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CANADA

National Advisory Board
on Science and Technology

A SURVEY OF NATIONAL AND PROVINCIAL ADVISORY COUNCILS ON SCIENCE AND TECHNOLOGY

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A SURVEY OF NATIONAL AND PROVINCIAL ADVISORY COUNCILS ON SCIENCE AND TECHNOLOGY

NATIONAL ADVISORY BOARD
ON SCIENCE AND TECHNOLOGY
SECRETARIAT

GOVERNMENT OF CANADA

MARCH 1992

A SURVEY OF NATIONAL AND PROVINCIAL ADVISORY COUNCILS ON SCIENCE AND TECHNOLOGY

INTRODUCTION

This report was prepared for the National Advisory Board on Science and Technology (NABST). It describes the structure and activities of national and provincial advisory councils on science and technology. The description of each council is divided into the following sections: mandate, membership, internal structure and operations, external linkages and activities, list of members, contact person, and publications.

The report was written by Dennis Lowe under the direction of Margaret McCuaig-Johnston and Jacqueline Payne. Information on the provincial and Canadian advisory councils was collected by Dennis Lowe and John de Goey. Information on the national advisory councils was collected through personal interviews by Science Counsellors and Commercial/Economic Counsellors at the various Canadian Embassies and High Commissions. Communication with these Counsellors was coordinated by Victor Bradley at the Department of External Affairs and International Trade.

Information was collected in the Fall of 1991.

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AUSTRALIA
PRIME MINISTER'S SCIENCE COUNCIL (PMSC)

BACKGROUND

Major initiatives have been taken over recent years in the coordination of science and technology activities across all portfolios of Commonwealth government in Australia. In taking these initiatives the Government acknowledged the need for effective mechanisms for coordination of and consultation on science and technology policy, together with the importance of science and technology to economic prosperity. Accordingly, science and technology policy coordination machinery was strengthened and located in the Prime Minister's portfolio (see Figures 1 and 2).

The Prime Minister's Science Council (PMSC) plays an important role as the peak body for science and technology which addresses topics of national significance. The PMSC consists of senior Ministers with major responsibilities in science and technology and senior representatives from the scientific and engineering communities, industry and trade unions. PMSC sessions are prepared by drawing on the best expertise available. The sessions provide an opportunity for the Prime Minister and other Council Ministers to consider science and technology issues of long term importance to Australia, and to draw upon this in the decision-making processes of government.

The Coordination Committee on Science and Technology (CCST) brings together senior officials from all Commonwealth departments with substantial interests in science and technology, departmental science advisers and heads of major research funding and performing agencies. It is a mechanism for departments and agencies to share information on, and coordinate, science and technology programs and policies across portfolios.

The PMSC and the CCST are supported by the Chief Scientist and his Office in the Department of the Prime Minister and Cabinet.

The activities of the PMSC are complemented by those of the Australian Science and Technology Council (ASTEC), which provides independent expert advice to the Prime Minister.

The role of the Minister Assisting the Prime Minister has been strengthened, to ensure that the Prime Minister is kept closely involved in all significant science and technology policy issues.

MANDATE

The PMSC, formed in 1989, has a mandate to provide a high level forum for considering matters of national significance across the spectrum of Commonwealth science and technology interests, keeping the Prime Minister and senior Ministers abreast of key topical issues, and enabling them to draw upon this in the decision-making processes of government.

MEMBERSHIP

At present the Council consists of twenty-two members: the Prime Minister, the Minister Assisting, seven Ministers with strong portfolio interests in science and technology; senior representatives of industry, trade unions, university and government research bodies; science and technology-related Academies and the Chief Scientist, who is the Council's Executive Officer. The Chief Executive of the Commonwealth Scientific and Industrial Research Organization, and the Chair of the Australian Science and Technology Council are ex officio members. Members are appointed by the Prime Minister, in consultation with the Minister Assisting and other Ministers, for a period of two years.

STRUCTURE AND OPERATIONS

The PMSC is chaired by the Prime Minister. The Minister Assisting is Deputy Chair. The Council is the peak body in the Commonwealth's science and technology arrangements. It is supported by the Office of the Chief Scientist, a division of the Department of the Prime Minister and Cabinet. The Office of the Chief Scientist also supports the CCST and administers the Cooperative Research Centres Program. The Program is a major initiative designed to enhance collaboration between outstanding research groups in universities, government laboratories and private industry.

The PMSC meets twice each year to discuss and advise on responses to topical issues which have strong scientific and technological overtones. Independent working groups consisting of leading executives and specialists from the private and public sectors compile reports on specific issues to be presented at each meeting. These reports are published.

From time to time, special scientific presentations are given by relevant experts. The papers from these sessions are also published.

Following Council meetings, ad hoc committees composed of members of the independent working groups and Council members are usually formed to prepare reports documenting the issues raised and identifying broad options generally supported in the Council's discussions. These reports are passed to appropriate departments to ensure that policy makers are fully briefed, and the relevant Minister(s) are asked by the Prime Minister to provide a government response and report on progress at the next Council meeting.

Issues examined to date include the pharmaceutical and food processing industries, commercial opportunities in waste management, engineering, climate change, Australia's scientific and technological resources and their utilization, adding value in the minerals industry, innovation in the scientific and medical instruments industry and development of a White Paper on science and technology. Issues for future consideration include information technology and telecommunications, manufacturing technology and scientific aspects of major environmental issues such as climate change and biological diversity.

LINKAGES AND ACTIVITIES

Through its membership the PMSC is connected to the highest levels of advice and decision-making across the wide range of science and technology communities in Australia and overseas.

The CCST complements, at official levels, the work of the PMSC. The CCST may refer major issues from its quarterly meetings to the PMSC for further consideration. As noted above, the Chief Scientist chairs the CCST.

The PMSC does not allocate research and development funds.

MEMBERS (31 December 1991)

The Hon R J L Hawke	Prime Minister (Chair)
The Hon Ross Free, MP	Minister for Science and Technology, Minister Assisting the Prime Minister (Deputy Chair)
Senator the Hon John Button	Minister for Industry, Technology and Commerce
The Hon Kim C Beazley, MP	Minister for Employment, Education and Training
The Hon Simon Crean, MP	Minister for Primary Industries and Energy
The Hon Brian Howe, MP	Minster for Health, Housing and Community Services
The Hon Ros Kelly, MP	Minister for the Arts, Sport, the Environment and Territories
The Hon John Kerrin, MP	Minister for Trade and Overseas Development
Mr Roger Allen	Managing Director, Computer Power Group Ltd
Professor Brian Anderson	Head of the Department of Systems Engineering, Research School of Physical Sciences, Australian National University
Professor David Craig	President, Australian Academy of Sciences
Mr Keith Harvey	National Research Officer, Federated Clerks' Union of Australia
Mr Trefor Eastwood	Managing Director, Wesfarmers Limited
Mr Denis Hanley	Chairman, Memtec Limited
Professor Ken McKinnon	President, Australian Vice-Chancellors' Committee

Professor Ray Martin	Chairman, Australian Science and Technology Council
Sir Rupert Myers	President, Australian Academy of Technological Sciences and Engineering
Sir Gustav Nossal	Director, The Walter and Eliza Hall Institute of Medical Research
Professor Cheryl Praeger	Professor of Pure Mathematics, University of Western Australia
Mr John Ralph	Managing Directors and Chief Executive, CRA Limited
Dr John Stocker	Chief Executive, Commonwealth Scientific and Industrial Research Organization
Professor Ralph Slatyer	Chief Scientist (Executive Officer)

CONTACT

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Information was collected by the Commercial/Economic Counsellor at the Canadian High Commission in Canberra, Australia, and provided by the Office of the Chief Scientist.

