Annual Report 1984-1985

Communications

Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

Annual Report 1984-1985

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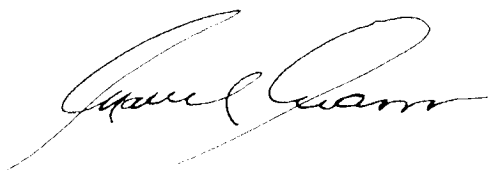
To:
Her Excellency the Right
Honourable Jeanne Sauvé,
P.C., C.C., C.M.M., C.D.,
D.H.L., D.S., D.L.,
Governor General and
Commander-in-Chief of Canada

Your Excellency:

I have the honour to present the
Annual Report for the Department
of Communications for the fiscal
year ending March 1985.

I remain,
Your Excellency's obedient servant,



Marcel Masse,
Minister of Communications

Contents

The year under review, April 1, 1984 to March 31, 1985, has been a pivotal one in the evolution of the Department of Communications. The milestones were dramatic:

- the first full year of implementation of a department-wide re-organization that affected the structure of every sector of the department;
- the re-assessment of one of the roles that had been a fundamental *raison d'être* for the department's creation in 1969: research and development in telecommunications technology;
- a new emphasis on cultural policy resulting in the integration of cultural and communications issues in terms of the department's overall mandate;
- a renewed emphasis on co-operation and involvement with the private sector in cultural and communications activities.

These factors had a critical influence on the activities of all of the department's sectors: Policy; Cultural Affairs; Research; Technology and Industry; Spectrum Management; and the administrative sectors that handle the department's internal organization – Financial Management, and Personnel and Administration.

Policies already under development, such as those affecting telecommunications, broadcasting and federal-provincial relations, to name only a few, were re-assessed in the light of the new federal government's priorities. There was a new focus on cultural issues as mainstream concerns in government policies and programs. This meant that the Policy and Cultural Affairs Sectors, in close consultation with the department's own regionally based staff, turned their attention to establishing more direct and immediate contact with officials in the provincial governments and representatives of private-sector interest groups whose views on broadcasting, cultural issues, spectrum management and other topics the department was seeking.

The consequences of this re-orientation – and of new priorities for improving federal-provincial relations and bringing cultural issues to the fore – were almost immediate: the latter half of the year was characterized by an unprecedented number of meetings between the department's new Minister, Marcel Masse, departmental officials and their provincial counterparts, and interest groups not only in the cultural community, but in many of the department's other responsibility areas as well.

These interchanges were highly productive, resulting in a large number of agreements, which included Subsidiary Agreements for Economic and Regional Development Agreements with two provinces; a variety of co-produced or co-sponsored ventures in several provinces; the participation of Quebec (absent since 1980) in the Federal-Provincial Conference of Ministers Responsible for Culture and Historical Resources; and the establishment of a federal-provincial study to examine the economic impact of the arts. These achievements attest to a new spirit of co-operation between the federal and provincial governments in the fields of culture and communications.

Looking at the department's international activities, 1984-85 was a year of marked increase in state and working visits both to and from other countries. These visits resulted in a large number of mutually beneficial bilateral agreements to co-operate on a wide spectrum of cultural and technological communications activities, such as co-operative research and development ventures, film and video co-production agreements, and establishment of bilateral awards programs in particular fields of the arts.

It was also a year in which Canada continued to play important roles as a member of a variety of international bodies: the International Telecommunication Union's (ITU) Independent Commission for World-Wide Telecommunications Development (the "Maitland Commission"); the Administrative Council of the ITU; the Intergovernmental Council for UNESCO's International

Programme for the Development of Communication. Canada was the only non-European country invited to the May 1984 Fourth Conference of European Ministers of Culture in West Berlin, Federal Republic of Germany, and Canada's participation in CONFECOM, a conference for the 37 member countries of the Agency for Cultural and Technical Co-operation (ACCT), contributed substantially to the success of the February 1985 conference in Cairo, Egypt.

For the Spectrum Management Sector, the year marked the achievement of two major initiatives: the launch of cellular radio and the formulation of a strategy for cost recovery. After several years of planning and preparatory work, the department licensed two competing cellular radio systems that will provide telephone-quality mobile communications to over 100,000 subscribers in 23 Canadian centres by 1987. Also, as part of the government's deficit reduction initiatives, a new licence fee schedule was developed for implementation April 1, 1985. The new schedule is designed to achieve recovery of costs, including a share of departmental overhead, from spectrum users not entitled to exemptions or reduced fees by legislation; such as Agents of the Crown and municipalities. Work began on legislation and regulating amendments to eliminate such exemptions, and thus achieve full cost recovery.

The department's Research Sector is one of the largest communications research establishments in Canada, and the sector that brought Canada into the space age and the age of informatics. During the year, it continued to produce a roster of solid achievements in applications related to space, communications, informatics, and workplace automation while taking part in a sector-wide examination of its fundamental role in Canadian research.

Thus, 1984-85 has been a year of change and adjustment, of evaluating what needs to be continued and of setting course for what must be begun. In one brief year, much groundwork has been laid, enabling the department to look forward to an exciting future.

Federal-Provincial Conference of Ministers Responsible for Cultural and Historical Resources. Vancouver, British Columbia, February 28, 1985.

All activities undertaken by the Department of Communications, which was established in 1969, relate to the following objectives:

- the development of policies, programs, and co-operative arrangements that achieve Canada's social and economic objectives for communications and culture;
- the fostering of the orderly development and operation of communications and culture for Canada in both the domestic and international spheres.

The department has seven sectors. Policy and program activities, however, are conducted through five main sectors: Policy; Cultural Affairs, Technology and Industry; Research; and Spectrum Management. Two additional sectors – Financial Management and Personnel and Administration – are responsible for internal departmental matters.

The department's total Parliamentary appropriation for fiscal 1984-85 was $290.8 million.

Overview of the department's activities

The department's work encompasses activities that range from development and regulation of the modern communications technologies that carry or store information, to assisting the artistic and cultural communities that ultimately produce the cultural content carried by many of these new technologies.

These activities fall into six broad categories:

- developing national cultural policies, and implementing a range of support programs to benefit Canada's artistic, heritage, film and publishing communities;
- developing new telecommunications, space and information technologies through research and development work carried out in the laboratories of the department's Communications Research Centre, and Canadian Workplace Automation Research Centre;
- supporting Canadian high-technology and industries with activities such as major field trials for office automation technology;
- developing and implementing policies for Canada's telecommunications and broadcasting industries;
- allocating and managing the use of the radio frequency spectrum; and
- planning, co-ordinating and managing the federal government's shared and customized telecommunications network – the largest and most advanced dedicated telecommunications network in Canada – through the Government Telecommunications Agency.

Policy Sector

The Policy Sector is responsible for the department's overall strategic and policy planning and also formulates all telecommunications and broadcasting policies, recommends related legislation for consideration by the government and Parliament, and co-ordinates federal-provincial relations, international activities and information services in the fields of telecommunications and culture.

Cultural Affairs Sector

The Cultural Affairs Sector is responsible for developing cultural policies and programs and functions as a departmental resource on the social and cultural policy aspects of new technologies. Work is carried out in two main areas:

- policy development, including both cultural and social policies; and
- cultural support, which regulates or offers financial and technical assistance to individuals and organizations across Canada.

Technology and Industry Sector

The Technology and Industry Sector is responsible for formulating and implementing policies and programs that foster the development of new technologies and new information and communications services. It also develops and manages programs to assist Canadian industry in the design, development, manufacture and marketing of these technologies and services. In addition, the sector provides telecommunications services to the government through the Government Telecommunications Agency (GTA).

Research Sector

The Research Sector is involved in initiatives in support of the Canadian high-technology industry. It fosters research and development in the space, information science and telecommunications fields by directing special programs in satellite communications, radar, video communications, office automation, and space systems, focusing on information as a natural resource, and researches and negotiates standards and regulations both nationally and internationally. These programs are intended to enhance understanding of telecommunications and to maintain Canada at the leading edge in high technology nationally and abroad.

Spectrum Management Sector

This sector embraces all the functions required to optimize the use of the radio frequency spectrum – a finite, yet re-usable natural resource. The sector develops and implements radio frequency plans and frequency assignment criteria, as well as technical standards and specifications for all types of radio services. It also administers and enforces the provisions of the *Radio Act* and the *Telegraphs Act*. In addition, it develops and applies technical standards for radio equipment and systems, and issues technical construction and operating certificates for broadcasting undertakings licensed by the Canadian Radio-television and Telecommunications Commission (CRTC) under the *Broadcasting Act*.

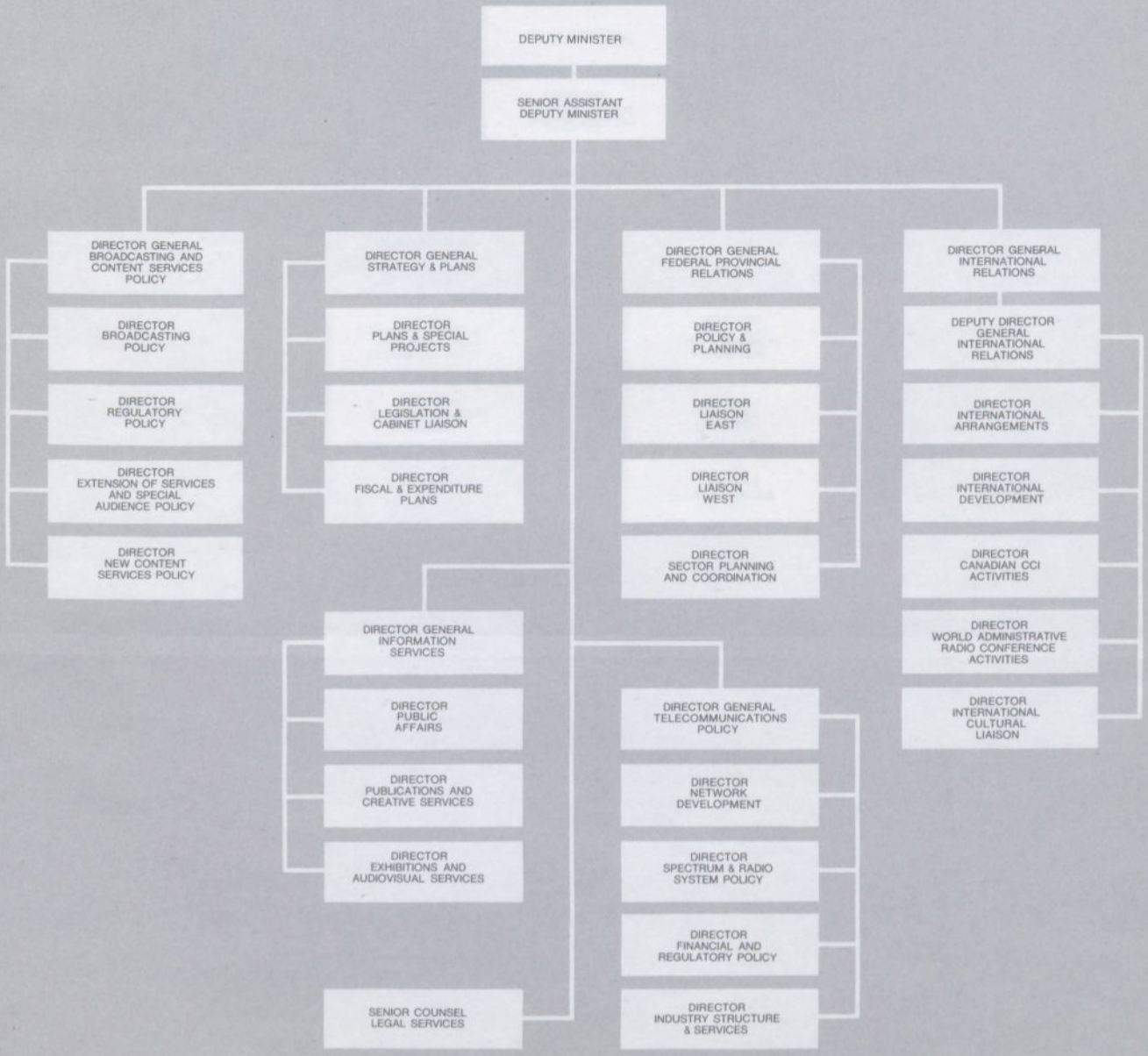
The Spectrum Management Sector is also responsible for the department's regional operations. Five regional and 47 district and sub-offices located across the country ensure public access to the department and provide information on a variety of issues related to communications and culture.

Financial Management Sector

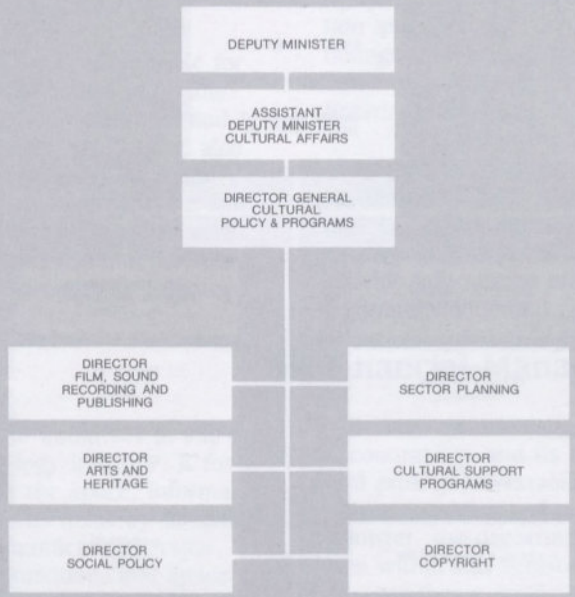
This sector's mandate is to ensure that management accountability and its underlying principles of prudence and probity are established and respected through objective advice and provision of services to the Minister, the department and all of the cultural agencies within the Minister's portfolio. The sector also ensures that a stable accountability framework exists for the department and that financial planning, budgeting, controlling, reporting, evaluation and audit processes are fully integrated with the department's broader management and control processes.

