science were $844 million with 81% for RSA and 19% for R&D.

The bulk of the RSA expenditures was for data collection, dominated by the statistical activities of Statistics Canada. About 88% of the expenditures on RSA are performed intramurally. In R&D, 40% of the expenditures are intramural with 33% being spent in the university sector, primarily as a result of the activities of the Social Sciences and Humanities Research Council.

Human resources devoted to S&T in 1988-89 were 8,210 person-years for RSA and 610 for R&D.

Further details for the five largest participants are provided in section 12.3.

12.2 Major participants in natural sciences and engineering

Five federal departments and agencies fund 57% of the total activities in natural sciences and engineering. The scientific and technological endeavours of these departments and agencies cover a broad range of activities including in-house facilities for industry research, support for industrial development, support for basic research and training of scientific personnel, and performing of research in support of departmental missions.

12.2.1 National Research Council

Created in 1917, the National Research Council (NRC) has an objective to create, acquire and promote the application of scientific and engineering knowledge to meet Canadian needs for economic, regional and social development. With estimated expenditures of $480 million in 1988-89, it is the largest federal spender on S&T activities. The total overall growth of NRC expenditures has been about 17% since 1983-84. NRC expects to spend about 68% of its 1988-89 budget intramurally, 23% in the industrial sector, 6% in the university sector and the balance among other performers.

NRC covers a wide range of scientific and technological activities in the following six areas: national competence in the natural sciences and engineering; research on problems of economic and social importance; research in direct support of industrial innovation and development; national facilities; research and services related to physical standards; and scientific and technical information. The research laboratories are contained in the divisions of biological sciences, chemistry, electrical engineering, energy, mechanical engineering and physics, and in the Herzberg Institute of Astrophysics and the National Aeronautical Establishment.

NRC also operates a series of regional laboratories:
—The Institute for Marine Dynamics at St. John's, Nfld.,
—The Atlantic Research Laboratory at Halifax, NS,
—The Industrial Materials Research Institute in Boucherville, Que.,
—The Plant Biotechnology Institute in Saskatoon, Sask.,
—The Western Laboratory in Vancouver, BC,
—The Biotechnology Research Institute in Montreal, Que.

In addition to its laboratory facilities which are used to perform research in support of NRC's mission, and under contract to the private sector, NRC operates the Industry Development Office. This Office was expected to provide an estimated $65 million in 1988-89 in grants and contributions to industry through two industrial support programs: an industrial research assistance program (IRAP) and a program of industry/laboratory projects (PILP).

IRAP provides a wide range of support by paying salaries for researchers for specific projects in small- and medium-sized businesses, and by providing technical advice to firms. These services are delivered to industry by a series of regional offices across the country, some of them operated under contract by the provincial research organizations (see section 12.4). PILP is designed to assist companies in technology transfer from both government and university laboratories.

Under the scientific and technical information program, NRC operates the Canada Institute for Scientific and Technical Information (CISTI).

12.2.2 Agriculture Canada

The federal department of agriculture (Agriculture Canada) with estimated spending of $412 million is the second largest spender in natural sciences and engineering. The bulk of Agriculture Canada expenditures, 90%, was planned for R&D with 94% being performed intramurally. Only 4% of the department's expenditures were in the industry sector and 2% in the university and other sectors.

The bulk of the department's S&T activities is in the Research Branch which operates 52 research units across Canada. These specialize in local problems. In addition, Agriculture Canada operates six national research centres: the Animal Research Centre, the Biosystematics Research Centre, the Plant Research Centre, the Food Research Centre, the Land Resource Research Centre, and the Engineering and Statistical Research Centre.