PUBLICATIONS

1989-90

Global Climatic Change: Issues for Australia

Resources for Science and Technology and their Utilization

1990-91

Science and Mathematics in the Formative Years

Value-adding in the Australian Minerals Industry

Innovation in the Australian Scientific and Medical Instruments Industry

Engineering in Australia

Food Processing

Commercial Opportunities in Waste Management

1991-92

Development of a Pharmaceutical Industry in Australia - the Challenge of Partnership

CCST publication: Costing and Pricing of Public Sector Research

FIGURE 1 - MAIN CHANNELS OF ADVICE FOR POLICY FORMULATION IN SCIENCE AND TECHNOLOGY

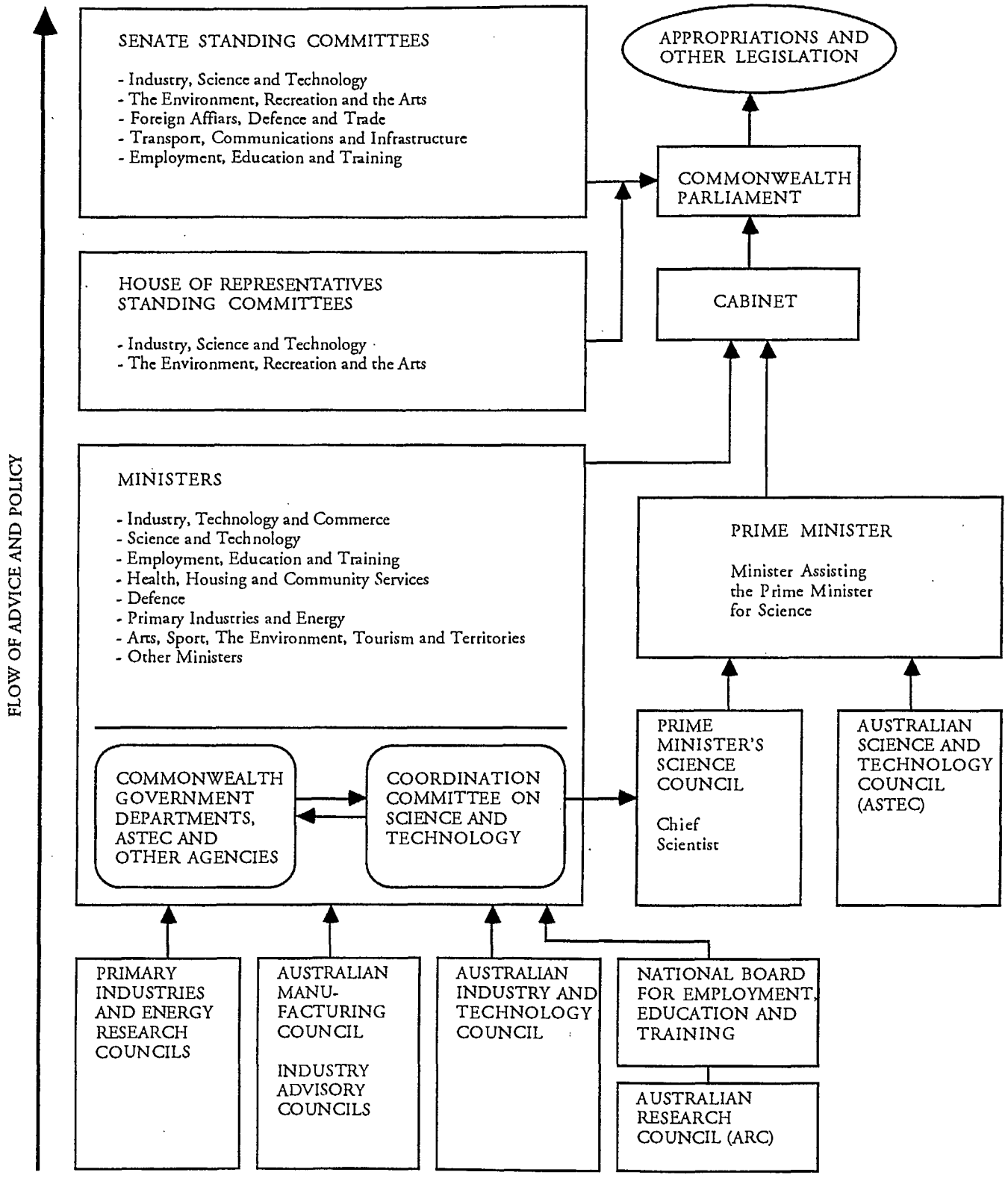
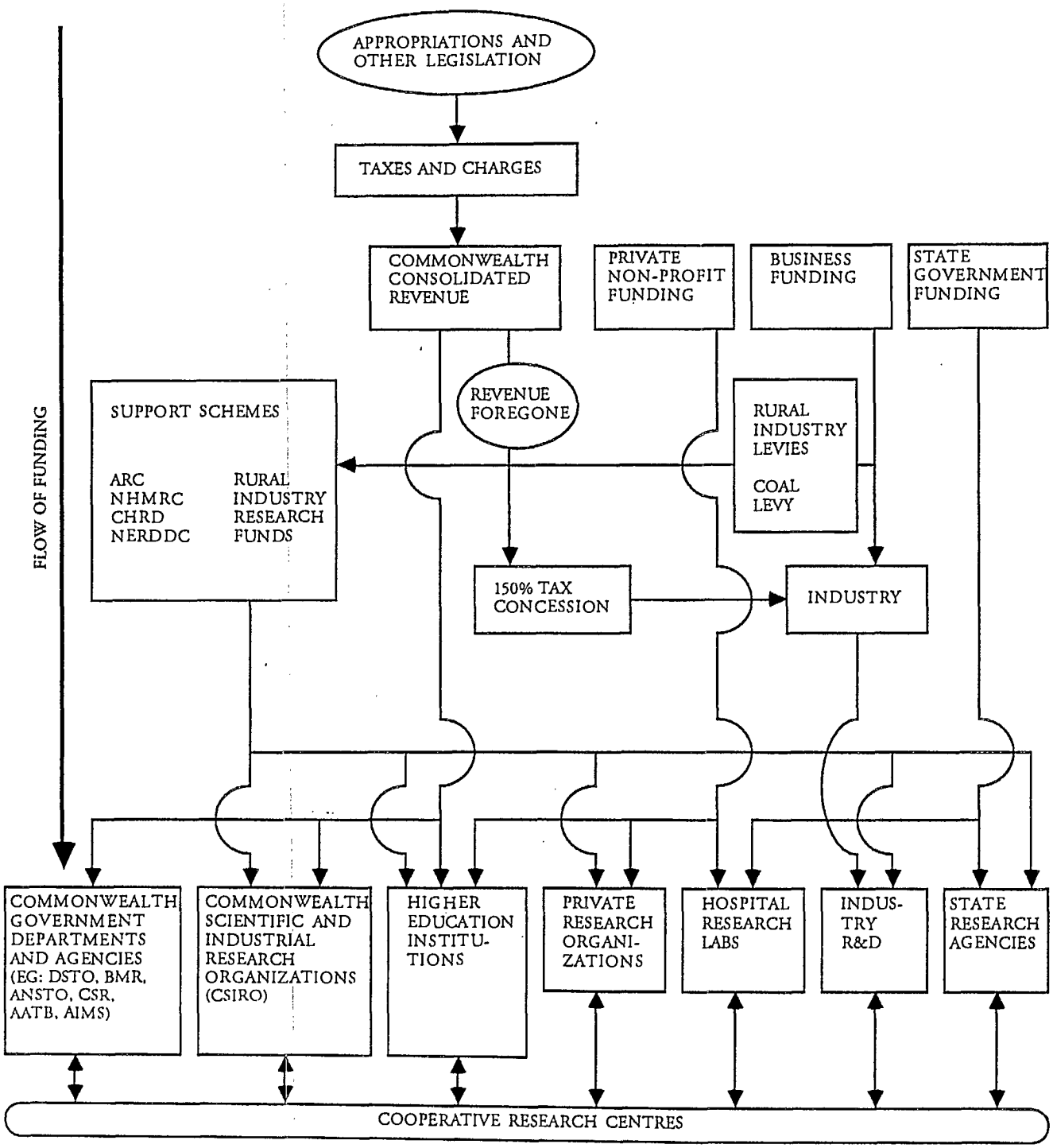