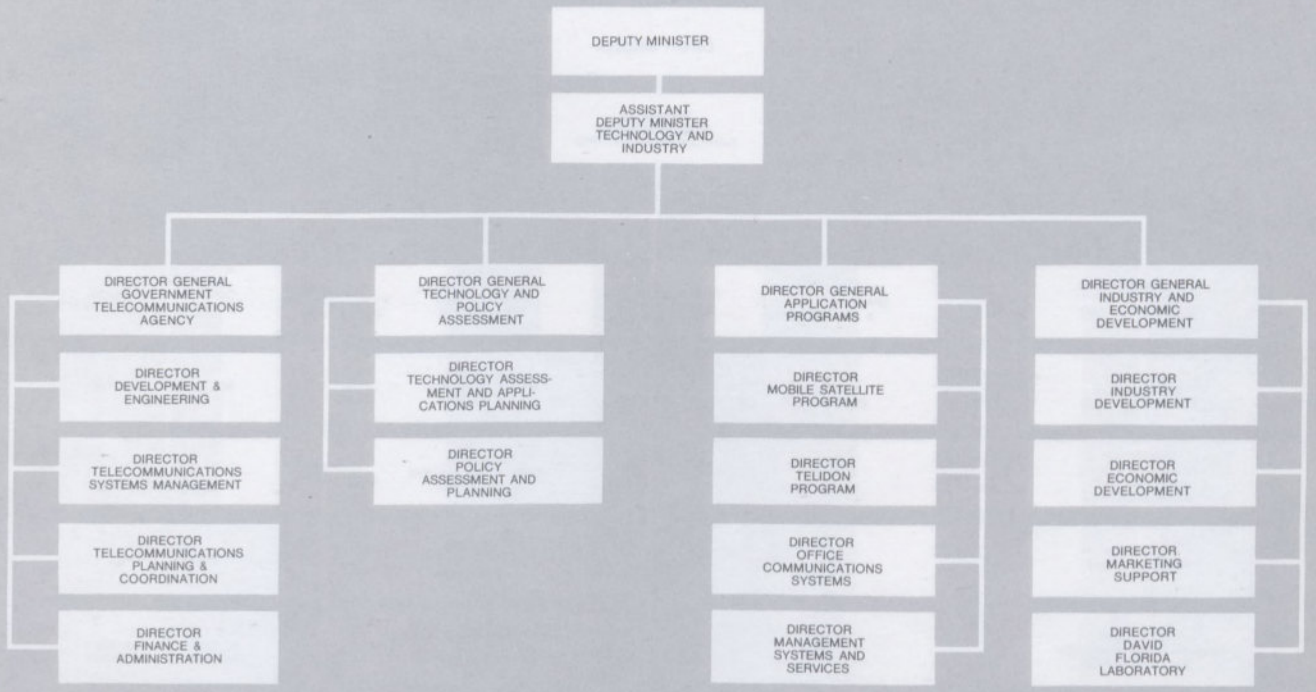
Personnel and Administration Sector

The Personnel and Administration Sector provides centralized corporate services to departmental headquarters. These services cover the essential common functions of general administration, technical services, computer systems, personnel, official languages, and security and communications support. The sector also provides functional direction for these services to the Spectrum Management Sector's regional operations.

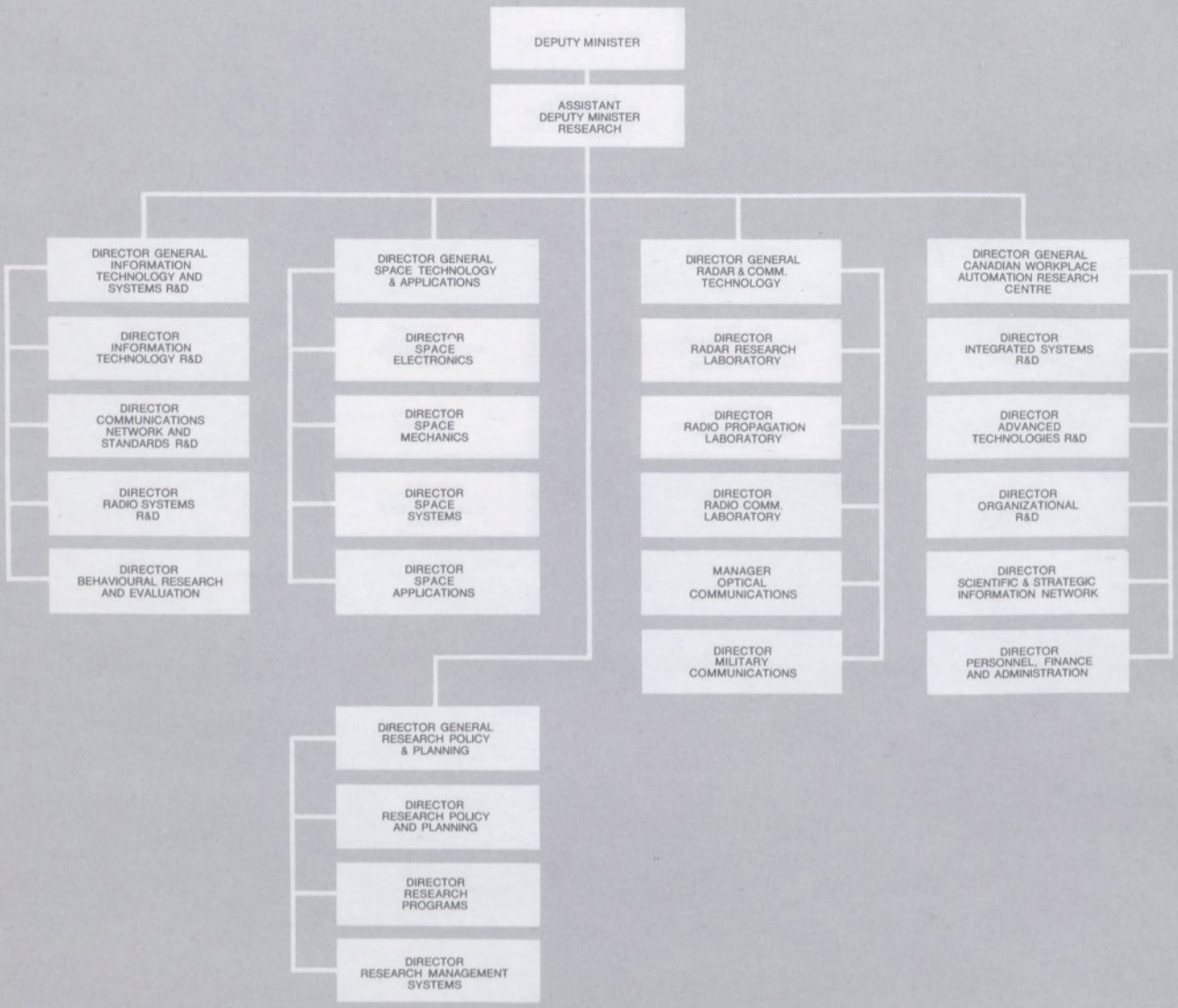

DEPUTY MINISTER
SENIOR ASSISTANT DEPUTY MINISTER
DIRECTOR GENERAL BROADCASTING AND CONTENT SERVICES POLICY
DIRECTOR BROADCASTING POLICY
DIRECTOR REGULATORY POLICY
DIRECTOR EXTENSION OF SERVICES AND SPECIAL AUDIENCE POLICY
DIRECTOR NEW CONTENT SERVICES POLICY
DIRECTOR GENERAL STRATEGY & PLANS
DIRECTOR PLANS & SPECIAL PROJECTS
DIRECTOR LEGISLATION & CABINET LIAISON
DIRECTOR FISCAL & EXPENDITURE PLANS
DIRECTOR GENERAL FEDERAL PROVINCIAL RELATIONS
DIRECTOR POLICY & PLANNING
DIRECTOR LIAISON EAST
DIRECTOR LIAISON WEST
DIRECTOR SECTOR PLANNING AND COORDINATION
DIRECTOR GENERAL INTERNATIONAL RELATIONS
DEPUTY DIRECTOR GENERAL INTERNATIONAL RELATIONS
DIRECTOR INTERNATIONAL ARRANGEMENTS
DIRECTOR INTERNATIONAL DEVELOPMENT
DIRECTOR CANADIAN CCI ACTIVITIES
DIRECTOR WORLD ADMINISTRATIVE RADIO CONFERENCE ACTIVITIES
DIRECTOR INTERNATIONAL CULTURAL LIAISON
DIRECTOR GENERAL INFORMATION SERVICES
DIRECTOR PUBLIC AFFAIRS
DIRECTOR PUBLICATIONS AND CREATIVE SERVICES
DIRECTOR EXHIBITIONS AND AUDIOVISUAL SERVICES
SENIOR COUNSEL LEGAL SERVICES
DIRECTOR GENERAL TELECOMMUNICATIONS POLICY
DIRECTOR NETWORK DEVELOPMENT
DIRECTOR SPECTRUM & RADIO SYSTEM POLICY
DIRECTOR FINANCIAL AND REGULATORY POLICY
DIRECTOR INDUSTRY STRUCTURE & SERVICES

Cultural Affairs Sector

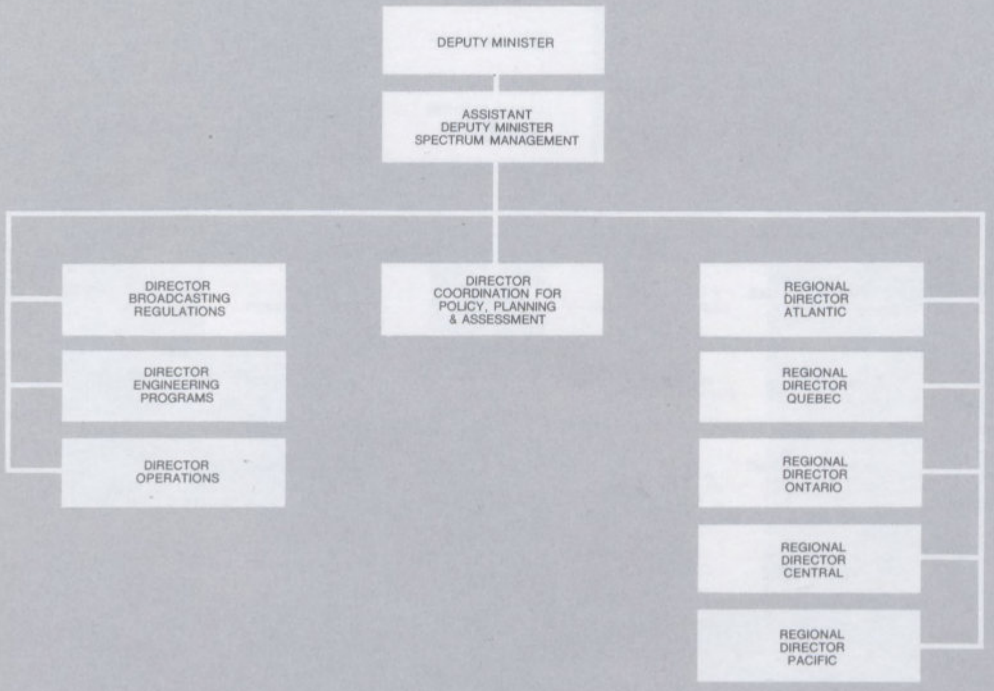



DEPUTY MINISTER
ASSISTANT DEPUTY MINISTER TECHNOLOGY AND INDUSTRY
DIRECTOR GENERAL GOVERNMENT TELECOMMUNICATIONS AGENCY
DIRECTOR DEVELOPMENT & ENGINEERING
DIRECTOR TELECOMMUNICATIONS SYSTEMS MANAGEMENT
DIRECTOR TELECOMMUNICATIONS PLANNING & COORDINATION
DIRECTOR FINANCE & ADMINISTRATION
DIRECTOR GENERAL TECHNOLOGY AND POLICY ASSESSMENT
DIRECTOR TECHNOLOGY ASSESSMENT AND APPLICATIONS PLANNING
DIRECTOR POLICY ASSESSMENT AND PLANNING
DIRECTOR GENERAL APPLICATION PROGRAMS
DIRECTOR MOBILE SATELLITE PROGRAM
DIRECTOR TELIDON PROGRAM
DIRECTOR OFFICE COMMUNICATIONS SYSTEMS
DIRECTOR MANAGEMENT SYSTEMS AND SERVICES
DIRECTOR GENERAL INDUSTRY AND ECONOMIC DEVELOPMENT
DIRECTOR INDUSTRY DEVELOPMENT
DIRECTOR ECONOMIC DEVELOPMENT
DIRECTOR MARKETING SUPPORT
DIRECTOR DAVID FLORIDA LABORATORY

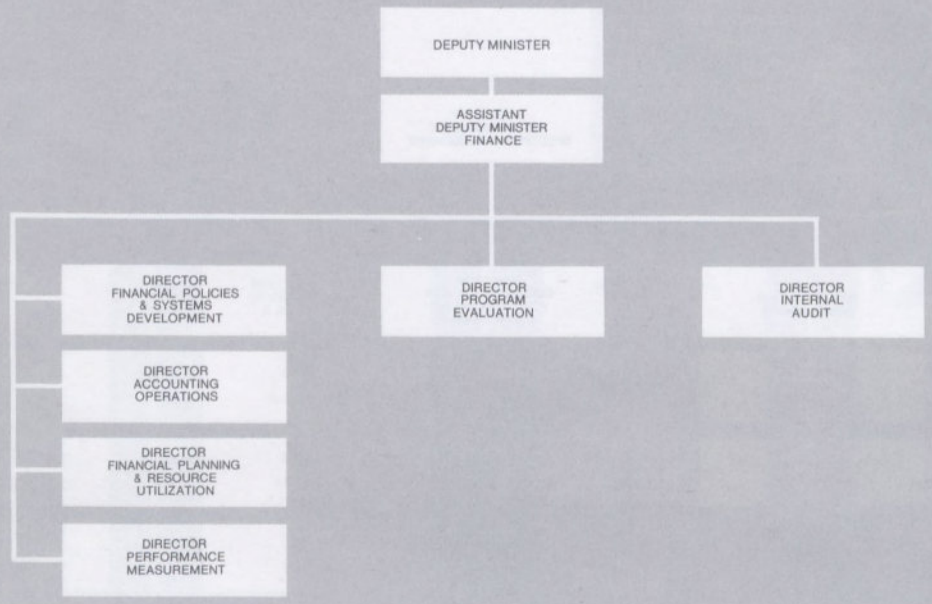
Research Sector

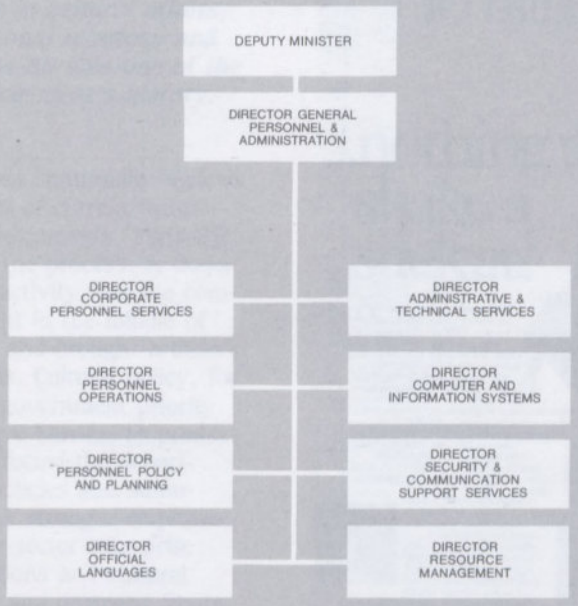


Spectrum Management Sector



Financial Management Sector




DEPUTY MINISTER
DIRECTOR GENERAL PERSONNEL & ADMINISTRATION
DIRECTOR CORPORATE PERSONNEL SERVICES
DIRECTOR PERSONNEL OPERATIONS
DIRECTOR PERSONNEL POLICY AND PLANNING
DIRECTOR OFFICIAL LANGUAGES
DIRECTOR ADMINISTRATIVE & TECHNICAL SERVICES
DIRECTOR COMPUTER AND INFORMATION SYSTEMS
DIRECTOR SECURITY & COMMUNICATION SUPPORT SERVICES
DIRECTOR RESOURCE MANAGEMENT

Characterized by new priorities in cultural affairs, federal-provincial and international relations and domestic communications, 1984-85 was one of the most dynamic years in the department's history.

