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Defense showed greatest R/D gain in administration's March budget proposal; energy showed greatest ten-year growth

- **Total federal R/D funding** reached \$40.8 billion in the fiscal year 1982 federal budget, as revised in March by the new administration.* This represented a 15 percent gain over 1981 and nearly double the average annual gain of 8.6 percent for the 1971-81 period. The sharp rise in 1982 was almost entirely the result of a large projected increase for defense R/D programs.

- **National defense** accounted for 57 percent of all federal R/D funding in 1982, compared to 52 percent in 1971 and 47 percent as recently as 1980. The average annual rate of growth between 1971 and 1981 was 8.6 percent, one-third of the 26 percent gain in 1982 over 1981.

Two agencies, the Department of Defense and the Department of Energy, sponsor all defense-related R/D activities. Between 1972 and 1974, R/D support changed only slightly from one year to the next. But from 1974 to 1981, there was an average annual growth-rate of 10.8 percent for defense R/D programs. The rising trend was accelerated in the 1982 budget, with strong emphasis placed on strategic, advanced technology development, and intelligence and communication programs.

- **Space research and technology** represented 14 percent of the 1982 federal R/D total, compared to 20 percent in 1971. All activities of this type are conducted by the National Aeronautics and Space Administration.

Space funding declined at an average annual rate of 3.9 percent for the period 1971-74, in part because the Apollo manned lunar landing program was phasing out. Thereafter, space activities grew at an average rate of 9 percent (1974-81), largely as a result of activities related to space shuttle development, which soon grew to be the largest federal R/D program. In the 1982 budget, an increase of 12 percent over 1981 was planned, mostly covering expansion of space flight operations work connected with the space shuttle.

- **The health share** within the federal R/D total in 1982 was 10 percent; it was 8 percent in 1971. R/D funding registered a high rate of average annual growth in the 1971-81 decade, 11.5 percent, with the most rapid growth occurring between 1971 and 1979. Thereafter, increases were smaller, and the 1982 budget showed a gain of only 6 percent over 1981.

Almost all health programs are sponsored by the Department of Health and Human Services; the biomedical research activities of the National Institutes of Health there accounted for almost 90 percent of the health total. Throughout most of the 1970s, NIH funding advanced rapidly as a result of large investments in cancer and heart research. By 1980, however, the NIH increase had become more moderate, and this trend continued in the 1982 budget.

- **The energy share** of the federal R/D total was 7 percent in 1982, which continued the decline from the peak figure of 12 percent in 1979 though it was up from 4 percent in 1971. Energy was the only leading area to show a decrease (14 percent) in overall R/D funding in 1982. Most energy programs are sponsored by the Department of Energy, the rest by the Nuclear Regulatory Commission and the Environmental Protection Agency.

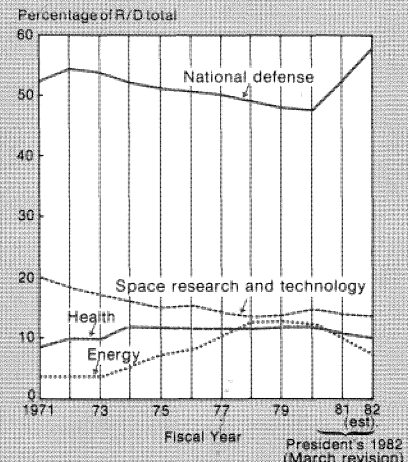
Between 1971 and 1974, R/D funding for energy grew at an average annual rate of 11 percent, mostly as a result of investment in the breeder-reactor program. By 1975, the effect of the 1973 OPEC oil embargo resulted in a large increase in energy support. The average annual growth of 35.5 percent between 1974 and 1979 far surpassed that for other federal R/D activities. Then in 1980 and 1981, rates of increase dropped sharply.

The 1982 drop reflected a new policy of making major reductions in R/D support regarded by the administration as more appropriate for the private sector. Thus, programs in solar and fossil energy and in conservation were cut back strongly, although work in nuclear areas was increased.

- **General science** accounted for 4 percent of all federal R/D funding in 1982, compared with 3 percent in

1971. All the R/D programs of the National Science Foundation and the three basic sciences programs of the Department of Energy are included under general science. In the 1971-74 period, R/D funding for general science grew at an average annual rate of 13.5 percent, second only to health. During that time, NSF research support grew partly through acquisition of a number of basic research programs transferred from the Department of Defense, and partly from the NSF Research Applied to National Needs programs, started in 1971.

Between 1974 and 1981, growth in general science funding averaged 8.4 percent a year; in the 1982 budget, this area showed an 11 percent increase over 1981. Emphasis was on NSF natural sciences and engineering and the Department of Energy's high-energy physics effort.



Trends in distribution of federal R/D funding by function: FY 1971-82

General science	3.3	3.8	3.9	4.3	4.3	4.1	4.1	4.0	3.9	3.7	3.5
Natural resources and environment	2.7	2.9	3.3	3.0	3.3	3.3	3.1	3.4	3.2	2.9	2.4
Transportation	4.7	3.4	3.4	4.0	3.3	3.0	3.0	2.9	2.8	2.5	2.2
Agriculture	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8
Education, training, employment, and social services	1.4	1.4	1.7	1.4	1.3	1.2	1.0	1.3	1.2	1.5	1.0
Veterans benefits and services	4	4	4	5	5	5	4	4	4	4	4
International affairs	2	2	2	1	2	2	3	2	4	4	3
Commerce and housing credit	6	3	3	3	3	3	3	3	3	4	3
Community and regional development	4	4	5	5	5	5	4	3	4	3	2
Income security	9	6	6	4	4	2	2	3	2	1	2
Administration of justice	1	1	2	2	2	2	2	2	2	1	1
General government	(a)	(a)	(a)	1	1	1	1	1	1	1	1

*Less than .05 percent

SOURCE: National Science Foundation

*Federal budget proposals for 1982, including proposals for R/D programs, have been revised downward since March. If accepted by Congress, the net effect might be to show almost no overall R/D growth over 1981 and, perhaps, 20 percent growth for defense R/D programs. This presentation is intended to portray only one phase in an ongoing process.