FIGURE 2 - FLOW OF FUNDING SUPPORT FOR R&D



AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC)

MANDATE

The Australian Science and Technology Council (ASTEC) is a principal source of independent advice on policies and progress related to science and technology across government departments and agencies, higher education institutions, and private enterprise. It was formed by an Act of Parliament in 1979. The statutory functions of the Council are as follows:

- Advancement of scientific knowledge;
- Development and application of science and technology in relation to the furtherance of the national well-being;
- Adequacy, effectiveness, and overall balance of scientific and technological activities in the country;
- Identification and support of new ideas in science and technology likely to be of national importance;
- Practical development and application of scientific discoveries;
- Management of technological change;
- Fostering of scientific and technological innovation in industry; and
- Means of improving efficiency in the use of resources by the application of science and technology.

MEMBERSHIP

The Council consists of the Chairperson, the Deputy Chairperson, and up to thirteen other members, selected from industry and academia. Members are appointed by the Prime Minister for a three-year term, renewable for one additional term. There are no Ministers and no ex officio members.

STRUCTURE AND OPERATIONS

Meetings are held approximately once per month. The agenda is set by the Council and the Prime Minister. The Council, reporting to the Prime Minister, operates by conducting inquiries, gathering information, engaging consultants, appointing committees, and producing reports. Reports may be initiated by the Prime Minister or the Council, and are tabled in

Parliament. Occasional papers are published as in-depth analysis of current subjects being reviewed, or in response to the Prime Minister's directives, or for consideration by the Coordination Committee on Science and Technology. Advice provided to the Prime Minister is usually non-confidential. In the past, the Council offered advice on Cabinet documents, but this is now handled by the Chief Scientist in the Prime Minister's Office.

The Council's legislation enables it to provide advice to the government other than in the form of reports which are tabled in Parliament. This less formal type of advice is used to provide information and views to the government on short-term issues as they arise, or on issues under direct government consideration and hence subject to confidentiality provisions. Occasionally, the Council may also wish to advise the government on developments in science and technology which, while not immediately important, may have significant policy consequences at some future time. These have included issues related to the natural environment, development of technology-based industry, organizational arrangements for science and technology, and the funding of Australian science and technology. On this latter issue, the Council continued its long-standing practice of taking an overview of science and technology funding proposals and providing consolidated advice to government on their priorities.

The Chairperson plays a central role in the operation of the Council. The Chairperson:

- Meets independently with the Prime Minister to discuss specific issues;
- Attends meetings of the Prime Minister's Science Council, which are held two or three times per year;
- Meets with the Secretariat, Prime Minister and Cabinet, and the Chief Scientist of the Prime Minister's Office on a regular basis; and
- Chairs joint meetings of the state science and technology advisory bodies, which are held two times per year.

A Secretariat provides administrative and research support (see Figure 1). It consists of eleven professional plus ten support staff. The Secretariat is divided into two branches, a Studies Branch and a Briefing Branch. Each branch is headed by an Assistant Secretary who reports to the Secretary. Reports are written by the Secretariat with input from the Council. The Secretary has access to classified information, such as Cabinet documents.

The Council forms subcommittees as required. In 1989-90, the Council had eleven Working Parties, composed of members of the Council and coopted members where necessary:

- The Core Capacity of Australian Science and Technology
- Environmental Research
- Research Priorities
- The Human-Machine Interface
- The Profile of Australian Science
- Future of Australian Astronomy
- Access to Overseas Science Facilities
- Marginal Funding of Research
- Academic and Related Research
- Budget
- Towards 2000 Steering Group

In 1990-91, the annual budget of the Council was $1.6 million Australian dollars (about $1.4 million Canadian dollars).

LINKAGES AND ACTIVITIES

Interaction with State and international science and technology bodies

ASTEC has maintained close contact with State agencies responsible for science and technology and with its New Zealand counterparts. Joint meetings and seminars have proved most useful forums for information exchange and cooperation, bringing together scientists, academics, and bureaucrats. Most States are now explicitly identifying the potential contribution of science and technology to their long term socio-economic development.

ASTEC has strong informal links with a network of contacts in industry, academia, and government, both nationally and internationally.