Although the department continually reviews its policies in the light of current technological and social developments, 1984-85 was a particularly active year in the process. A major factor in the acceleration of this activity was the coming to power of a new government in the middle of the year, which altered priorities and brought a different perspective to the policy areas. Cultural policy, for example, was assigned a higher government priority. The government's desire to remove barriers to productive federal-provincial relations affected the department's re-alignment of existing policies and stimulated the initiation of new ones. A stronger emphasis on business incentives for private-sector enterprise changed the focus of communications and cultural policies on both the international and domestic fronts.

The government's recognition that Canada's cultural communities and industries have matured to the point where they make a major contribution to the nation's economy as well as its cultural and social fabric, led to changed approaches and increased activity in almost every departmental sphere. The Minister, Marcel Masse, strengthened or re-oriented existing federal policies, and initiated new policies to enhance cultural development throughout Canada.

These policies utilized three main approaches:

- strengthening the private sector's role in cultural activities;
- improving federal-provincial co-operation in cultural activities; and
- broadening the federal support base for culture.

During the year, the department placed advertisements to increase public awareness of the economic impact of cultural activities.

In support of this re-orientation, the Minister actively pursued the co-operation of his Cabinet colleagues for policy initiatives designed to redefine and strengthen the place of culture and the arts in Canada, and to broaden the base of federal support for cultural initiatives.

Copyright Act revision

Protecting creators' and producers' rights to the financial rewards of their creativity, while simultaneously ensuring broad public access to their art, is one objective of Canada's copyright laws. However, new developments in communications technology, such as the rapid proliferation of easily copied computer programs and videotapes, have significantly altered the conditions under which creative works have become available.

During the 1984-85 fiscal year, the Prime Minister transferred responsibility for amendments to the *Copyright Act* from the Department of Consumer and Corporate Affairs to the Department of Communications. Administration of the act, however, remains a responsibility of the Department of Consumer and Corporate Affairs. In May 1984, Communications Minister Francis Fox, tabled a White Paper on copyright in the House of Commons and in January 1985 the new minister, Marcel Masse, referred all matters of copyright revision to the House Standing Committee on Communications and Culture. Seeking wide public consultation with respect to revising the White Paper's proposals for Canada's copyright law, which has not been amended since 1924, Minister Masse asked the Committee to undertake public hearings. Extensive consultations were carried out throughout 1985 to ensure that the proposed revisions will take into account the views of all interested parties, particularly those of Canada's creators in the cultural and communications services and industries.

Changes to Canadian Broadcast Program Development Fund

In March 1985, Minister Masse announced changes to the Memorandum of Understanding governing the Canadian Broadcast Program Development Fund which, since its creation in 1983, has been administered by Telefilm Canada (formerly the Canadian Film Development Corporation). The changes in funding criteria, introduced to strengthen private-sector production of Canadian English-language and French-language television programming, include:

- increased funding assistance for fully Canadian projects (which have traditionally been more difficult to finance);
- support for documentaries suitable for prime-time viewing;
- inclusion of licensed provincial television services as eligible broadcasters; and
- support for up to 49 per cent of production budgets for developing series and pilots.

In addition, the new policy announced that Telefilm Canada may allocate up to 10 per cent of the fund's budget to support the development of scripts and production projects.

National Film and Video Policy

In May 1984, Communications Minister Francis Fox announced the introduction of a new National Film and Video Policy. Designed to stimulate development of a more vigorous Canadian film and video industry, the policy has two major dimensions: it gives a clearer focus to the mandates of federal agencies involved in film and video (the National Film Board in particular); and it introduces measures to assist Canada's private-sector film and video industry to become more competitive.

Radio and Sound Recording Policy

A joint government and industry working group comprising department officials and representatives of the broadcasting and sound recording industries, was established to identify issues confronting the health and growth of Canada's radio and music recording industries. The results of this process and other studies are intended to form the basis of a public policy discussion paper, and subsequent policy to be considered by the government.

Fairer tax treatment for artists

During the year, the House of Commons' Standing Committee on Communications and Culture, an all-party committee, investigated the tax treatment of Canada's artistic community – its writers, performers and visual artists. Following the committee's presentation of its report and recommendations to the Minister, Mr. Masse made representations to the Minister of Revenue, Perrin Beatty, and the Minister of Finance, Michael Wilson, regarding the need to take into account both the working circumstances of the artist and the desirability of establishing an equitable and manageable tax administration system. As a result of these discussions, Minister Masse obtained his colleagues' agreements to further review several taxation and funding issues.

Greater accessibility to other federal programs

To ensure that cultural communities have greater access to employment or funding programs developed by other departments, Minister Masse also initiated discussions with Flora MacDonald, the Minister of Employment and Immigration. The two ministers agreed that members of the cultural community should be able to benefit from such employment programs and initiatives as the new Canadian Jobs Strategy, which the Canadian Employment and Immigration Commission recently introduced to strengthen the economy. In a meeting with Thomas McMillan, the Minister of Tourism, Minister Masse reached agreements on funding cultural projects and on consultation with cultural committees when tourism strategies are being developed.

Preparations for Broadcast Policy Review

Throughout the year, the department was occupied with a large volume of work preparatory to a review of broadcast policy. By the end of 1984-85, Communications Minister Masse had addressed Cabinet on the issue of a fundamental review of Canadian broadcast policies.

Restrictions on transmit earth stations removed

In April 1984, Communications Minister Francis Fox announced that restrictions on ownership of transmit earth stations would be removed as of April 1, 1986. This new policy was initiated to enable broadcasters and private businesses, such as commercial, financial and industrial institutions, to apply for radio licences to operate specialized internal communications networks to transmit information between branch offices on a closed, private network using Canada's domestic satellite system. The department will accept applications beginning April 1, 1985 for one-year experimental licences. The results of this experimental period will be used as the basis for the final technical and operational standards to become effective in April 1986. The new policy is expected to benefit not only the user institutions, but also Canadian manufacturers of earth station equipment.

In April 1984, the Minister of Communications announced that restrictions on ownership of transmit earth stations would be removed as of April 1, 1986,

Extending TV services to underserved areas

In December 1984, Communications Minister Marcel Masse announced the department's approval of a new policy enabling smaller communities to receive and re-distribute satellite broadcasting signals. Such policies are intended to provide Canadians in underserved and rural areas with opportunities to access the same range of Canadian and foreign viewing options as urban viewers.

Appeals of CRTC decisions

During the year, the department monitored and reviewed decisions of the Canadian Radio-television and Telecommunications Commission and provided advice to the Minister and the government on decisions that were appealed. Those considered were television and cable services to Victoria and Fort St. James in British Columbia, and to Saskatchewan; Chinavision speciality services in Toronto; as well as radio services involving CJMF-FM in Quebec and the use of the 820 kHz frequency in southern Ontario.

Telecommunications Policy Review

The closing date for public submissions to the department's Telecommunications Policy Review came in May 1984. Thirty-five submissions were received from a variety of interested parties, including telecommunications carriers, users and provincial governments. The review was undertaken to develop Canada-wide policies that support the appropriate degree of competition in the provision of services and to provide opportunities for innovation in Canadian industry. At the same time, the department considers it vital to ensure the protection of the public's right to basic telecommunications services at reasonable rates. The department expects to complete in-depth consultations with the provinces during the 1985-86 fiscal year to ensure that all Canadians benefit to the fullest extent possible from the telecommunications resources, both economic and technological, that we have available to us.

Cable TV regulation

During the year, the Spectrum Management Sector initiated a detailed review of its regulatory requirements for cable television. This will lead to new approaches regarding technical design briefs, proofs of performance, and inspections and investigations.

Radio licences on cost-recovery basis

In December 1984, the Minister obtained Governor-in-Council approval to increase radio licence fees to recover the cost of managing the radio frequency spectrum. The move was in response to government policy set out in the 1984 economic statement of the Minister of Finance, Michael Wilson.

Legislative amendments

The department administers a number of federal acts in the areas of telecommunications, broadcasting and culture. It is the department's responsibility to ensure that this legislation keeps pace with technological change, and when necessary, to initiate amendments. In December 1984, Minister Masse introduced two bills into the House of Commons.

Bill C-19

Bill C-19 is designed to strengthen the powers of the Canadian Radio-television and Telecommunications Commission (CRTC) to regulate the operations of Bell Canada, which was re-organized in 1983 under Bell Canada Enterprises.

Bill C-20

Bill C-20 was designed to amend the *CRTC Act*, the *Broadcasting Act* and the *Radio Act*. It contains an important clause giving the Governor-in-Council the power to issue directives to the CRTC and introduces a provision allowing the CRTC to regulate the distribution of satellite-delivered television programming signals.

Co-operative international dialogue and a collection of mutually beneficial agreements.

Internationally, Canada enjoys a reputation for technological and creative excellence. In no small measure, this is due to our government's willingness, over the years, to contribute a fair share of our technological knowledge, working experience, and input to international organizations or individual countries seeking to solve a variety of problems, whether of a technological or cultural nature.

1984-85 was a particularly active year for the department on the international front. In addition to the department's many ongoing responsibilities as a member of a variety of international committees and study groups that guide the development of world telecommunications standards, there were also a large number of initiatives related to multi- and bi-lateral cultural and technological agreements. These resulted from a marked increase in state and working visits to other countries by the Minister and departmental officials, as well as an increase in visits to Canada by foreign dignitaries and officials.

ITU activities

Canada is a member of the International Telecommunication Union (ITU), a specialized agency of the United Nations with a membership of 158 countries, which co-ordinates the international regulation of telecommunications services world-wide. The department co-ordinates national consultation and represents Canadian interests on two ITU consultative committees, the International Telegraph and Telephone Consultative Committee (CCITT) and the International Radio Consultative Committee (CCIR).

Canada is also one of the 41 members of the ITU's Administrative Council, which directs the ITU's affairs between Plenipotentiary Conferences. In addition, a departmental official served as Executive Secretary to the ITU's Independent Commission for World-Wide Telecommunications Development (the "Maitland Commission").

The department also participates in a number of national and international organizations and conferences whose proceedings and policies may have a bearing on Canada's telecommunications interests.

Participation in UNESCO

The department formed part of the Canadian delegation to the May 1984 and March 1985 meetings of the Intergovernmental Council for UNESCO's International Programme for the Development of Communication. The program provides concrete assistance to developing countries wishing to solve communications problems. At the May 1984 meeting, Canada was re-elected to the Intergovernmental Council for an additional four-year term.

NAPLPS approved

The International Telegraph and Telephone Consultative Committee studies technical, operating and tariff issues relating to telegraphy, telephony, data and telematic services. At the CCITT's Eighth Plenary Assembly, held in Spain in the autumn of 1984, the committee officially approved the North American Presentation Level Protocol Syntax Standard (NAPLPS) as one of three international standard protocols. This is a victory for Canada, because the new standard's protocol contains Telidon (the interactive videotex system developed by the department) as the fundamental component. The approval gives a major advantage to Canadian companies marketing Telidon equipment, software and services abroad.

Maitland Commission Chairman visits Canada

In March of 1985, Sir Donald Maitland visited Ottawa to discuss his report with government and industry officials. The commission, which examined the role that both developed and developing countries must play in seeking to improve Third-World telecommunications facilities, included in its recommendations a proposal for a new Centre for Telecommunications Development, to be funded by both government and industry, which would work alongside the ITU.

Multilateral activities

Canada's multilateral activities in other areas of communications and culture increased significantly during the year under review.

Fourth conference of European culture ministers

Communications Minister Francis Fox sent a representative to attend the Fourth Conference of European Ministers of Culture held in May 1984 in West Berlin, Federal Republic of Germany. Canada was the only non-European country invited to attend the conference, where the major topics of discussion centred on cultural issues and new communications technologies.

CONFECOM

In February 1985, Communications Minister Marcel Masse headed the Canadian delegation to CONFECOM, a conference for the ministers of communications of 37 member countries of the Agence de coopération culturelle et technique. This conference, which was held in Cairo, Egypt, addressed issues related to the global expansion of the francophone presence in communications and culture; Canada's considerable experience and expertise in these fields meant that our participation contributed substantially to the success of the conference. The Minister and his Quebec provincial counterpart and fellow delegate, Jean-François Bertrand, invited the agency to hold its next conference in the province of Quebec.

Co-operation in research and development

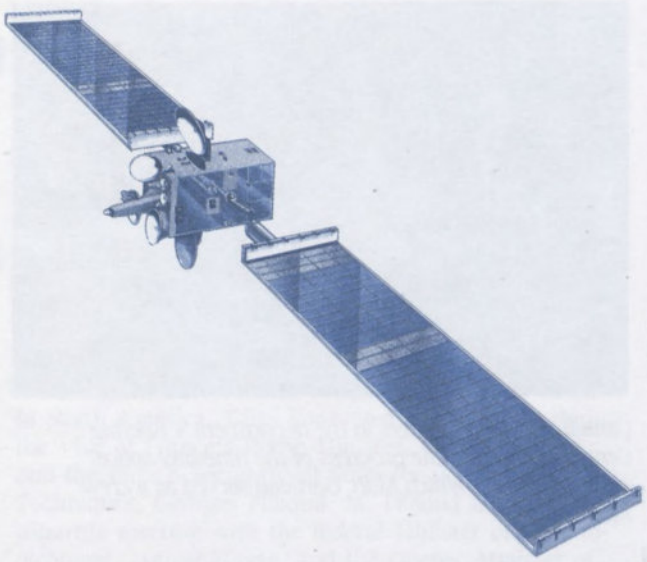
Department of Communications scientists and engineers take part in many bilateral and multilateral co-operative research and development ventures.

Canada-ASEAN satellite experiment

Throughout 1984-85, scientists from the department's Communications Research Centre developed plans for an experimental program involving scientists from several nations in southeast Asia belonging to the ASEAN pact. They have planned a joint satellite transmission experiment, for which the department will provide equipment and expertise to help ASEAN scientists to determine the extent to which heavy tropical rainstorms can interfere with satellite transmissions. The project is expected to be funded by the Canadian International Development Agency.

Olympus satellite proposal

During the year, the department presented a proposal to the European Space Agency (ESA) to participate in utilizing the Olympus satellite's 30/20 GHz Extremely High Frequency (EHF) capability for exploring the potential of these frequency bands for new satellite communications systems in Canada. Accepted in principle and now awaiting ESA ratification, the proposal would provide an opportunity to develop an expertise in EHF technology and to determine the configurations most desirable for Canadian users.



European Space Agency's Olympus satellite will be the largest ever to be tested in Canada.

Canada/Japan co-operation

Under the Japan/Canada Science and Technology Consultation Program, Canada and Japan signed an agreement in December 1984 to co-ordinate standardization of Japan's CAPTAIN and Canada's Telidon interactive videotex systems. The agreement will be of assistance to Canadian efforts to export Canadian videotex equipment and software to Japan.

