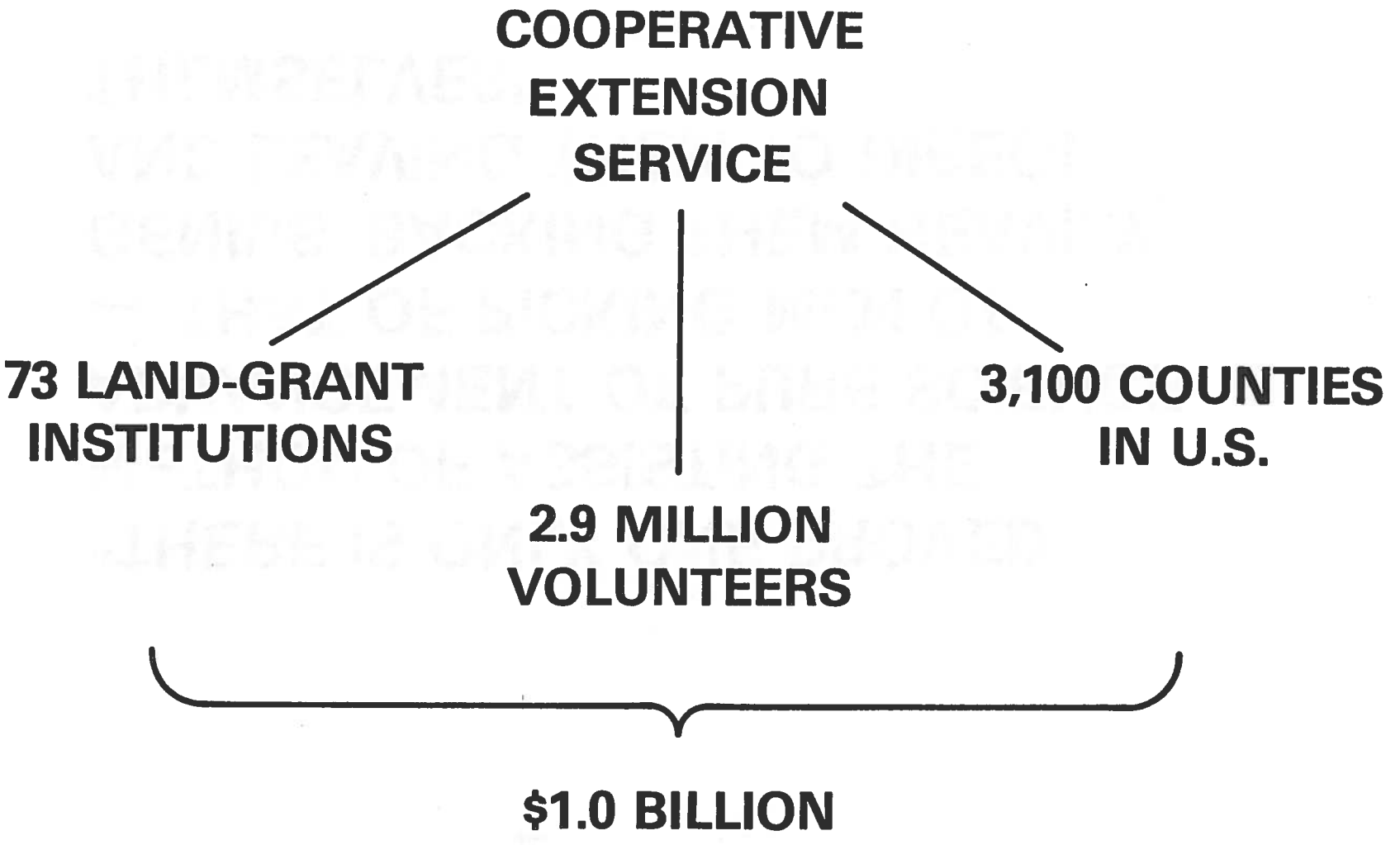

UNIVERSITY-BASED
AGRICULTURAL
RESEARCH SYSTEM
12,500
SCIENTISTS
13,000 GRADUATE
STUDENTS &
POST DOCS
7,200
TECHNICIANS
$1.3 BILLION

EFFORTS OF THE AGRICULTURAL RESEARCH SYSTEM

CROPS	37%	COMPETITION & TRADE	7%
ANIMALS	20%	FOOD SCIENCE/ NUTRITION	5%
FORESTRY	13%	ALL OTHER	7%
NATURAL RESOURCES	11%		

FUNDING FOR STATE AGRICULTURAL EXPERIMENT STATIONS

STATE APPROPRIATED	53%
CSRS APPROPRIATED	19%
PRODUCT SALES	6%
INDUSTRY	10%
OTHER USDA	3%
OTHER FEDERAL	9%


COOPERATIVE
EXTENSION
SERVICE
73 LAND-GRANT
INSTITUTIONS
3,100 COUNTIES
IN U.S.
2.9 MILLION
VOLUNTEERS
$1.0 BILLION

"THERE IS ONLY ONE PROVED METHOD OF ASSISTING THE ADVANCEMENT OF PURE SCIENCE — THAT OF PICKING MEN OF GENIUS, BACKING THEM HEAVILY, AND LEAVING THEM TO DIRECT THEMSELVES"

JAMES CONANT, 1945

EDUCATION AND TRAINING

- ATTRACTING MOST ABLE STUDENTS
- PROVIDING RIGHT TALENT
- WILL THERE BE ENOUGH?
- A NEED FOR TRAINING GRANTS

TRENDS IN TOTAL ENROLLMENT

	AGRICULTURAL SPECIALIZATIONS		ALL HIGHER ED INSTITUTIONS	
1978	89,990		11,260,000	
1979	89,225	– 0.8%	11,570,000	+ 2.8%
1980	83,675	– 7.0%	12,097,000	+ 7.4%
1981	83,530	– 7.2%	12,372,000	+ 9.9%
1982	71,575	– 20.5%	12,426,000	+ 10.3%
1983	67,720	– 24.7%	12,465,000	+ 10.7%

DEGREES AWARDED IN 1981-82

	ALL INSTITUTIONS	AGRICULTURE & NATURAL RESOURCES
BACHELOR'S	953,000	22,700
MASTER'S	295,500	4,550
DOCTORAL	32,700	1,145

FOR FEDERAL SOURCE OF FUNDS WHO SETS PRIORITIES?

- RESEARCH AGENCY?
- OFFICE OF MANAGEMENT AND BUDGET?
- CONGRESS?

"THE GRASS ROOTS POTENTIAL OF SCIENCE IS ITS GREATEST UNTAPPED RESOURCE."

SLADE GORTON, 1986

JOINT COUNCIL
RECOMMENDED NATIONAL PRIORITIES

- AGRICULTURAL PROFITABILITY
- WATER QUALITY
- BIOTECHNOLOGY
- HUMAN CAPITAL
- NUTRITION

USDA's FY 1985 COMPETITIVE GRANTS PROGRAM

NUMBER OF PROPOSALS	2,629	
AMOUNT REQUESTED	$603,153,895	
GRANTS AWARDED	449	SUCCESS RATE — 17%
AMOUNT AWARDED	$44,173,800	SUCCESS RATE — 7%

KEY RESEARCH AREAS FOR A PLANT SCIENCE INITIATIVE

- RHIZOSPHERE DYNAMICS
- ECOLOGICAL PROCESSES
- PLANT BIOTECHNOLOGY
- COMPLEX CARBOHYDRATES

"I LIKE THE DREAMS OF THE FUTURE BETTER THAN THE HISTORY OF THE PAST."

THOMAS JEFFERSON