Studies

The Council's program of studies is divided into four themes:

- The Health of Australian Science
- The Role of Science and Technology in the Economic and Social Development in Australia
- The Environmental and Social Impact of Science and Technology
- International Trends and their Relationship with Science and Technology

ASTEC and the new science and technology policy arrangements

The May 1989 Science and Technology Statement described in a number of places ASTEC's principal strengths and roles as follows (see Background section of Prime Minister's Science Council):

- independent analysis over a wide range of science and technology matters;
- providing a channel from the science community to government to allow that community to provide advice and worthwhile ideas to government;
- providing advice to government to enable it to fulfil its complex role in a wide range of areas affected by science and technology such as defence and the natural environment;
- reviewing and reporting on the capacities of Australian science and technology;
- contributing strongly to the work of the Prime Minister's Science Council through its capacity to provide comprehensive analysis of issues and its range of contacts with the science and technology community; and
- more formal arrangements to ensure linkages between ASTEC and the new policy arrangements, including the Chairperson's membership on the Prime Minister's Science Council, and the Secretary's membership on the Coordination Committee on Science and Technology.

ASTEC is increasingly seen as uniquely well placed, through its resources, independence, and broader perspective, to be able to undertake science and technology policy studies which both require time to complete, and can look some distance into the future. There appears to be an increasing demand from the government, and from the new science and technology policy advisory bodies, for ASTEC to provide them with these sorts of analyses. The other principal role which ASTEC is increasingly taking is that of a channel of communication between science and technology stakeholders and government.

ASTEC's work has changed in a number of ways. There is more emphasis on commissions from government to undertake particular studies, rather than studies being initiated largely on ASTEC's own initiative. Other departments and agencies have been willing to commit resources to these commissioned ASTEC studies, realizing that they have a stake in their outcomes, and that analyses of quality will be valuable to achieving their goals. Together with these developments, there has been a consequent increased demand on ASTEC's resources, in terms of quality of the work to be produced, and the number of concurrent studies which

ASTEC could undertake.

ASTEC's interactions with the new Coordination Committee on Science and Technology have already become substantial. ASTEC's report, "The Future of Australian Astronomy", was referred to the Committee for consideration, and led to a proposal for a study of criteria for, and evaluation of, proposed large-scale science and technology facilities for Australia. The Coordination Committee was also used as a sounding board for ASTEC's report on access to large-scale overseas research facilities. The Coordination Committee is also a principal element in ASTEC's proposed initiative on directions for Australian research, which is expected to lead to a new government statement on science and technology policy.

The effect of the new arrangements on other ASTEC activities, such as commenting and providing briefing on government business, is yet to be resolved. There is some overlap between ASTEC and other agencies, especially the Prime Minister's Science Council, and the matter is currently the subject of review within ASTEC.

MEMBERS (February 1991)

Professor R L Martin	Chairman of ASTEC. Department of Chemistry, Monash University
Mr L S Zampatti	Deputy Director of ASTEC. Managing Director, Brett & Co (Pty) Limited
Professor D A Aitkin	Chair, Australian Research Council
Dr G Clark	Director, Science and Technology, IBM
Mr F M Davidson	Grazier
Mr A Goldsworthy	Managing Director, Jennings Industries Limited
Professor R G Gregory	Professor of Economics, Research School of Social Sciences, Australian National University
Prof Henderson-Sellers	Professor of Physical Geography, Macquarie University
Professor R D Johnston	Director, Centre for Technology and Social Change, University of Wollongong
Mr P J Laver	Corporate General Manager, Technology & Development, BHP Transport Limited
Mr J P Maynes	National President, Federated Clerks' Union of Australia
Professor J G McLeod	Professor of Medicine, University of Sydney
Professor D J Nicklin	Pro-Vice-Chancellor, Physical Sciences and Engineering, University of Queensland
Professor A E-S Tay	Challis Professor of Jurisprudence, University of Sydney Law School

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Information was collected by the Commercial/Economic Counsellor at the Canadian High Commission in Canberra, Australia, in a personal interview with Greg Tegart.

PUBLICATIONS

1977

Future Arrangements for an Australian Science and Technology Council

Energy Research and Development in Australia

Report of the Interim ASTEC for the period 29 April 1976 to 29 March 1977

1978

Science and Technology in Australia 1977-78, Volume 1A

The Bureau of Mineral Resources, Geology and Geophysics

Supplement to the Report on the Bureau of Mineral Resources

Science and Technology in Australia 1977-78, Volume 2

The Direct Funding of Basic Research

Report of ASTEC for the period 30 March 1977 to 30 June 1978

1979

Science and Technology in Australia 1977-78, Volume 1B

Science and Technology in Australia - Summary and Recommendations

The Next Generation of Australian Telescopes

Industrial Innovation - a Discussion Paper

Marine Sciences and Technologies in Australia - Immediate Issues

Report for the Period 1 July 1978 to 30 June 1979

1980

Marine Sciences and Technologies in Australia - Priorities for Additional Research and Development 1980-81

Interaction Between Industry, Higher Education and Government Laboratories

Annual Report 1979-80

Industrial Research and Development: Proposals for Additional Incentives

1981

Basic Research and National Objectives

Towards a Marine Sciences and Technologies Program for the 1980s

Australia: Characteristics Relevant to Science and Technology

Annual Report 1980-81

Microelectronics

Medical Research in Australia, Parts 1 and 2

1982

Office of the Supervising Scientist

Earth Resources Satellites: Australian Facilities

New Telescopes for Australian Astronomy in the 1980s

Australian Science and Technology in International Co-operation and Development Assistance

Robots

Annual Report 1980-81

Biotechnology in Australia

Biotechnology in Australia - Supplementary Report

The Australian National Animal Health Laboratory - Use of Live Exotic Animal Pathogens

1983

Incentives for Innovation in Australian Industries

Technological Change and Employment

Videotext in Australia - Interactive Information Services

Annual Report 1982-83

Operation of National Research Granting Schemes

1984

Guidelines for the Operation of National Research Facilities

Technology and Handicapped People

Australia's Role in the Nuclear Fuel Cycle

Australia's Broad-Spectrum Bilateral Science and Technology Agreements

Government Purchasing and Offsets Policies in Industrial Innovation

Annual Report 1983-84

1985

Computer-Related Technologies in the Metal Trades Industry

Annual Report 1984-85

Nuclear Science and Technology in Australia

Public Investment in Research and Development in Australia

Future Directions for the Commonwealth Scientific and Industrial Research Organization (CSIRO)

1986

Telecommunications Research and Development

New Office Technology Review and Discussion

Mechanisms for Technology Transfer into Australia

Towards a Cashless Society?