Open Systems Interconnection

Canada is involved in a number of co-operative projects related to Open Systems Interconnection (OSI), an internationally accepted approach for dealing with the current incompatibility among various computer systems.

During May 1984, an international OSI workshop sponsored by the department, representatives from the governments of the United Kingdom, France, the United States, West Germany and Japan presented strategies for developing and implementing OSI on an international basis.

Canada has also joined the United Kingdom, France, Sweden, West Germany, and Japan in co-operative OSI experiments that demonstrated the feasibility of establishing a multinational network to interconnect national centres for protocol testing. This would ensure the compatible implementation of OSI standard protocols in each participating country.

In May 1984, Canada and Australia initiated an exchange of scientists and collaboration in methodologies and tools for the development, implementation, conformance testing and formal description of OSI protocols standards.

Eurocast '84

The department, accompanied by 16 Canadian high-tech companies (particularly cable and satellite), provided a major Canadian profile to visitors to Eurocast '84. Collectively, the companies brought home approximately $6,000,000 of immediate orders. In addition, they made many important contacts in the satellite market, resulting in closer co-operation with the European public and private sectors. Canada Day, a one-day seminar hosted by the department, provided the companies with the opportunity to impress buyers in the world market with our leading edge in high technology.

Transborder data flow

During the year, the department chaired a Working Party that reached agreement on the text of an Organization for Economic Co-operation and Development (OECD) Declaration on Transborder Data Flow. Canadian leadership changed the text's emphasis from a focus on differences in dealing with these sensitive issues to a focus on highlighting the areas of agreement on trade in services.

Canada/US co-operation

Canadians will always remember October 5, 1984 as the day on which astronaut Marc Garneau became Canada's first man in space. The department's Briefing Centre at headquarters in Ottawa was used by Canadian press members as a centre for monitoring the progress of the nine-day space shuttle flight on which Garneau served as a crew member. In addition to the Briefing Centre's provision of full-time coverage via videoconferencing with the NASA Space Center, the department co-operated with Telesat Canada, the Canadian Broadcasting Corporation, NASA, and the National Research Council to deliver the NASA television signal to cable television systems throughout Canada via the Canadian Broadcasting Corporation's Parliamentary Network.

FM working arrangement

In November 1984, Canada and the United States signed a revised working agreement for the mutual protection of FM radio broadcast services in Canada and the United States.

Frequency co-ordination

Canada's shared border with the United States required the department's Spectrum Management staff to work together with its American counterparts to co-ordinate the assignment of 19,349 radio spectrum frequencies in 1984-85. Such co-ordination is essential to avoid potential interference.

Canadian Press members in the department's Briefing Centre monitoring the progress of the nine-day space shuttle flight on which Marc Garneau served as a crew member.

IFRB notification

In addition, to ensure the protection of frequencies assigned in Canada, Spectrum Management staff notified the International Telecommunication Union's International Frequency Registration Board (IFRB) of 2,350 Space and 2,043 Terrestrial Canadian assignments and analyzed 6,560 proposed assignments by foreign administrations for their impact on Canadian operations.

Bilateral discussion opportunities

Representatives from both countries enjoyed a number of opportunities to exchange views on issues of mutual interest. One such meeting occurred in February 1985 when Communications Minister Marcel Masse visited Washington, D.C. In May 1984, senior-level Canadian and American communications officials discussed bilateral communications issues and international telecommunications policies at Niagara-on-the-Lake. In November, Canada-United States interdependence in cultural industries was the topic of a one-day conference the department helped organize at Columbia University in New York.

Canada/France

An exchange of visits between high-level representatives of the French and Canadian governments marked a productive year in relations between Canada and France.

Extension of French-language television

France's Minister of Culture, Jack Lang, visited Canada in June 1984. His discussions with Communications Minister Francis Fox covered a number of issues, including the extension of French-language television in North America. Talks continued in November during the visit of France's Prime Minister, Laurent Fabius, and the French Secretary of State for Communication Techniques, Georges Fillioud. M. Fillioud attended a tripartite meeting with the federal Minister of Communications, Marcel Masse, and the Quebec Minister of Communications, Jean-Francois Bertrand, to discuss Canada's potential participation in TV5, a consortium of European French-language television networks.

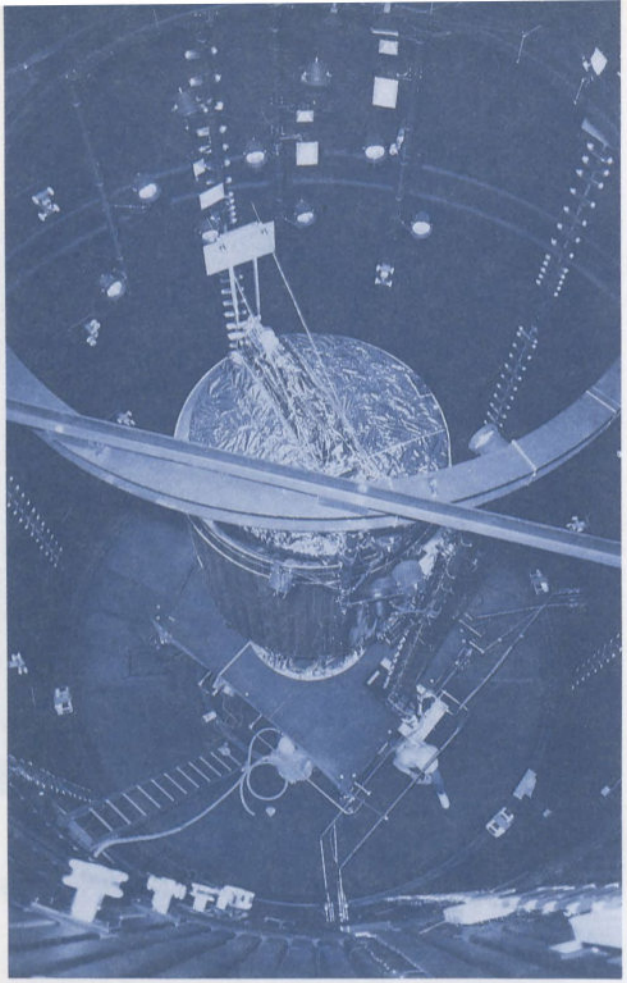
France-Canada agreements on animation co-productions and new joint awards

During a January 1985 visit to France, Minister Masse and the French Minister of Culture signed an Agreement to promote co-production projects in animation. They also signed a Memorandum of Understanding creating the new France-Canada Award announced in November 1984 by Prime Minister Brian Mulroney. The award will be given every second year to two Canadian or French creators of film and television co-productions.

France-Canada Work Exchange Program

In September 1984, a representative of the Canadian Workplace Automation Research Centre was appointed to the Centre mondial – Informatique et ressources humaines in Paris for a two-year period to stimulate co-operation between the two countries.

Communications Minister, Marcel Masse with French Secretary of State for Communication Techniques, Georges Fillioud during the French Minister's visit, in November, 1984.



Brasilsat undergoing tests at the department's David Florida Laboratory.

Canada/Brazil

Canada and Brazil have a technical co-operation agreement with two Brazilian research and development companies, INPE and Telebras, covering several areas including: training and personnel exchange; joint propagation measurement activities; support for Brazilian involvement in Sarsat/Cospas; space and earth sciences; and tele-health and tele-education activities.

Brasilsat

The two countries have also been involved in a co-operative satellite project since the late 1970s. In February 1985, Brazil launched its first domestic communications satellite, ''Brasilsat.'' The satellite was the first of two built for Brazil by Canada's Spar Aerospace Limited. Brasilsat was assembled, integrated and tested by Spar at the department's David Florida Laboratory. SED Systems designed, built and delivered the ground control station for the satellite as a major subcontractor to Spar. The second satellite, also undergoing tests at the David Florida Laboratory, is scheduled for launch in February, 1986.

Co-operative agreements with other countries

Throughout the year, Canada signed co-production and other types of co-operative agreements with a large number of countries. In July 1984, Minister Francis Fox signed a film co-production Agreement with Algeria's Minister of Culture and Tourism, Abdelmadjid Meziane. In January 1985, Minister Masse signed an Agreement on cinematographic relations with the Spanish Minister of Culture, Javier Solana-Madariaga. During the March 1985 visit to Canada by Israel's Vice-Premier and Minister of Foreign Affairs, His Excellency Yitzhak Shamir, the Israeli Vice-Premier and Minister Masse signed an Agreement on film and video co-production. The agreement is expected to contribute to the growth of the film and video industries in both countries.

Following a March 1985 visit by departmental officials to London, England, the Canadian and British governments agreed on amendments to the 1975 film co-production Agreement that will include all forms of film and video productions.

In October 1984, Communications Minister Marcel Masse held talks with the Argentinian Secretary of Communications, Humberto Ciancaglini, during his visit to a number of Canadian high-technology centres specializing in satellite communications and telephony. Argentina is interested in developing a domestic satellite system for television signal distribution and for such specialized applications as tele-education and tele-medicine, areas in which Canada has both expertise and capability.

During the year, the Peoples Republic of China requested that a scientist from the department present a series of United Nations-sponsored lectures on the use of videotex for national information systems.

In March 1985, Israel's Vice-Premier and Minister of Foreign Affairs, His Excellency Yitzhak Shamir and Minister Masse signed an Agreement on film and video co-production.

Pope John Paul II's 1984 visit to Canada.

Visit of the Pope

The department's Spectrum Management Sector was heavily involved in meeting the numerous challenges of managing spectrum resources on the occasion of Pope John-Paul II's 1984 visit. The sector assigned more than 1,000 special frequencies to handle security communications, emergency situations and the needs of the electronic media, as well as investigating and solving instances of interference.

Federal-provincial relations, with the accent on cultural affairs, turned the spotlight on the regions – staging points for a new era of promising co-operative ventures.

In the November 1984 Speech from the Throne, the government identified, as a major objective, the renewal of dialogue between the federal government and the governments of each province and territory. To this end, Communications Minister Marcel Masse met with most of his counterparts in the areas of culture and communications before the end of the 1984-85 fiscal year. The meetings which related to communications dealt essentially with the telecommunications and broadcasting policy reviews. The meetings which related to cultural affairs had three main objectives: to renew discussion on cultural matters; to increase awareness of the economic potential of Canada's cultural sector; and to demonstrate that cultural endeavours offer excellent potential for fruitful collaboration and co-ordination between the federal and provincial governments.

Economic and Regional Development Agreements

During the year the department signed Economic and Regional Development Agreements (ERDAs) with two provinces, Manitoba and Quebec. The Canada-Manitoba Subsidiary Agreement on Communications and Cultural Enterprises, signed in June 1984, committed a total of $21 million between the two signing parties. The Canada-Quebec Subsidiary Agreement on Communications Enterprises Development, signed in February 1985, involved a $40 million joint commitment, as did the Canada-Quebec Subsidiary Agreement on Cultural Infrastructures, which was signed in March 1985.

Other agreements

In addition to specific agreements related to ERDAs, the department undertook a number of other joint ventures designed to increase both public awareness of the impact of the arts and to discuss measures to strengthen support for cultural industries. The department carried out extensive consultations with Quebec on the issue of French-language broadcasting. These consultations led to the creation in December 1984 of the Canada-Quebec Committee on the Future of French-language Television. In the same month, the federal government and the Government of Ontario reached an Agreement in Principle to contribute up to $3 million each annually for five years to cover capital and operating costs for a French-language network for TVOntario.

Federal-Provincial Conference of Ministers Responsible for Culture and Historical Resources

In February 1985, Minister Masse and each of the provincial ministers responsible for culture met in Vancouver. Agenda topics included the need to strive for consensus in developing cultural policies and the importance of improved federal-provincial consultation regarding the administration of cultural programs. A major outcome of the conference was the establishment of a joint federal-provincial study to examine the economic impact of the arts.

Consultative Committees on Culture

In October 1984, the department established new Consultative Committees on Culture with New Brunswick and Ontario. The department discussed the formation of similar committees with other provinces that had expressed an interest, particularly British Columbia and Quebec.

Consultative Committees on Communications

The Atlantic, Quebec and British Columbia Consultative Committees on Communications, bilateral committees made up of representatives from federal and provincial departments responsible for communications, met and discussed a variety of telecommunications and broadcasting issues throughout 1984-85. Provinces not yet having such committees have begun expressing their interest in what has become an extremely valuable forum for dealing with issues of interest to both levels of government.

Special Program of Cultural Initiatives

The department's cultural support programs have widespread effect throughout Canada, directly benefitting artists, performers, and cultural organizations in all parts of the country. The Special Program of Cultural Initiatives provided $10,263,500 in financial support to over 250 organizations during the year under review. The program provides assistance for special activities related to cultural projects or events of national significance; for undertaking of capital investments or improvements of facilities; and for implementation of new communications technologies that will facilitate an organization's operations. Among the recipients were the Conseil acadien de coopération culturelle, the 1985 Jeux Canada Games, the Vancouver Civic Theatres, the Calgary Centre for the Performing Arts, the Centre des Arts contemporains in Montreal, and the Northern Arts and the Cultural Centre in the Northwest Territories.

Canadian Book Publishing Development Fund

During 1984-85, the department's Canadian Book Publishing Development Fund provided 112 individual publishing firms with a total of $7.1 million under the sales incentive program. The fund also provided financial support for company and industry-wide projects, industry research, professional development, foreign rights and export marketing. Of particular note was a contribution of $300,000 to the Canadian Telebook Agency for launching a computerized book-ordering system for the Canadian book trade.

Canadian Film and Videotape Certification Office

The Canadian Film and Videotape Certification Office (CFVCO) granted 930 certificates in the year to film producers seeking eligibility for the 100 per cent Capital Cost Allowance for Canadian film and videotapes. This allowance is still proving to be a vital tool for Canada's independent film and video sector. During the year, producers completed principal photography for a total of $79 million, a 115 per cent increase over the previous year. Roughly 50 per cent of this total related to feature production. French-language production also increased dramatically: from $4,700,000 for which principal photography was completed in 1983 to $14,500,000 in 1984, an increase of over 300 per cent. Private-sector investment accounted for over 82 per cent of total investment in 1984 certified productions, compared with 18 per cent for public-sector investment.

Movable Cultural Property

The purpose of the Movable Cultural Property Program is to ensure that items related to Canada's historical or cultural heritage, such as particular types of antiques, are not inadvertently sold to buyers in other countries or otherwise removed from Canada. By the end of 1984-85, the program had certified 787 applications from Canadian taxpayers who gave or sold certified cultural property to designated Canadian institutions. Such gifts or sales, valued at over $21 million, provided significant increases to the collections of institutions throughout Canada, and represent major private-sector contributions to Canada's heritage institutions. The program also reviewed 218 applications to export cultural property, and provided $411,598 to 25 institutions, enabling them to keep within Canada or repatriate significant cultural objects.

