

# Scientific research and development

## Chapter 9

### Science in Canada

9.1

Development of Canada's natural resources and industry has involved the federal government in scientific activities since the establishment of Canada in 1867. The two main areas of investigation have been the natural sciences, including engineering, and the social sciences, including the humanities.

### Natural sciences 1977-78

9.1.1

In such natural sciences as biology, chemistry, physics, astronomy, geology and oceanography, data are collected on the expenditures and manpower devoted to research and development (R&D) and related scientific activities (RSA). Although research and development is the central element, related scientific activities precede, complement and extend this work. RSA includes data collection, information testing and standardization, feasibility studies and educational support.

Federal expenditures in the natural sciences were expected to reach \$1,374.5 million in 1977-78, an increase of 11% over 1976-77, and representing a little more than 3% of the total 1977-78 budget. R&D accounted for 71% of this, 56% for intramural work done in federal establishments and laboratories. RSA expenditures for 1977-78 were estimated at \$393.2 million. Of this, scientific data collection represented 53%, scientific information 15%, feasibility studies 14%, testing and standardization 6% and education support 5%.

Three federal government sectors were expected to account for approximately half the natural science expenditures for 1977-78: the Department of Fisheries and the Environment \$313.8 million; National Research Council of Canada \$276.5 million; and the Department of Agriculture \$130.3 million.

### Federal support of social sciences

9.1.2

Social sciences include all disciplines involving the study of human actions and conditions, except the performing arts, and the social, economic and institutional mechanisms affecting them as well as such applied social science fields as anthropology, economics, human geography, business administration, communications, criminology and industrial relations.

Federal expenditures on the social sciences were expected to reach \$461.0 million in 1977-78, an increase of 10% over 1976-77. R&D accounted for \$147.8 million and RSA \$313.0 million. It was anticipated that the federal government would perform 72% of the scientific activities. Universities and non-profit institutions would receive 13% of total expenditures, foreign performers 6% and business enterprises 4%.

Three sectors of the federal government were expected to account for about 45% of social science expenditures for 1977-78: Statistics Canada \$148.0 million; Canada Council \$31.6 million; and Department of National Health and Welfare \$27.4 million. Social science expenditures were 1.1% of the total federal budget (1.1% in 1976-77).

### Government, business and university sectors

9.1.3

The federal government is a major source of funds for scientific activities carried out in universities and business enterprises. It is also responsible for major programs in space, nuclear energy, natural resource identification and development, agriculture and economic and social data collection.

The business enterprise sector uses science to develop new products or processes for industry. The university sector trains manpower for all three sectors and carries out fundamental research which may have no immediate application in the other two.