New Office Technology

Annual Report 1985-86

The Defence Science and Technology Organisation and National Objectives

1987

Improving the Research and Performance of Australia's Universities and Other Higher Education Institutions

After the Harvest: Opportunities and Technologies in Horticulture

Computerised Assistants: New Tools for Society

Annual Report 1986-87

Improving Australia's Competitiveness through Industrial Research and Development

The Advanced Facility at the National Acoustic Laboratories

Education and National Needs

Wealth from Skills: Measures to Raise the Skills of the Workforce

Wealth from Skills: Measures to Raise the Skills of the Workforce - Appendix

1988

Casting the Net: Post-Harvest Technologies and Opportunities in the Fishing Industry

Annual Report 1987-88

1989

Health Politics Trade: Controlling Chemical Residues in Agricultural Products

The Core Capacity of Australian Science

Profile of Australian Science

Annual Report 1988-89

The Future of Australian Astronomy

1990

Annual Report 1989-90

Science, Technology and Australia's Future

Small Country, Big Science: Australian Participation in Major International Accelerator and Beam Facilities

Setting Directions for Australian Research, A Report to the Prime Minister by the Australian Science and Technology Council in association with the Australian Research Council

1991

Annual Report 1990-91

An Australian International Gravitational Observatory

Assessment of Climate Change by Intergovernmental Panel on Climate Change

Environmental Research in Australia - A Review

Environmental Research in Australia - A Compendium

Environmental Research in Australia - The Issues

OCCASIONAL PAPERS

1988

#1 Key Technologies and their Role in Economic Development of Small Countries

#2 Superconductivity

#3 After the Myers Report: Improving the Management of Technological Change

#4 Government Purchasing Policy and Industrial Innovation

1989

#5 The Contribution of Science and Technology to Australia's Balance of Payments to the Year 2000 - Service Sector

#6 Commentary on the ASTEC Review of the Commonwealth Scientific and Industrial Research Organization (CSIRO)

#7 The Contribution of Science and Technology to Australia's Balance of Payments to the Year 2000 - Manufacturing Sector

#8 The Contribution of Science and Technology to Australia's Balance of Payments to the Year 2000 - Primary Sector

#9 Public Policies for Exploitable Areas of Science: A Comparison of the United Kingdom, Japan, the Netherlands and Sweden

1990

#10 Report on Overseas Study Tour of Science and Technology Policy Issues in Selected Small Countries (Netherlands, Norway, Sweden and Finland)

#11 Decision Making in Publicly-Funded Science and Technology

#12 Interaction between National and International Programs in Science and Technology, with particular reference to Europe

#13 Education for Change: The Role of Engineering in Australia in a Changing World Economy

1991

#14 Funding the Fabric - Should Commonwealth Government Competitive Research Granting Schemes Contribute More to Research Infrastructure Costs?

#15 The Assessment of Impacts of Climate Change by Working Group 2 of the Intergovernmental Panel on Climate Change

#16 The Demand and Supply of Scientists and Engineers in Australia

ASTEC'S FUNCTIONAL ORGANISATION

AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL
comprising
Chairman, Deputy Chairman and up to 13 other members

WORKING PARTIES
comprising members of ASTEC and coopted members where necessary

- The Core Capacity of Australian Science and Technology
- Environmental Research
- Research Priorities
- The Human-Machine Interface
- The Profile of Australian Science
- Future of Australian Astronomy
- Access to Overseas Science Facilities
- Marginal Funding of Research
- Academic and Related Research
- Budget
- Towards 2000 Steering Group

OFFICE OF ASTEC

Secretary

Studies Branch
Assistant Secretary

Briefing Branch
Assistant Secretary

Secretariat Staff

FIGURE 1

CANADA
NATIONAL ADVISORY BOARD ON SCIENCE AND TECHNOLOGY (NABST)

MANDATE

The National Advisory Board on Science and Technology (NABST) was formed in 1987; the intention to establish it was announced in the 1986 Speech from the Throne. The mandate of the Board is to advise the Prime Minister on how science and technology can be more effectively utilized in Canada, and specifically to:

- Advise on the appropriate use of government instruments for encouraging the development of science and technology, including statutes, budget measures, and regulations;
- Propose means to sensitize people to the profound changes resulting from the technological revolution, and to help them make the necessary adjustments;
- Identify changes that may be required in the educational and training institutions;
- Develop methods by which government can assist industry in responding to the challenges of international competition;
- Advise on how best to coordinate the efforts of industry, labour, universities, and government in pursuing national goals;
- Recommend priorities for the support of scientific disciplines, strategic technologies, and national programs; and
- Respond to specific questions or tasks requested by the Prime Minister.

MEMBERSHIP

The Board consists of the Prime Minister, the Minister for Science, the Deputy Minister of Industry, Science and Technology, and twenty-one members (reduced from thirty-six in September 1991). Members are selected from the business, labour, and education communities from across the country. They are appointed by the Prime Minister for two-year terms, which are renewable. The Minister of Industry, Science and Technology is an ex officio member. Other Ministers and senior public servants are invited to attend meetings as required.

STRUCTURE AND OPERATIONS

The Prime Minister is the Chairperson of the Board. In the absence of the Prime Minister, the Minister for Science chairs the meeting. Meetings are held three or four times per year. The Prime Minister normally attends meetings of the Board two times per year.

Following consultations with the Prime Minister's Office and the Board's Steering Committee, the agenda is set by the Minister for Science. Reports to the Prime Minister, written or verbal, are confidential. Written reports are usually published once the Prime Minister has had an opportunity to review them.

The Board forms Working Committees to assess various issues, which are disbanded once they have reported to the Prime Minister. The Steering Committee consists of the Minister for Science as Chairperson, the Deputy Minister of Industry, Science and Technology as Secretary, two vice-chairs selected from the Board membership, and chairpersons of the Working Committees.

A Secretariat located in the Department of Industry, Science and Technology provides advisory and administrative support. It consists of an Assistant Secretary, four advisors, and three administrative and secretarial staff. The Secretariat provides operational support for plenary meetings and committee activities. In addition, it undertakes research and policy analysis at the direction of the committees.

The Board's budget varies with its activities, and it is in the range of $ 600,000 to $ 900,000 Canadian dollars plus salary dollars of $ 435,000 annually.

The dynamics of the new Board

In the Fall of 1991, changes were introduced to the operation of the Board. The new Board is different from its predecessor in numerous respects:

- It is smaller (24 compared to 41) with no ex-officio members from the government bureaucracy. Already, this has resulted in more dynamic and effective discussion.

- Committees have decided to focus on practical solutions to immediate problems, though they may also wish to address broad issues.

- There will be less reliance on consultants and more on the judgement and experience of members themselves, aided by the research assistance of a more policy-oriented Secretariat.

- There will be, and already is, much more emphasis on consultations with Ministers and senior officials, as well as cooperative development of new policy directions. The Board consults with business and science leaders in Canada and abroad.

- Members can have access to confidential government documents to gain a better understanding of developing government policies. They have been given security clearances to facilitate this.

- In addition to the Board's published reports, there will likely be some shorter informal reports and more verbal reports.

LINKAGES AND ACTIVITIES

Canadian linkages

The Board has informal contacts with the provincial advisory councils on science and technology, and with other federal science and technology organizations: National Research Council, Natural Sciences and Engineering Research Council, Medical Research Council, (the former) Science Council of Canada, Canadian Space Agency, and Council of Science and Technology Ministers.

New international linkages

United States - New linkages have been developed with the President's Council of Advisors on Science and Technology (PCAST) to share views on issues related to competitiveness and science and technology priorities. A joint meeting of selected members of each council is being planned for Spring 1992, with a possibility in the longer term for a joint meeting of NABST and PCAST.