University research

From the department's special fund created to finance university research in line with its mandate and responsibilities, together with the French-language Centres of Excellence Program, the department contributed in excess of $1,150,000 to Canadian universities during 1984-85. Looking at the contributions on the basis of their distribution regionally, $130,000 worth of contracts were awarded in the Atlantic Region; $164,000 in the Quebec Region; $319,500 in the Ontario Region; $82,500 in the Central Region; and $104,000 in the Pacific Region. In addition, the Quebec and Central Regions received $327,000 and $35,000 respectively from the French-language Centres of Excellence Program.

Hawker Hurricane Mark II B Fighter Aircraft built in 1942 by Canadian Car and Foundry Ltd., and purchased by the Canadian Warplane Heritage with a grant approved by the Minister of Communications under the terms of the Cultural Property Export and Import Act.

Communications Minister, Marcel Masse and Gabrielle Kirschbaum, Manager, Public Affairs and Protocol, Canada Place, Vancouver, at the EXPO 86 Canadian Pavilion in October 1984.

The EXPO 86 Canadian Pavilion.

EXPO 86 Vancouver World Exposition on Transportation and Communications

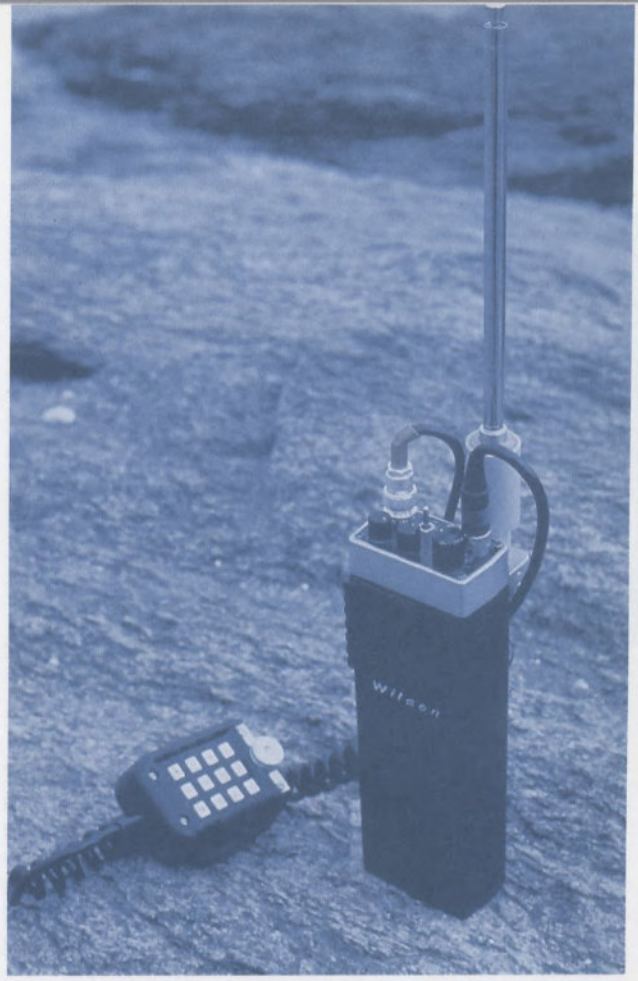
In August 1984, the department announced that it had obtained $2 million from the EXPO 86 allocation to support the cultural activities taking place at EXPO 86, the World Exposition on Transportation and Communications. Of this funding, $1.5 million will assist major Canadian companies in participating in the Royal Bank/EXPO 86 World Festival for the Performing Arts. This will ensure a strong Canadian presence in the world festival by assisting major Canadian companies from all regions in presenting the nation's finest talents in ballet, theatre, music and opera. The remaining $.5 million was allotted to Vancouver's professional, non-profit cultural organizations to participate in the city's year-long 1986 Vancouver Centennial celebrations. In addition, $2 million from the department's Special Program of Cultural Initiatives will be available to Canadian artists and organizations officially invited to perform at EXPO 86 for tours of Canadian centres before or after their appearance in Vancouver.

Northern Native and Inuit communications projects

The department continued its technical assistance to two communications undertakings by Native peoples. In the Pacific Region, the department helped establish a radio station of Northern Native Broadcasting, which went on air in February, 1985. In the Atlantic Region, the Northern Labrador Inuit Association has been developing a Very High Frequency (VHF) Trail Radio pilot project. The system, which is scheduled to begin operation in 1985-86, will provide residents with two-way communications for a variety of applications including while in temporary fishing and hunting locations.

Spectrum management licensing activities

During the year, the Spectrum Management Sector handled some 200,000 radio licence transactions – new licences, amendments, cancellations – excluding General Radio Service (GRS). In addition, the sector dealt with approximately 18,000 reports of interference, including some 5,000 cases of interference to radio communications systems such as police, fire, ambulance, air navigation and commercial dispatcher. Canada's radio station population, excluding GRS, now stands at some 684,000 stations, an increase of 42,000 over the previous year. The GRS radio station population stands at 392,225.



Hand-held VHF Trail Radio transceiver.

Regional and district offices

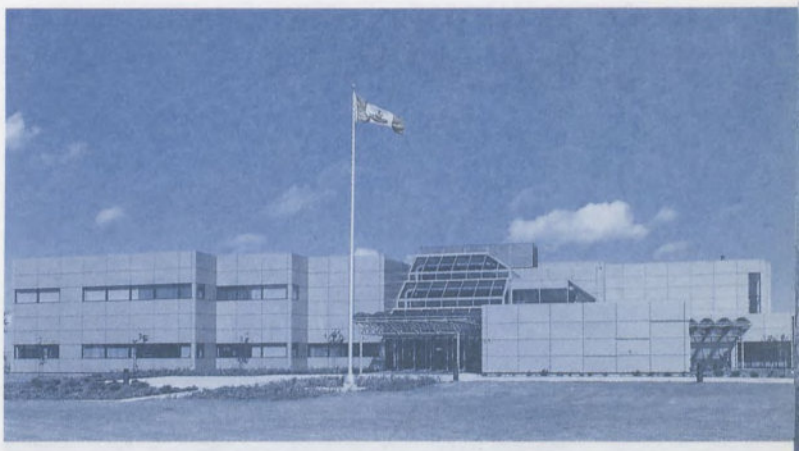
The department's five regional and 47 district and sub-offices have always been its most direct point of contact with its public. It is regional staff who represent the department in all aspects of its responsibilities at the community level. Working in close conjunction with the appropriate headquarters branches, they help develop, then deliver the department's programs to the public and interact with provincial governments and their officials, with industry, the academic community and the public.

The era of pioneering satellite research reaches fruition, telecommunications software development hits its stride, new technologies are transferred to industry and a fundamental review of the Research Sector's organization and programs presents new options for the future.

The department's research laboratories are located in three research establishments: the Communications Research Centre (CRC) complex and the David Florida Laboratory, both located at Shirleys Bay, near Ottawa, Ontario, and the newly established Canadian Workplace Automation Research Centre in Laval, Quebec. The Research Sector directs the work carried out within CRC laboratories and at the Canadian Workplace Automation Research Centre. The department's Technology and Industry Sector directs research carried out in the David Florida Laboratory.

For the Research Sector, three events highlighted the year: a fundamental review of the sector's role, priorities and organization; the establishment of the Canadian Workplace Automation Research Centre and the completion of the Anik D satellite program.

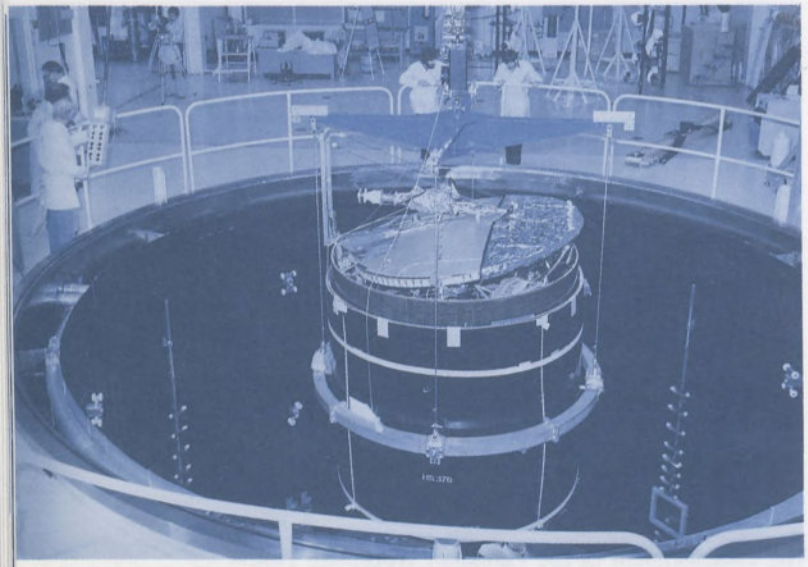
The Research Sector's 1984-85 strategic review concluded that, while Canada will continue to need a major government establishment to conduct research in the areas of communications, space, informatics and workplace automation, the current structure of the Research Sector should be re-organized so that it can better meet upcoming priorities. To this end, the review identified for consideration during 1985-86 a number of organizational options that would effectively enable the sector to meet the objectives set out in the review.



The Canadian Workplace Automation Research Centre at Laval, Quebec.

The establishment of the Canadian Workplace Automation Research Centre in Laval marked a new direction in the department's research activities. The new centre will focus its activities in the following areas: integrated systems, advanced technologies, organizational and societal research, scientific information dissemination and intelligence network development.

Among the first projects of the centre involved the setting up of an informatics system for the Palais des Congrès de Montréal; the development of simultaneous representation of text and graphics in association with the Canada Post Corporation and participation in the Comité France-Canada sur la Carte-Mémoire.



Anik D2 spacecraft, built by Spar Aerospace Limited for Telesat Canada is lowered into the 7m × 10m thermal vacuum chamber at the department's David Florida Laboratory.

While the November 1984 launch of Canada's Anik D satellite from the Kennedy Space Center in the United States marked the official conclusion of the department's Anik D satellite program, the David Florida Laboratory, which carried out integration and environmental testing of the Anik satellites, will continue to focus on satellite work. During 1985, the department began construction of a new wing at the laboratory, making way for the larger equipment required for the integration and testing of other satellites. The laboratory will continue to test both Canadian and foreign spacecraft, including the European Space Agency's Olympus satellite, an experimental satellite larger than any tested before in Canada.

Microelectronics in space applications

In space applications, the use of gallium arsenide, compared to present-day components, offers major advantages in cost, size, weight and reliability. When used in monolithic microwave integrated circuits (MMICs), it enables engineers to fabricate on a single chip many of the previously separate components essential to satellite transponders and earth terminal equipment such as receivers, oscillators and mixers.

Three "firsts" in gallium arsenide technology

During 1984-85, CRC researchers achieved three "firsts" in gallium arsenide technology. Gallium arsenide is a compound semiconductor that has added another dimension to microelectronic technology by enabling researchers to develop high-speed applications not possible with silicon chips. It is now becoming widely used in fibre optics, microwave and other telecommunications-related equipment. Departmental researchers developed the first Canadian devices suitable for incorporation into microwave integrated circuit chips for space communications applications; they produced the first single-chip designs for use in components for satellite transponder applications; and they fabricated the first Canadian gallium arsenide device for use in a data acquisition system that monitors rarely occurring nuclear events in particle acceleration experiments.

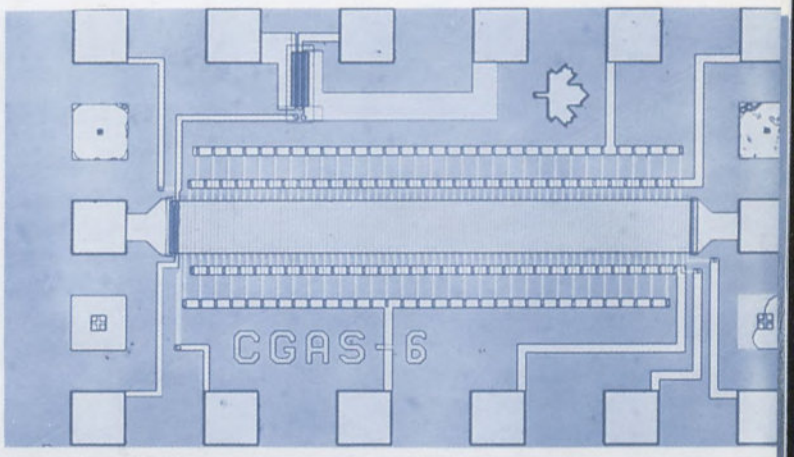
Mobile communications

The department is concerned about two aspects of the proposed mobile communications system that will connect mobile users by satellite. One involves its social and economic implications; the other, its technological development. To thoroughly examine the social and economic factors, the department initiated two major studies which were completed during the year. The studies indicated that identifiable potential markets exist and that Canada can expect major economic advantages from a mobile communications system. For example, during the first 15 years of MSAT operations, the studies project over $2 billion in improved productivity and efficiency for users; over $2 billion in sales by service providers; over $1 billion in sales for manufacturers; and over $500 million in social benefits such as improved law enforcement and disaster relief services. Addressing the second concern, technological development, research work ensures the availability of the technology the system will require once full-scale implementation goes ahead. In view of these projections, the Cabinet made a decision to proceed with developmental MSAT work.

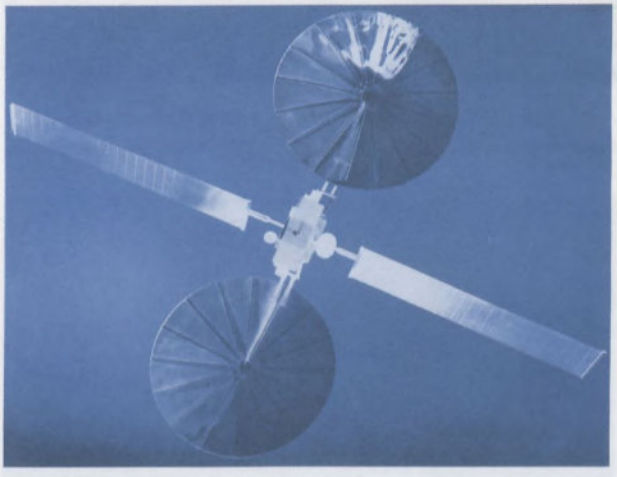
Other notable technological achievements completed during the year included:

Phased-array antennas

Three specialized antennas: a low-gain, low-priced model that needs no pointing or other control mechanisms for use in land mobile vehicles operating in areas where there is little or no transmission interference; a directional antenna that offers microprocessor-controlled tracking to keep the beam focussed on the satellite for users in high-interference and northern environments; and a small, electronically steered antenna for the L-Band frequencies utilized by INMARSAT (International Marine Satellite). The antenna is equally suitable for UHF land mobile systems.

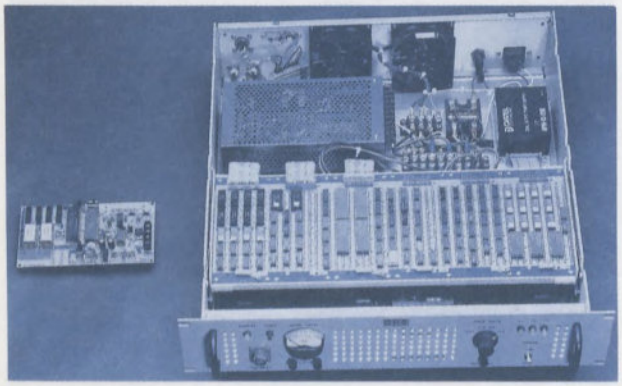


Gallium arsenide chip.



