

more types of crop at a time. To develop new animal feed, experiments are conducted on using parts of plants or trees not generally considered edible, and byproducts such as the fleshy pulp of coffee and waste products of sugar cane. Other research is carried out on fish farming, shellfish culture, fish preservation and processing, post-harvest technology to protect the crop after it has been harvested, and the needs of the rural family.

Another division focuses on the effect of modernization and change, especially on rural peoples, on strategies for harmonious urban and rural development, formation of appropriate science and technology policies, delivery systems for primary education, and on formulation of population policies. The division also administers a scholarship program to increase the number of persons trained in development problems.

The main research interests of the division for population and health sciences are environmental health and disease prevention, fertility regulation, and rural health care delivery in developing countries. An example is support for research into biological control of diseases spread by insects. The centre approved a one-year grant of \$500,000 to a special program, co-ordinated through the World Health Organization, to develop new tools for prevention, diagnosis and treatment of tropical parasitic diseases. This will help countries where the diseases are endemic by providing training in biomedical sciences and various forms of institutional support. The focus initially will be on major human parasitic infections in tropical zones.

9.2.13 Department of Communications

The department expected to spend \$19.5 million for natural science activities in 1977-78. It undertakes scientific and technical research both directly, at its Communications Research Centre (CRC) near Ottawa, and indirectly, through a program of industry and university contracts for specific research projects.

The CRC has had wide experience in defence communications, high frequency transmission, the ionosphere and radar. The department is re-orienting research efforts to relate them more closely to the public telecommunications sector — to telephone, telegraph, broadcasting, cable distribution, data networks and mobile communications.

The department is also re-examining its radio research programs to ensure that research is carried out in line with its responsibility to manage the radio frequency spectrum.

Preliminary consultations began with industry to identify priorities for research into urban communications. A long-range program was outlined to look at possible effects on communications of such factors as energy shortages, conservation, employment and inflation.

A joint project of the department and the RCMP to develop a computer terminal for use in police cars continued. The terminal, including a video screen and typewriter keyboard mounted near the dashboard, would put mobile police officers in instant communication with a nationwide computer information system.

In the North, hunters, trappers and others in small remote communities often need reliable, portable communications systems. The department is conducting research on the practicability of a combined short-range relay system and a longer range, high-frequency radio system for providing reliable low-cost trail communications. Another project is aimed at developing techniques for integrating high-frequency radio transmissions in the North with existing communications and satellite networks.

Microwaves are used extensively in both terrestrial and satellite communications. A research program is under way to study effects of rain, turbulence and other atmospheric conditions on microwave systems.

The location of satellite earth stations is an important part of satellite communications planning; through a contract with Teleglobe Canada, the department has been studying site diversity.

The departmental radar research laboratory investigates new uses of radar such as in remote sensing of the environment; studies the application of new technology to radar systems; helps users specify and select new radar equipment; and investigates operating problems of radar systems.