Japan - The Prime Minister's Council on Science and Technology (CST) has invited NABST to send a member to participate in their March 1992 meeting.

Other countries - Pursuant to approaches initiated by the Secretariat in undertaking this study of the role and policy priorities of science and technology advisory councils in other jurisdictions, a number of these councils have indicated a desire to develop closer linkages with NABST.

Work Program

Since its inception in 1987, the Board has had a direct influence on government science and technology programs and policies. New programs such as the Centres of Excellence Program ($240 million) and the Canada Scholarships Program ($80 million) - with an emphasis on scholarships for women - were launched in response to recommendations of the Board. In addition, increased government funding for the research granting councils and public awareness programs has been provided in response to priorities identified by the Board. The government has changed its policy on the ownership of intellectual property arising from Crown contracts, allowing for retention of ownership by industry, in response to a Board recommendation. The Board's analysis and advice on competitiveness was the genesis of the government's Prosperity Initiative (see Publications).

The following committees were established at the first plenary meeting of the new Board in September 1991.

Competitiveness - A committee will prepare comments on the federal consultation document "Prosperity through Competitiveness". The group will also review proposals and identify priorities among the recommendations developed as a result of Prosperity consultations. The committee is chaired by Bill Shaw.

Competitiveness of the Resource Industries - In the view of members, competitiveness of the resource sector is a crucial element of Canada's capacity to generate new wealth. Members will apply a practical perspective to some of the substantive analysis of the resource sector now under way, with particular focus on the forestry and non-ferrous metals industries. The committee is chaired by Ben Torchinsky.

Science and Technology Priorities - Constraints on science and technology resources demand priority setting. With the objective of helping the government spend smarter, the committee, chaired by Peter Janson, will develop criteria for science and technology priorities and will examine federal science and technology programs to determine if current funds are allocated in a manner consistent with competitiveness objectives and other national priorities.

Human Resources - Concerns and debate about the availability of qualified human resources underlie the discussion of all other issues by the Board. This committee, chaired by Stella Thompson, will advise on the learning recommendations arising from the Prosperity consultations, identifying practical initiatives and priorities. In addition, the group will advise on specific issues related to public awareness; immigration of scientists, engineers and technicians; and the role of women in these fields.

Technology Acquisition/Diffusion - The previous NABST's work on competitiveness, along with other analysis, suggests that Canada's best chance for technological advancement is to develop its capacity to import and apply technologies from abroad. A committee, chaired by Guy Dufresne, will examine problems and opportunities in technology acquisition and diffusion.

Government Procurement - Jean-Paul Gourdeau will advise on specific initiatives that could be taken within the government procurement system to strengthen Canadian companies.

MEMBERS

Hon. Brian Mulroney	Prime Minister (Chair)
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Bill Coderre	Senior Advisor
Ken Beeson	Senior Advisor
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PUBLICATIONS

1988

Government Committee Report on InnovAction

Government Committee Report

Industry Committee Report

University Committee Report

Government Procurement Committee Report

Participation of Women in Science and Technology Committee Report

Department of Industry, Science and Technology Committee Report

Economic Summit Proposal Committee Report

Public Awareness Committee Report

1989

Big Science Committee Report

Keeping Canada Competitive: The Innovation Imperative - a Report of the Private Sector Challenge Committee

1990

Revitalizing Science and Technology in the Government of Canada - a Report of the Committee on Federal Science and Technology Expenditures

1991

Science and Technology, Innovation and National Prosperity: The Need for Canada to Change Course

Learning to Win: Education, Training and National Prosperity, a Report of The Human Resource Development Committee

Financing of Industrial Innovation Committee Report

Statement on Competitiveness

Big Science Committee Report on the KAON Project

SCIENCE COUNCIL OF CANADA

In the Budget Speech of February 25, 1992, the Minister of Finance announced the elimination of the Science Council of Canada. Two reasons were given. First, other advisory mechanisms, both inside and outside government, have developed, including the National Advisory Board on Science and Technology. Second, resources in support of science must be rationalized to provide as much to researchers as possible and to minimize spending on overhead. Accordingly, the government has decided that the Science Council should be wound up, and legislation to this effect will be introduced into the House of Commons.

Although the Science Council will cease to exist, it is included in the report in order to reflect its twenty-five year role in science and technology advice in Canada.

MANDATE

The Science Council of Canada provided advice on science and technology policy issues. The Council was a federally funded agency, and it operated at arm's length from the Government of Canada, determining and conducting its own research program and publishing its findings at its own discretion. The Council offered advice to decision-makers in government, industry, the research and development community, and educational institutions. It reported to Parliament through the Minister for Science. The Council was established by an Act of Parliament in 1966.

The mandate of the Council was:

- To assess the scientific and technological resources, requirements, and potentialities of Canada; and

- To increase public awareness: of scientific and technological problems and opportunities; and of the interdependence of the public, governments, industries, and universities in the development and use of science and technology.

MEMBERSHIP

The Council consisted of a chairman, vice-chairman, and not more than twenty-eight other members appointed by the Governor-in-Council. The chairman and vice-chairman were appointed for five-year terms; other members served three-year terms. At the

discretion of Cabinet, members were reappointed for second terms of one to three years. Members were drawn in roughly equal proportions from universities and the private sector.

STRUCTURE AND OPERATIONS

Meetings were held four times per year to identify areas of policy concern, plan research programs, assess both completed projects and works in progress, and review or approve policy reports and statements. Major projects were carried out under the guidance of Council committees, composed of Council members and outside experts. These committees met regularly between plenary Council meetings.

The Council published policy reports and statements, which synthesized its recommendations, as well as workshop proceedings, background studies, discussion papers, news releases, and a newsletter. Draft reports and statements that were approved by Council committees were then submitted to the Council as a whole for approval, often being considered twice or more to ensure they satisfied the Council's quality requirements.

The Council had a Secretariat of twenty-nine people who undertook policy analysis, managed consultants, organized workshops, provided communication and administrative services, and supported the chairman in outreach activities.

The Council had an annual budget of $3.43 million (Canadian).

ACTIVITIES

The Council had adopted a five part action plan consisting of:

- A national report
- The analysis program
- Studies at ministerial request
- A think tank service
- Stimulating public debate

Other activities included projects on:

- Achieving sustainable agriculture in Canada
- The technological strategies and research and development performance of leading Canadian firms in fifteen industrial sectors
- Images of science: an art competition for Canadian students
- The structure of science and technology policy advice

MEMBERS

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COUNCIL STATEMENTS

Medication and Health Policy: A Research Agenda, October 1991, 21 p.

Science, Technology, and Constitutional Change, September 1991, 20 p.

Firing Up The Technology Engine: Strategies for Community Economic Development, a joint statement by the Science Council of Canada and the Canadian Advanced Technology Association, July 1990, 12 p.

Harnessing Science and Technology for Cold Regions, December 1989, 28 p.

Enabling Technologies: Springboard for a Competitive Future, February 1989, 27 p.