A model of the MSAT satellite.

A phased-array antenna is car-mounted for use in 800 MHz band.



On the right is a digital voice encoder/decoder (PELPC circa 1982) and on the left is a new generation microprocessor-based encoder/decoder.

Propagation studies

Studies evaluating and characterizating propagation effects applicable to both 870 MHz and L-bands: this work was part of ongoing propagation measurement program studies to provide designers of MSAT equipment with a thorough understanding of the environment in which MSAT signals will be transmitted and received. Researchers developed a satellite communications simulator that can create a large variety of signal propagation environments, including such typical problems as signal blockage and shadowing effects caused by trees or obstacles. The simulator enables scientists to combine actual measurements with simulator data to make predictions about equipment and test it much more easily and rapidly than can be done with on-site measurements alone.

Digital Voice Coder

A prototype digital voice processor that combines sophisticated signal-processing techniques with microprocessor technology and companion modulation equipment: the new coder produced improved performance and dramatic savings in bandwidth size and production costs (at an estimated market price of approximately $600, considerably less than the current $20,000 market price for a voice coder unit). The technology, required for users of mobile communications systems for whom privacy and security will be important, has been transferred to Canadian Patents and Development Ltd. and licences have already been issued to industry.

Satellite communications applications

The Development of New Applications of Satellite Communications Technology Program, as approved by Treasury Board in July 1984, conducted a series of field trials to evaluate new satellite services and systems technology. The trials related to interactive data networks for educational services and included support of companies in the development of earth stations for telephone communications.

Spacetel field trial

In March 1985, the program also began a six-month trial with the Government Telecommunications Agency (GTA) to assess the Spacetel Satellite Communications System developed by Microtel Ltd. of Burnaby, British Columbia. The trial will enable GTA and user departments to evaluate a wide variety of applications, including the transmission of air-traffic radar data, telemetry information, and voice and digital data.

Materials in space

The CRC took part in a number of experiments involving analysis of materials in the space environment. Specimens of structural materials intended for future spacecraft were submitted to CRC researchers for launch into space from the United States' space shuttle in April 1984 on board the NASA Long Duration Space Facility. This free-flying satellite will be recovered in early 1986, when post-flight analyses of exposure effects will be carried out.

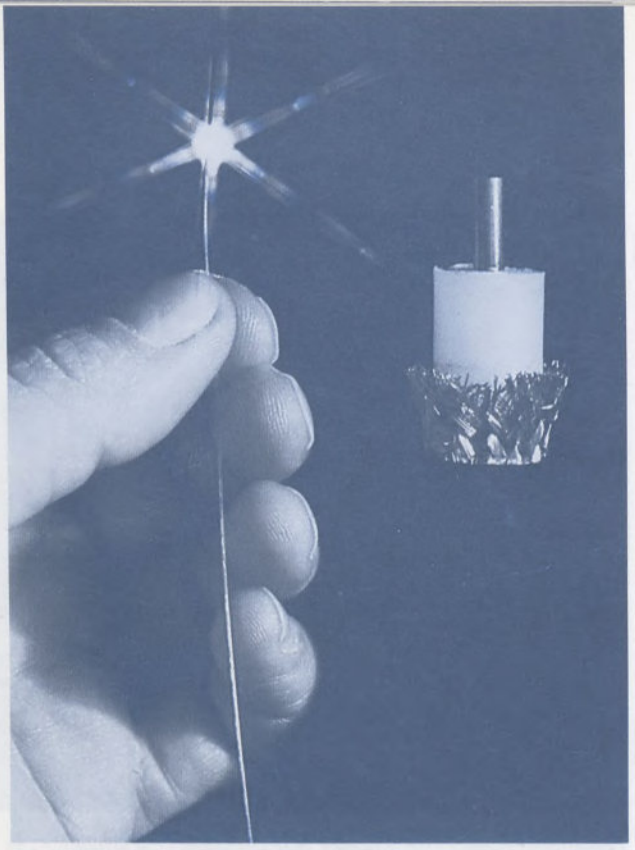
ACOMEX experiment

The CRC's successful Advanced Composite Materials Exposure (ACOMEX) experiment took place during the October 1984 flight of the American space shuttle. The project was designed to study the effects of atomic oxygen (which exists in the shuttle's orbital environment) on advanced composite materials being considered for space structures.

Early test of microwave power transmission to a small airship for SHARP.

Stationary High Altitude Relay Platform (SHARP)

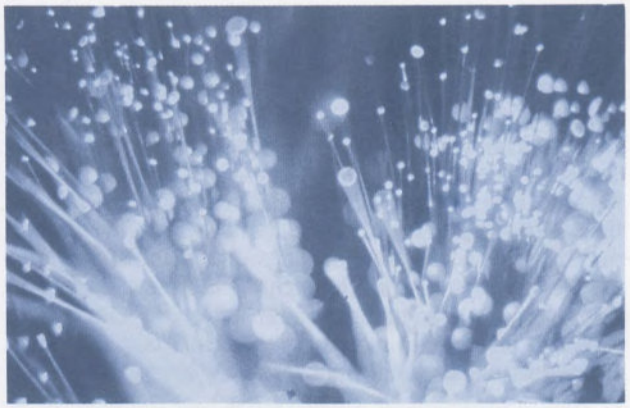
During the year, various branches of the department carried out feasibility studies for using unmanned, microwave-powered airplanes as platforms (at 21 kilometres altitude) to relay telecommunications services. The studies included identification of suitable airplane configurations, ground microwave power transmission systems, microwave-powered collection systems on the airplanes, and payloads. In addition, there was a preliminary assessment of SHARP's commercial viability for the distribution of mobile radio, radio telephone, and television broadcasting services in various rural markets in Canada. However there remain major technical problems to be solved before the system can be implemented.



Hair-thin optical fibre waveguides provide many times the capacity of conventional coaxial cable.

Optical communications

Optical communications is a technology used to transmit information in the form of light signals carried by glass fibres. Increasingly glass fibres are being used to build new, advanced telecommunication networks and to add capacity to those already in place. Span-transmission distances, ranging in length from less than a millimetre in chip-to-chip computer communications, to thousands of kilometres, traverse nations and bridge continents. Use of the technology is closely tied to the worldwide introduction of the ISDN (Integrated Services Digital Network). The benefits of optical communications technology lie in its high transmission capacity, low cost, error-free reliable performance and its compatibility with major secular trends in the uses and merging of computers and telecommunications.



Fibre optics.

The optical communications applied research and development program's ongoing activities at the Communications Research Centre have resulted in the innovation of new optical/electronic and hybrid components required to implement future generation fibre-optic communication distribution networks. A novel light-splitting device was demonstrated which has applications in optical networks carrying information on channels each assigned a different colour of light. The device permits more data channels to be transmitted over a single fibre – an economic gain. The modulation of light at microwave frequencies and light switching using fast gallium-arsenide photoconductors has also been achieved. Means for high-speed modulation and switching of light are required to optimize the large information carrying capacity of optical fibre networks.

During the year, work commenced to develop a commercial version of Canada's first fibre-optic local-area-network, ''HUBNET,'' with funding from the Program for Industry/Laboratory Projects (PILP). This network, developed by a government-industry-university partnership, addresses the need to interconnect computer terminals in the automated office of the future, as well as robots in modern factories.

Information Technology and Systems

Telidon, an interactive videotex system now becoming widely used in Canada, was conceived and developed in the laboratories of the Communications Research Centre during the 1970s. Since then, CRC researchers have been concentrating on applications that extend Telidon into new areas, and that will ensure Telidon remains competitive with the interactive videotex systems being developed and marketed by other countries.

Telidon Content Development Program

The department also completed its Telidon Content Development Program, and has funded 30 organizations across Canada to develop a wide range of applications. The results include Infomart's launching of *Grassroots America*, which has 700 clients; Dominion Directory's sale of Telidon content to EXPO 86, and Pixel Productions' development of the broadcast graphics used in CTV's coverage of the 1984 federal election.

Videotex Canada meeting

In March 1985, the department organized and hosted the Videotex Canada meeting in Toronto. Over 450 participants discussed the end of federal involvement in Telidon and the birth of a self-sufficient industry. Industry participants also met to formulate a new videotex industry association.

Telidon product development

Researchers in the CRC's Information Technology and Systems group developed a number of Telidon-based products during the year. Among the highlights:

- a digital high-speed image decoder which has potential applications that include photo imagery (photo-Telidon), facsimile and digital television, received a United States patent early in 1985;
- microcircuit chips for decoding and displaying videotex and teletext information. Norpak Corporation of Kanata, Ontario has been licensed to produce the chips;
- a teletext delivery system for teletext transmission, in virtually any cable or broadcast configuration, to facilitate the preparation, handling, insertion and management of information. Now being manufactured and successfully exported by Norpak Corporation of Kanata, Ontario, the system is based on the North American Broadcast Teletext Standard (NABTS).

Photo Telidon.

Laying optical fibre.

Elie and St. Eustache fibre optics trials

During the last four years, the department has been involved in an extensive pilot project to test a fibre optics communications network serving the rural Manitoba communities of Elie and St. Eustache. In 1984, the department transferred responsibility for the service to the Manitoba Telephone System, which now provides 150 families with Telidon, cable television, stereo-FM radio and private-line telephone services. Indirectly, the early positive results of this trial encouraged SaskTel, (the Saskatchewan telephone service) to begin constructing one of the world's longest and largest fibre optics networks. The network uses Northern Telecom equipment to cover some 3,200 kilometres.

Office Communications Systems

As part of Phase II of the Office Communications Systems Program (OCS) begun in 1982, three of five field trials were completed during 1984-85. The completed trials took place at the departments of Energy, Mines and Resources (EMR), Environment Canada and Revenue Canada (Customs and Excise). The trial at Energy, Mines and Resources involved the automation of administrative policy manuals. Successfully completed in 1984, the trial tested software developed by Officesmiths. As part of the original plan, EMR has subsequently agreed to full implementation of an automated policy system. Environment Canada's field trial tested automated office equipment in a largely decentralized administrative setting that spanned as far as Calgary and Toronto to connect several offices together. The Environment Canada trial resulted in a direct spin-off: a consortium of Canadian high-tech companies formed a new Ottawa-based company, OCRA Communications, to manufacture office automation equipment and related software. The Revenue Canada field trial, conducted by Bell-Northern Research also tested equipment in an administrative environment. In light of the lessons learned during this trial, which was completed in 1984, Revenue Canada agreed to expand the trial to a larger implementation.

In a similar ongoing trial, the Department of National Defence is also testing equipment in an administrative setting. This trial encountered difficulties in software development and has been delayed by approximately one year, with tests expected to extend through 1985.

The Department of Communications has been involved in a trial to test a prototype office automation system developed by Comterm, a Montreal-based high-tech company. This trial is testing approximately 70 prototype terminals primarily in the department's Policy Sector. Users also range from the Minister, Deputy Minister and senior officials to departmental support staff.

Support to other departments

The CRC carries out a variety of major research work in support of other federal departments and agencies such as the National Research Council of Canada (NRC) and the Defence Research Establishment.

Waves in Space Plasma

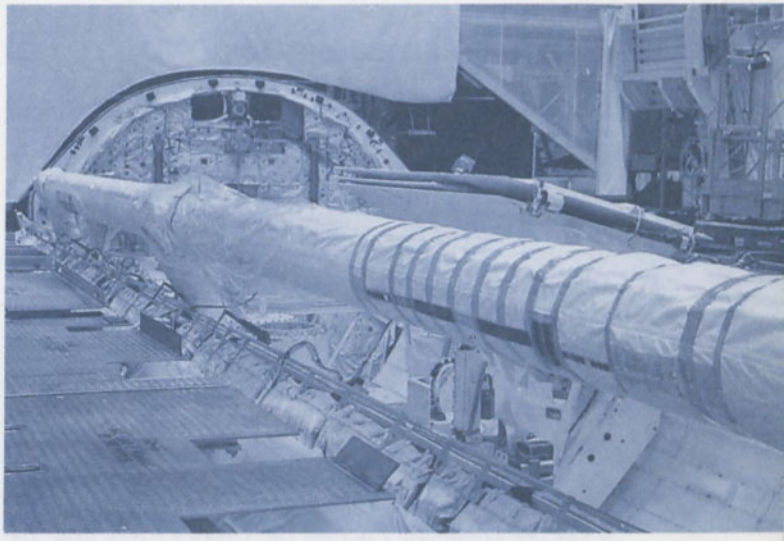
Space plasmas are produced when radiation from the sun and other sources ionizes gases, thereby freeing some of their electrons. Scientists are interested in discovering how communications technologies are affected in this environment. The department's researchers have been co-operating on the Waves in Space Plasma (WISP) Program directed by NRC's Canadian Centre for Space Science. An experiment scheduled to be flown on the United States' space shuttle in 1989 will involve various studies of the plasma in near space. A CRC scientist is serving as the principal investigator on behalf of the NRC.

Space structures technology

In addition, scientists in the CRC's Space Technology and Applications Branch completed a dynamic analysis of the 300-metre dipole antenna that will be attached to the space shuttle for the WISP experiment. The CRC is continuing with follow-up support to explore the options for tests and control procedures in orbit.

Canadarm

During the year, testing of RMSFOP-3, better known as Canadarm, the fourth in a series of remote manipulator systems for use in space was completed in the David Florida Laboratory. Spar Aerospace has been building the system for use aboard the United States' space shuttle.



Material specimens for CRC "Advanced Composite Materials Exposure to Space Experiment (ACOMEX)" shown mounted on Canadarm in NASA Shuttle Orbiter Processing Facility prior to Mission STS-41G.

Research carried out for DND

Throughout 1984-85, CRC scientists continued working on applications designed to fulfill the future satellite communications needs of the Department of National Defence (DND). Three major projects were completed during the year:

Testing EHF-techniques

Testing of EHF (Extremely High Frequency) satellite signal-processing and anti-jamming techniques.

EHF test range

Testing of other CRC-developed components using the 16-kilometre EHF test range the CRC established between its complex at Shirleys Bay, and Kingsmere, a Quebec community across the Ottawa River from the CRC.

Space laser

Establishment of a parallel, 16-kilometre, free space laser test range between the CRC and Kingsmere for propagation trials and studies related to the possible use of lasers for satellite communications.

Mechanical stabilization of SBR

On behalf of the Department of National Defence and the Defence Research Establishment, Ottawa, the CRC developed an industrial R & D plan and Statement of Work for investigating mechanical stability for a space-based radar (SBR).

Radar research

The CRC's radar research and development work is carried out primarily on behalf of the Department of National Defence. The researchers apply technology related to synthetic-aperture radar, phased-array radar, detection and tracking, clutter measurements and modelling, and systems engineering to airborne, satellite-borne, ground-based and maritime radars.

