The engineering laboratories consist of the divisions of building research, mechanical engineering, radio and electrical engineering, and a national aeronautical establishment; the physical/chemical sciences laboratories include divisions of physics and chemistry and an institute of astrophysics; biological sciences laboratories include a division of biological sciences, a regional laboratory in Saskatoon and another in Halifax.

Research is conducted on long-term problems relating to energy, transportation, food, building and construction. The study of energy-related problems covers a wide range of projects, including energy conservation, wind turbines, laser fusion research, separation of isotopes and power handling at extreme low temperatures.

Examples of other research are: legume seed research on the Prairies, expected to lead to commercial production in Canada of high protein foods derived from such legume crops as field peas and fava beans; research in mechanical engineering to establish design, installation and operation of ship hulls, oil platforms and terminal structures in an Arctic environment; and field and laboratory investigations into problems relating to northern construction and technology.

In direct support of industrial innovation and development, intramural research is performed for industrial companies on request, contract or collaboration basis.

Research to provide technological support of such social objectives as public safety, environment, health and education is conducted in many divisions. The biological sciences division is studying anaerobic bacterial digestion of organic wastes from food processing and sewage for production of methane and reduction of pollutant content. The divisions of physics, biological sciences, mechanical engineering and building research and the aeronautical establishment are co-operating in a joint study of environmental and physiological noise problems.

The National Research Council supports research efforts in industry, universities and other government departments through provision of national facilities. Examples are a large-scale towing tank operated by the Marine Dynamics and Ship Laboratory, a wind-tunnel complex at the aeronautical establishment and the Algonquin Radio Observatory.

Research and services related to standards include all work in support of standards, codes and specifications in the national or international public domain. The physics division is responsible for maintaining physical standards. An environmental secretariat assembles criteria for authorities responsible for setting environmental standards. A building research division provides support to NRC associate committees responsible for national building and fire codes.

In the field of scientific and technical information NRC is responsible for operation of the Canada Institute for Scientific and Technical Information, publication of journals of research and the development of a network of scientific and technical information services.

The NRC has a program to assist industry to become more competitive and innovative by promoting formation of R&D teams in industry. A research grant provides money for an applied research project conceived by a company with an end product or process in view. To be eligible, companies must be incorporated in Canada, undertake to do most of the proposed research in Canada, exploit results through Canadian operations and have access to export markets for the product. NRC pays direct salaries of scientists, engineers and technicians. The company provides laboratory space, equipment and consumable supplies and pays overhead costs. Estimated grants were $16.6 million for 1977-78.

A program of scholarships and grants for research remained with the NRC pending establishment of a research council for natural sciences and engineering in 1978. The program promotes and supports research in Canadian universities and the provision of qualified manpower in natural sciences and engineering. The program has three principal objectives: to support excellence in research for creation of new knowledge in the natural sciences and engineering, to promote and support development of research in selected fields of regional and national importance, and to assist in development of qualified manpower. The program includes grants for development, training and development of highly qualified manpower, and national and international activities. Expenditures for this program were planned at $98.0 million in 1977-78.