Environmental Peacekeepers: Science, Technology, and Sustainable Development in Canada, November 1988, 24 p.

Gearing Up for Global Markets: From Industry Challenge to Industry Commitment, October 1988, 22 p.

A Sectoral Approach to Innovation: The Case of the Forest-Product Industries, August 1987, 31 p.

Food Irradiation: Prospects for Canadian Technology Development, April 1987, 17 p.

A Growing Concern: Soil Degradation in Canada, September 1986, 24 p.

Placing Technology Up Front: Advising the Bilateral Trade Negotiators, May 1986, 17 p.

The Canadian Science Counsellors, November 1984, 27 p.

DISCUSSION PAPERS

Sustainable Farming: Possibilities 1990-2020, September 1991, 97 p.

Innovation and Intellectual Property Rights in Canada, published by the Science Council of Canada in collaboration with Industry, Science and Technology Canada and Consumer and Corporate Affairs Canada, March 1990, 39 p.

The Canadian Water Resources Equipment Industry: Opportunities for Research and Manufacturing, by Bruce A. Fenton, January 1989, 34 p.

University-Industry Interaction in the Social Sciences and Humanities: A Threshold of Opportunity, by Robert Davidson, July 1981, 31 p.

Water: The Potential for Demand Management in Canada, by David B. Brooks and Roger Peters, June 1988, 85 p.

Employer Interaction with Public Colleges and Institutes in Canada, by Gordon A. Thom, November 1987, 53 p.

Emerging Sensor Technology: The Promise and the Threat, by Sylvan Katz, September 1987, 44 p.

R&D Links between Firms and Universities: Six Case Studies, by William G. Hutchison, Peter Milley, Neil Baird and Donna Bevelander, September 1987, 37 p.

Postsecondary Cooperative Education in Canada, by Robert J. Ellis, August 1987, 70 p.

The Teaching Company Scheme: A Study of its Application in Canada, by James G. Barnes and G. Ross Peters, May 1987, 39 p.

Issues in Food Irradiation, by Susan Mills, April 1987, 61 p.

Plant Closures and De-Skilling: Three Case Studies, by J. Paul Grayson, September 1986, 30 p.

University Offices for Technology Transfer: Toward the Service University, by Philip Enros and Michael Farley, August 1986, 68 p.

A National Consultation on Emerging Technology, by Guy Steed and Scott Tiffin, May 1986, 73 p.

Issues in Preventive Health Care, by Ray Jackson, May 1986, 78 p.

Pension Funds and Venture Capital: The Critical Links between Savings, Investment, Technology, and Jobs, by Mary Macdonald and John Perry, September 1985, 75 p.

Emerging Plastics Technologies and the Canadian Plastics Industry, by Frances Anderson, Andrew Bobkowicz and Frederick Gerson, July 1985, 22 p.

Advanced Industrial Materials: Canadian Perspectives and Opportunities, by Aant Elzinga and Sean McCutcheon, May 1985, 27 p.

Engineering Education in Canada: Some Facts and Figures, by Dominique Mascolo, Peter M. Wright and Gordon R. Slemon, January 1985, 20 p.

Continuing Education for Scientists: Suggestions for Integrating Learning and Research, by Richard P. McBride, October 1984, 74 p.

The Misuse of Psychological Knowledge in Policy Formulation: The American Experience, by Jill G. Morawski, October 1984, 74 p.

PROCEEDINGS OF WORKSHOPS AND CONFERENCES

Learning from Each Other: University-Industry Collaboration in the Continuing Education of Scientists and Engineers, September 1987, 43 p.

University-Industry Research Centres: An Interface between University and Industry, March 1987, 30 p.

University Spin-Off Firms: Helping the Ivory Tower Go to Market, January 1987, 44 p.

The National Science and Technology Policy Forum, November 1986, 41 p.

A National Workshop on the Role of Epidemiology in the Risk Assessment Process in Canada, October 1986, 37 p.

National Workshop on the Status of Toxicology in Canada, December 1985, 34 p.

Social Science Research in Canada: Stagnation or Regeneration? October 1985, 273 p.

REPORTS

Genetics in Canadian Health Care, Report 42, June 1991, SS22-1991/42E, 132 p.

Northern Science for Northern Society: Building Economic Self-Reliance, Report 41, April 1991, SS31-20/1991E, 44 p.

Water 2020: Sustainable Use for Water in the 21st Century, Report 40, June 1988, SS-22-1988/40E, 40 p.

SUMMARIES OF REPORTS AND BACKGROUND STUDIES

Not a Long Shot: Canadian Industrial Science and Technology Policy, Summary of Background Study 55, July 1989, 12 p.

Winning in a World Economy: University-Industry Interaction and Economic Renewal in Canada, Summary of Report 39, April 1988, 15 p.

Technology and the Canadian Forest-Product Industries: A Policy Perspective, Summary of Background Study 54, January 1988, 11 p.

Seeds of Renewal: Biotechnology and Canada's Resource Industries, Summary of Report 38, September 1985, 12 p.

The Uneasy Eighties: The Transition to an Information Society, Background Study 53, March 1985, 11 p.

Canadian Industrial Development: Some Policy Directions, Summary of Report 37, September 1984, 12 p.

Science for Every Student: Educating Canadians for Tomorrow's World, Summary of Report 36, April 1984, 11 p.

MISCELLANEOUS

Grassroots Initiatives, Global Success, Report of the 1989 National Technology Policy Roundtable, joint publication of the Canadian Advanced Technology Association, the Science Council of Canada and the Canadian Chamber of Commerce, July 1990, 39 p.

Studies in University-Industry Interaction: Summaries of Background Papers for a Forthcoming Report on University Science and Technology and Canadian Economic Renewal, October 1986, 17 p.

REPORTS AND BACKGROUND STUDIES

Not a Long Shot: Canadian Industrial Science and Technology Policy, Background Study 55, July 1989, SS21-1/55-1989E, $11.95

Winning in a World Economy: University-Industry Interaction and Economic Renewal in Canada, Report 39, June 1988, SS22-1988/39E, $5.75 ($6.90)

Technology and the Canadian Forest-Product Industries: A Policy Perspective, Roger Hayter, Background Study 54, January 1988, SS21-1/54-1988E, $9.50 ($11.40)

Seeds of Renewal: Biotechnology and Canada's Resource Industries, Report 38, September 1985, SS22-1985/38E, $5.25 ($6.30)

The Uneasy Eighties: The Transition to an Information Society, Background Study 53, March 1985, SS21-1/53E, $7.00 ($8.40)

Canadian Industrial Development: Some Policy Directions, Report 37, September 1984, SS22-1984/37E, $5.25 ($6.30)

Science for Every Student: Educating Canadians for Tomorrow's World, Report 36, April 1984, SS22-1984/36, $5.25 ($6.30)