Tracking low-flying craft over water

The tracking of low-flying missiles and aircraft over water is one of the most significant challenges facing the world's navies. During 1984-85, CRC researchers continued development of a new concept in this area. The system, which was demonstrated on the Ottawa River, was shown to be very effective, and the CRC is planning sea trials of the concept.

Synthetic-aperture radar for moving targets

Synthetic-aperture radar has been used traditionally to produce images of land surfaces and stationary targets. Advanced signal processing techniques have been devised by CRC scientists to draw images of ships at sea. These techniques were successfully demonstrated during the year using data obtained from satellite-borne and airborne radars and computer models.

Coherent clutter cancellation

Another technique originated by the CRC during 1984-85 uses phased-array radar to detect stationary and very slow moving targets despite the presence of heavy clutter.

Looking ahead, three trends set in motion during 1984-85 are likely to increasingly influence the department's upcoming policies:

- cultural concerns will continue as major factors in the development of policies affecting the department's international, national and regional activities;
- the improvement in federal-provincial relations that began with the 1984-85 consultations will spur continued discussions with the provinces and territories and with the department's various constituencies within all regions of the country;
- within the department itself, there will be a continuation of structural adjustments resulting from a re-assessment of the department's own priorities and future directions that began in 1983-84 and continued during 1984-85 with an intensive review of the purpose and organization of the Research Sector.

Looking back over the 15 years that have passed since the department's establishment in 1969, it is clear that, in fulfilling its mandate – to ensure the orderly development and operation of both communications and culture for Canada in both the domestic and international spheres, – it has successfully met many challenges and created many opportunities, as well as increasingly seeking co-operation with, and involvement of the private sector. Looking ahead, there is every indication that the department's future will be just as challenging and rewarding.

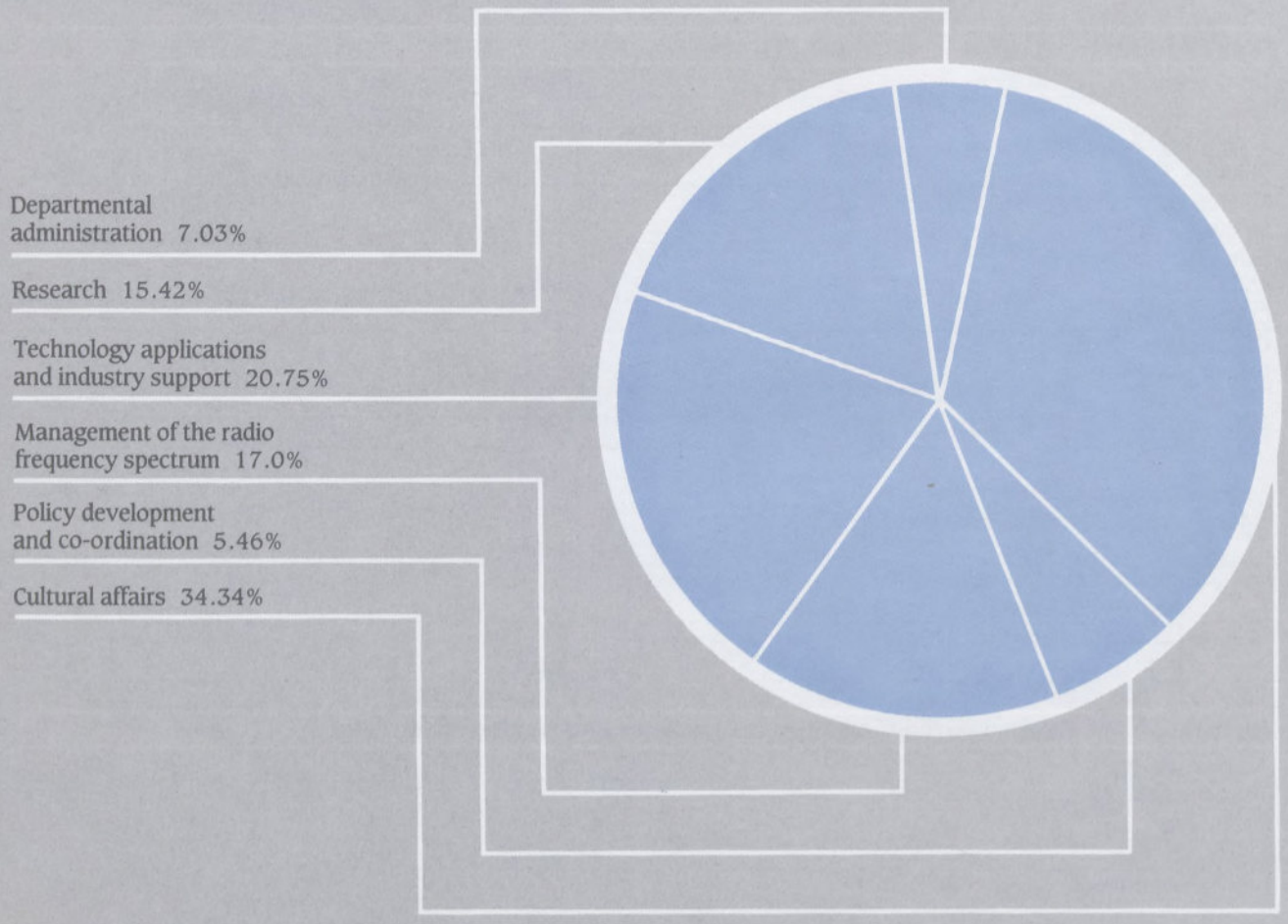
Expenditures by activity 1984/85 (in thousands of dollars)

	Operating	Capital	Grants and Contributions	Total
Communications and Culture Program				
Departmental administration	16,854	568		17,422
Research	30,664	7,010	525	38,199
Technology Applications and Industry Support	19,323	15,589	16,474	51,386
Management of the Radio Frequency Spectrum	40,334	1,724	40	42,098
Policy Development and Coordination	10,460	8	3,044	13,512
Cultural Affairs	59,672	5	25,372	85,049
Contributions to employee benefit plans	11,340			11,340
	188,647	24,904	45,455	259,006
Less: revenues credited to the vote	6,053			6,053
	182,594			252,953
Less: receipts credited to revenue	34,103			34,103
Add: accommodation provided without charge by this department	3,764			3,764
accommodation provided without charge by Public Works	7,682			7,682
other services provided without charge by other departments	2,103			2,103
Total cost of program	162,040	24,904	45,455	232,399
Communications Program Government Telecommunications Agency Revolving Fund				
Administration	5,766	391		6,157
Telecommunications engineering support	4,209			4,209
Operations	123,863			123,863
	133,838	391		134,229
Less: receipts credited to the Fund	135,219			135,219
	(1,381)	391		(990)
Total cost of program	160,659	25,295	45,455	231,409

Source: Public Accounts of Canada, 1984/85

Appendix II

Total expenditures by activity 1984/85 (excluding the Government Telecommunications Agency)



Source: Department of Communications.

Government Telecommunications Agency Statement of Operations for the year ended March 31, 1985

	1985 $	1984 $
Revenue		
Telecommunication services	134,957,932	130,188,348
Expenses		
Operating		
Customized services	57,729,008	53,114,880
Intercity network	52,659,878	53,324,942
Government data network	4,969,435	4,943,590
Operators' salaries	4,583,511	6,042,574
Local shared services	2,447,503	1,754,098
Interest charges	925,707	922,703
Directory services	503,034	401,707
Leased space	187,456	118,280
Other	51,713	39,905
Total	**124,057,245**	**120,662,679**
Engineering support		
Salaries and employee benefits	3,703,317	3,527,209
Employee termination benefits	96,728	45,283
Professional services	288,345	328,704
Travel and removal	71,514	91,144
Rental building and equipment	64,649	58,081
Repairs	36,729	30,645
Other	15,908	3,765
Total	**4,277,190**	**4,084,831**

(cont'd)

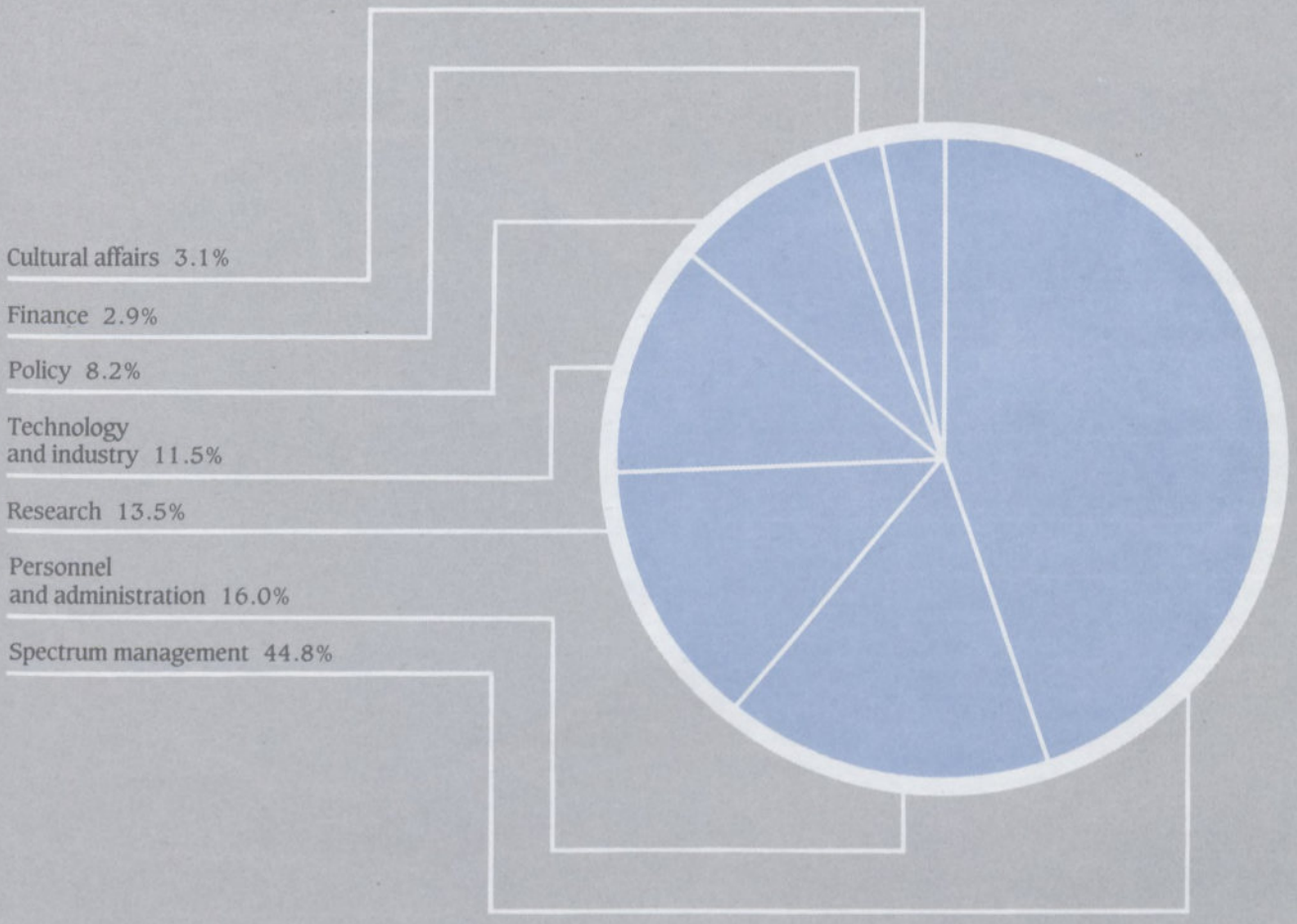
Administration		
Salaries and employee benefits	3,980,268	3,504,158
Employee termination benefits	103,144	44,988
Rental building and equipment	929,917	906,657
Telephone and freight	249,008	185,867
Professional services	246,159	512,624
Travel and removal	115,152	116,857
Information	114,810	47,547
Depreciation	94,606	76,596
Office materials and supplies	78,475	89,545
Repairs	40,828	24,335
Loss on disposal of fixed assets	2,021	256
Other	80	48
Total	**5,954,468**	**5,509,478**
Total Expenditures	**134,288,903**	**130,256,478**
Net Profit (loss)	**699,029**	**(68,640)**

Purpose and authority

The Government Telecommunications Agency Revolving Fund was originally established in 1963 to plan and provide telecommunications facilities and services at the request of federal departments and agencies. Section 23 of the Adjustment of Accounts Act authorized the Minister to make payments out of the Consolidated Revenue Fund for working capital, capital equipment and temporary financing of operating requirements, the total of which was not to exceed $8,000,000 at any time. This authority was increased to $12,000,000 by Appropriation Act No. 4, 1981-82 and to $15,000,000 by Appropriation Act No. 4, 1983-84 and to $19,000,000 by Appropriation Act No. 4, 1984/85. In accordance with Vote 2c, Appropriation Act No. 4 1982-83, an amount of $1,485,822 was credited to the Fund for a payment to Bell Canada for a terminated contract. An amount of $741,781 representing net assets assumed by the Fund and assets contributed to the Fund was charged against this authority when the Fund became Budgetary in 1981.

Source: Public Accounts of Canada, 1984/85

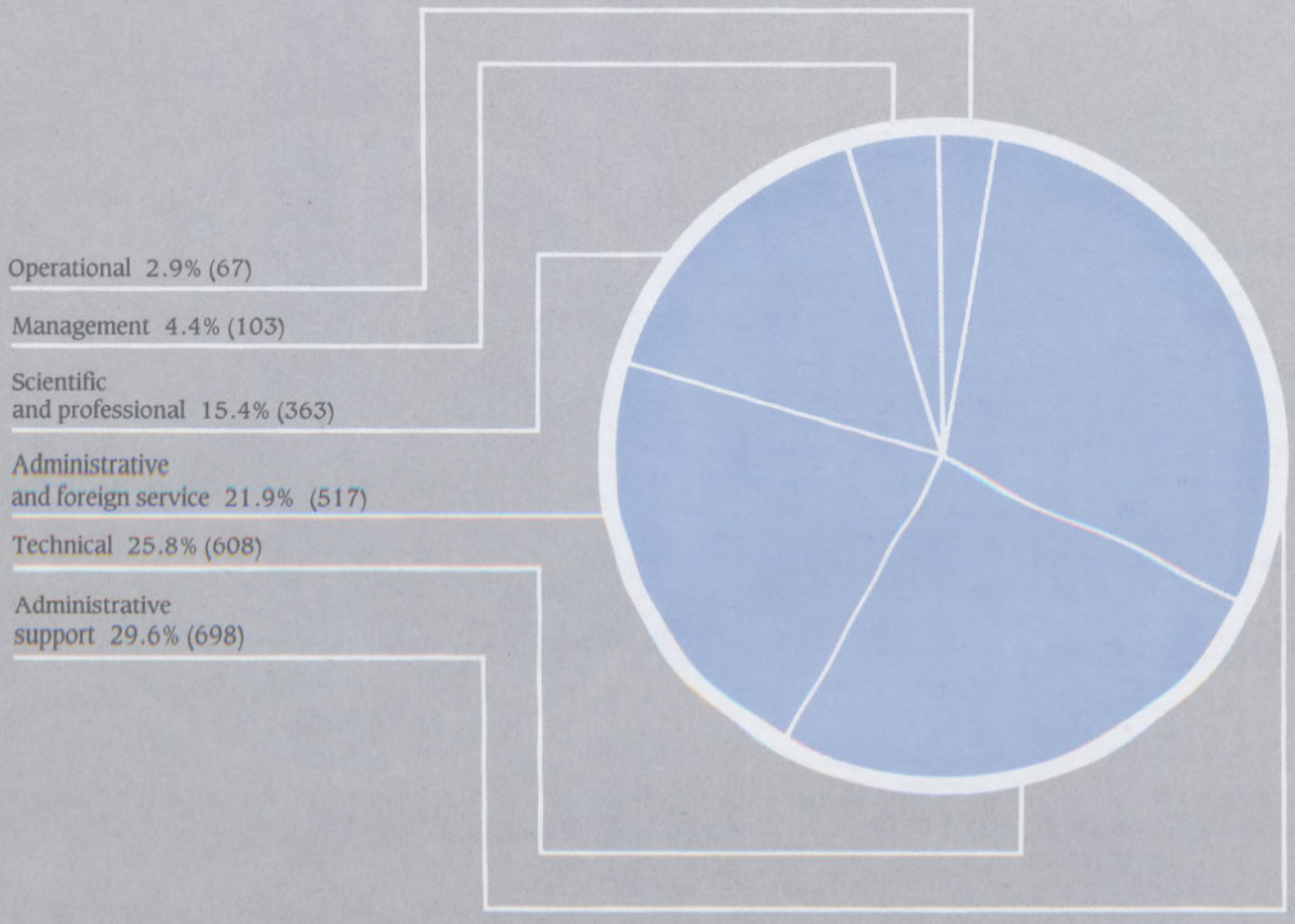
Departmental employees by activity 1984/85



Source: Department of Communications.

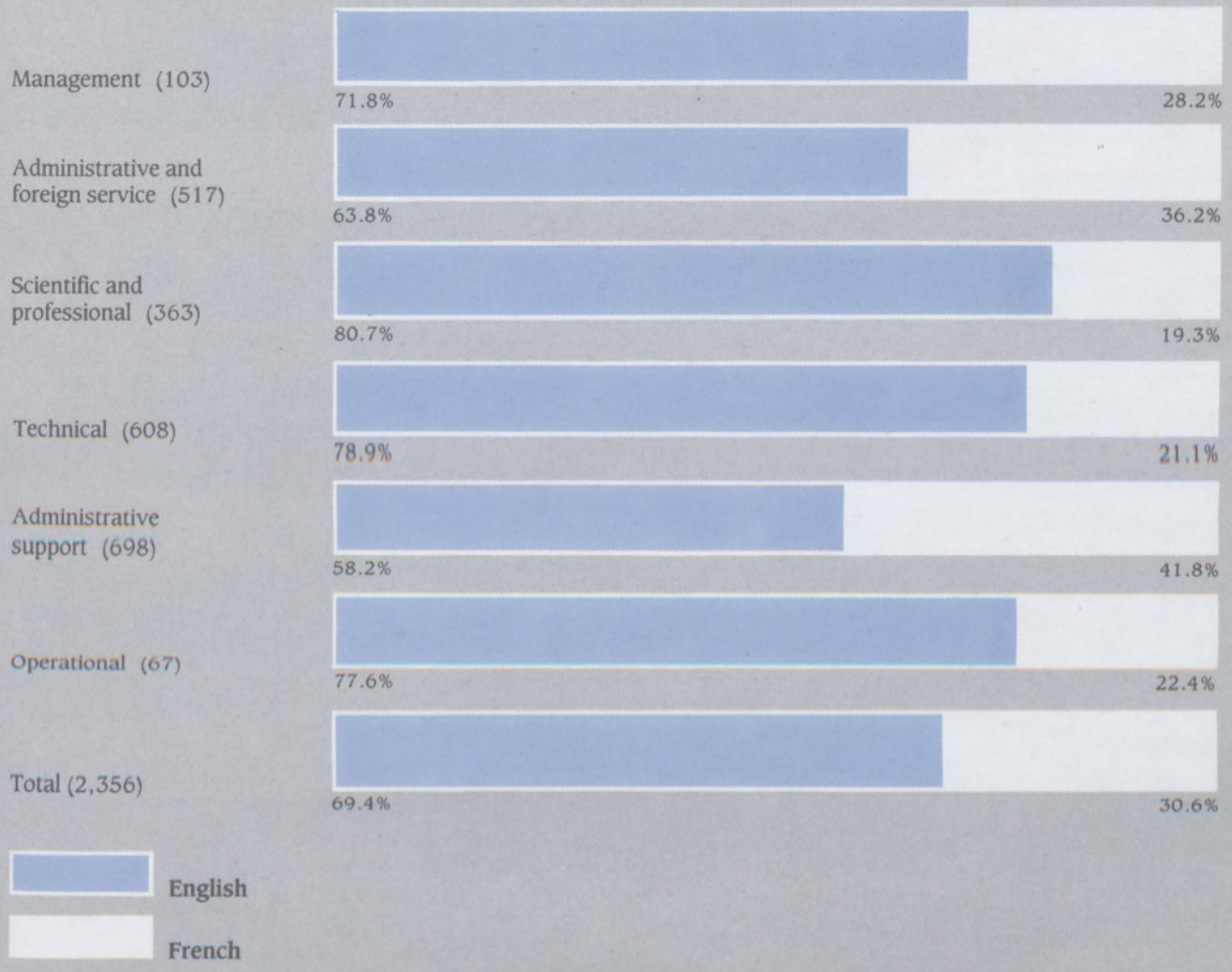
Appendix V

Distribution of employees by employment category, total 2,356 (as of March 31, 1985)



Source: Department of Communications.

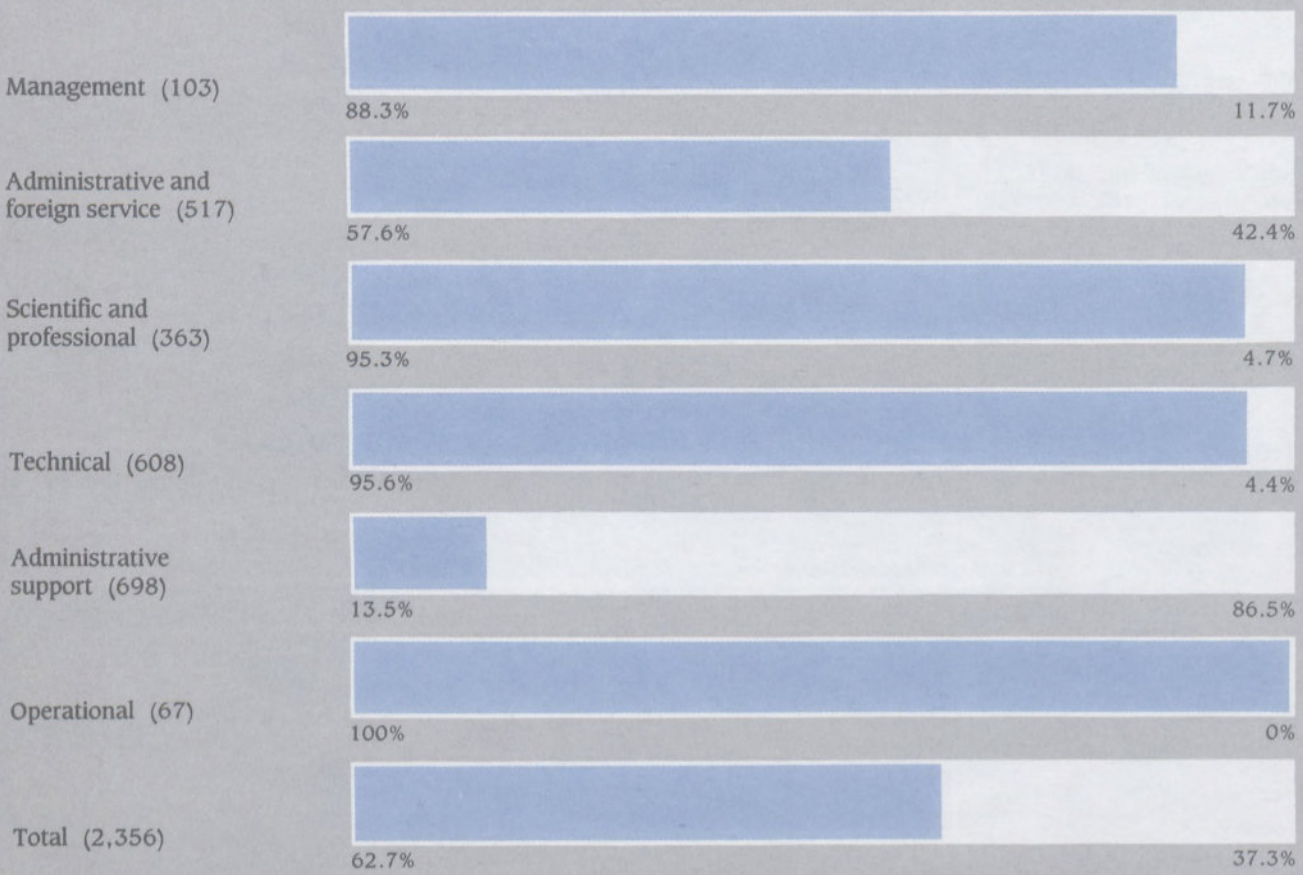
Distribution of employees by employment and first official language (as of March 31, 1985)



Source: Department of Communications.

Appendix VII

Distribution of employees by employment category and sex (as of March 31, 1985)



Source: Department of Communications.

Acts under which the Minister of Communications has responsibility

The Department of Communications Act
The Telegraphs Act
The Canadian Radio-television and Telecommunications Commission Act
The National Transportation Act
The Telesat Canada Act
The Radio Act
The Railway Act
The Broadcasting Act
The Canada Council Act
The Canadian Film Development Corporation Act
The Cultural Property Export and Import Act
The National Arts Centre Act
The National Film Act
The National Library Act
The National Museums of Canada Act
The Public Archives of Canada Act

Appendix IX

Addresses of regional and district offices of the Department of Communications

Atlantic Region

Regional Office
Department of Communications
Terminal Plaza Building
7th Floor
1222 Main Street
P.O. Box 5090
MONCTON, N.B.
E1C 8R2

District Offices

New Brunswick
Department of Communications
Customs Building
Room 337
189 Prince William Street
P.O. Box 7285, Stn. A
SAINT JOHN, N.B.
E2L 4S6

Nova Scotia
Department of Communications
9th Floor
6009 Quinpool Road
HALIFAX, N.S.
B3K 5J7

Prince Edward Island
Department of Communications
Dominion Building
3rd Floor
97 Queen Street
CHARLOTTETOWN, P.E.I.
C1A 4A9

Newfoundland
Department of Communications
Sir Humphrey Gilbert Building
Room 612
Duckworth Street
P.O. Box 5277
ST. JOHN'S, Nfld.
A1C 5W1

Quebec Region

Regional Office
Department of Communications
295 St. Paul Street East
MONTREAL, Que.
H2Y 1H1

District Offices

Department of Communications
Suite 436
2 Place Québec
QUEBEC, Que.
G1R 2B5

Department of Communications
Room 401
1650 King Street West
SHERBROOKE, Que.
J1J 2C3

Department of Communications
Guy Favreau Complex
Room 1214
200 Dorchester Blvd. West
East Tower
MONTREAL, Que.
H2Z 1X4

Department of Communications
2nd Floor
942 Chabanel Street
CHICOUTIMI, Que.
G7H 5W2

Department of Communications
Room 206
140 St. Germain Street West
RIMOUSKI, Que.
G5L 4B5

Ontario Region

Regional Office
Department of Communications
9th Floor
55 St. Clair Avenue East
TORONTO, Ont.
M4T 1M2

District Offices

Department of Communications
5th Floor
30 Duke Steet West,
KITCHENER, Ont.
N2H 3W5

Department of Communications
9th Floor
55 St. Clair Avenue East
TORONTO, Ont.
M4T 1M2

Department of Communications
Trebla Building
Room 100B
473 Albert Street
OTTAWA, Ont.
K1R 5B4

Department of Communications
Room 210
135 James Street South
HAMILTON, Ont.
L8P 2Z6

Department of Communications
Room 1112
451 Talbot Street
LONDON, Ont.
N6A 5C9

Department of Communications
3rd Floor, Suite 2
280 Pinnacle Street
P.O. Box 380
BELLEVILLE, Ont.
K8N 5A5

Department of Communications
Station Tower,
2nd Floor
421 Bay Street
P.O. Box 727
SAULT STE. MARIE, Ont.
P6A 5N3

Central Region

Regional Office
Department of Communications
Room 200
386 Broadway Avenue
WINNIPEG, Man.
R3C 3Y9

District Offices

Manitoba
Department of Communications
Room 200
386 Broadway Avenue
WINNIPEG, Man.
R3C 3Y9

Saskatchewan
Department of Communications
206 Circle Drive East
SASKATOON, Sask.
S7K 0T5

Department of Communications
Room 101
2101 Scarth Street
REGINA, Sask.
S4P 2H9

Alberta
Department of Communications
Liberty Building
10th Floor
10506 Jasper Avenue
EDMONTON, Alta.
T5J 2W9

Department of Communications
Room 820
220 4th Avenue S.E.
P.O. Box 2905, Station M
CALGARY, Alta.
T2P 2M7

Department of Communications
8th Floor
9909 - 102nd Street
GRANDE PRAIRIE, Alta.
T8V 2V4

Northwest Territories
Department of Communications
Precambrian Building
10th Floor
P.O. Box 2700
YELLOWKNIFE, N.W.T.
X1A 2R1

Pacific Region

Regional Office
Department of Communications
Suite 1700
800 Burrard Street,
VANCOUVER, B.C.
V6Z 2J7

District Offices

British Columbia
Department of Communications
Room 224
816 Government Street
VICTORIA, B.C.
V8W 1W9

Department of Communications
Federal Building
Room 304
471 Queensway Avenue
KELOWNA, B.C.
V1Y 6S5

Department of Communications
Room 583
309 2nd Avenue West,
PRINCE RUPERT, B.C.
V8J 3T1

Department of Communications
Suite 1700
800 Burrard Street
P.O. Box 1700
VANCOUVER, B.C.
V6Z 2J7

Department of Communications
Vancouver District Office
Surrey Site
P.O. Box 3396
LANGLEY, B.C.
V3A 4R7

Department of Communications
707 - 299 Victoria Street
PRINCE GEORGE, B.C.
V2L 5B8

Department of Communications
Room 101
125 10th Avenue South
CRANBROOK, B.C.
V1C 2N1

Yukon District
Department of Communications
Polaris Building
Room 201
4133 4th Avenue
WHITEHORSE, Y.T.
Y1A 1H8