Science Education in Canadian Schools: Introduction and Curriculum Analyses, Graham W.F. Orpwood and Jean-Pascal Souque, Background Study 52, Volume I, 1984, SS21-1/52-1-1984, $8.00 ($9.60)

Science Education in Canadian Schools: Statistical Database for Canadian Science Education, Graham W.F. Orpwood and Isme Alam, Background Study 52, Volume II, 1984, SS21-1/52-2-1984, $5.50 ($6.60)

Science Education in Canadian Schools: Case Studies of Science Teaching, John Olson and Thomas Russell, Background Study 52, Volume III, 1984, SS21-1/52-3-1984, $10.95 ($13.15)

Partners in Industrial Strategy: The Special Role of the Provincial Research Organizations, Donald J. Le Roy and Paul Dufour, Background Study 51, 1983, SS21-1/51, $5.50 ($6.60)

The Challenge of Diversity: Industrial Policy in the Canadian Federation, Michael Jenkin, Background Study 50, 1983, SS21-1/50, $8.95 ($10.75)

Governments and Microelectronics: The European Experience, Dirk de Vos, Background Study 49, 1983, SS22-1/49, $4.50 ($5.40)

Regulating the Regulators: Science, Values and Decisions, Report 35, 1982, SS22-1982/35, $4.95 ($5.95)

Transportation in a Resource-Conscious Future: Intercity Passenger Travel in Canada, Report 34, 1982, SS22-1982/34, $4.95 ($5.95)

Threshold Firms: Backing Canada's Winners, Guy P.F. Steed, Background Study 48, 1982, SS21-1/48, $6.95 ($8.35)

Planning Now for an Information Society: Tomorrow is too late, Report 33, 1982, SS22-1982/33, $4.50 ($5.40)

Public Inquiries in Canada, Liora Salter and Debra Slaco, Background Study 47, 1981, SS21-1/47, $7.95 ($9.55)

EUROPEAN COMMUNITY
COMMITTEE FOR THE EUROPEAN DEVELOPMENT OF SCIENCE AND TECHNOLOGY (CODEST)

BACKGROUND

The European Community consists of twelve Member States (see Appendix 1), and has three main governing bodies (see Figure 1):

Council of Ministers

The European Community is under the authority of the Council of Ministers. There are as many councils of ministers as there are portfolios. While the "supreme" council of ministers is that of the Ministries of Foreign Affairs, research and development is dealt with by the Council of Research Ministers.

European Commission

The European Commission is a civil service that administers the European Community. The Commission has the executive power of initiating proposals, which the Council of Ministers can accept, amend or reject. The Commission is managed by seventeen Commissioners. One, the President, has the status of Prime Minister at European Summit meetings. Six other Commissioners have the title Vice-President, and are equivalent to Ministers. Each commissioner holds one or more portfolios and are responsible for shaping policy proposals. Commissioners are served by both the Directorates-General (equivalent to Ministries) for which they are responsible, and by their private offices. The Commission has six science-based directorates-general:

DG VI	Agriculture
DG VII	Transport
DG XI	Environment, Nuclear Safety and Civil Protection
DG XII	Science, Research and Development
DG XIII	Telecommunications, Information Technology and Innovation
DG XIV	Fisheries

A key person is the Commission Vice-President responsible for science and technology, who is equivalent to the Minister of Science. This person chairs the Scientific and Technical Research Committee (see "Advisory Committees" below), and is responsible for DG XII, DG XIII and the Joint Research Centres (nine independent institutes that do research in key technologies such as advanced materials and information technologies).

European Parliament

Composed of over 500 members, the European Parliament influences the budget and spending programs of the European Community.

The Decision-Making Process

The Commission receives advice from advisory committees, which is then incorporated into proposals prepared by its science-based Directorates-General (primarily DG XII and DG XIII, plus DG VI, DG VII, DG XI, and DG XIV). The proposals are submitted to the Council for approval which, via the committees representing the twelve Member States of the European Community, comment regarding the level and balance of the Research and Development Framework Program and its sub-programs (called 'specific programs'). The Parliament has budgetary responsibility and currently has approved a budget of 5.7 billion European Currency Units (ECUs) (about $9 billion Canadian dollars) for the 1990-1994 Framework Program, as well as budgets for the fifteen specific programs. The budget of the Framework Program is only about four percent of the total research and development expenditures in the European Community, but can be twenty to thirty percent in key technologies.

The Advisory Committees

There are three main advisory committees (CREST, IRDAC and CODEST) plus individual advisory committees to each of the six Directorates-General which are responsible for research and development programs.

The Scientific and Technical Research Committee (CREST) is composed of top level officials of Member State ministries responsible for science policy. Policy coordination is dealt with by CREST, which interfaces between the European Commission's policy activities and the Council of Ministers. The CREST secretariat is provided by the Council. CREST has a subcommittee called COPOL that compares the science and technology policies and statistics between Member States on an on-going basis.

The Industrial Research and Development Advisory Committee (IRDAC) is composed of research directors of private companies having significant research and development activities. Members are selected from the twelve Member States and represent all sectors of industry. Working Parties are formed to address specific concerns. For example, IRDAC Working Party II has just made public two 'IRDAC Opinion' reports entitled "Skills Shortages in Europe" and "School and Industry".

Committee of European Development of Science and Technology (CODEST) is concerned with broad issues related to science and technology. It is the advisory council that is most similar to Canada's National Advisory Board on Science and Technology, and will be discussed in detail.

MANDATE

The official mandate of the Committee of European Development of Science and Technology (CODEST) is:

- To assist the Commission in the preparation and implementation of its policy in regard to the stimulation of the Community's scientific and technical potential. In particular, it shall contribute to the systematic analysis of the Community's scientific and technical needs and opportunities;

- To assist the Commission in the definition of common research and development strategy; and

- To provide the Commission with elements for consideration and appraisal during the preparation of the overall Framework Program for Community scientific and technical activities.

In practice, CODEST has two specific roles:

- To advise on trends in science and areas that the Commission can focus on, particularly new advances and break-throughs; and

- To supervise a Science Program and infrastructure with an annual budget of 35 million ECUs, which finances interesting ideas not formally part of the Commission's mainstream research and development program. The Science Program allows CODEST to be an independent, objective body of knowledge and advice.

CODEST was formed in March 1983. Its first output, termed an "experimental action", was in October 1983.

MEMBERSHIP

CODEST is composed of thirty members; twenty-five from the twelve Member States, and five from the European Free Trade Association (EFTA) (composed of Austria, Finland, Norway, Sweden, and Switzerland). A Member State can have between one and four members. The term of office is four years, renewable once only. Members are appointed by the Commission Vice-President

responsible for science and technology (who is an ex officio member), in consultation with the Member States. Members are selected on the basis of eminence. There are no specific guidelines for sectoral representation. There are no political ministers on CODEST. If a member becomes an elected political official, the member must resign from CODEST.

There is an increasing number of ex-officio members, such as the Chairman of the European Science Foundation and observers from the European Space Agency and the European Centre for Nuclear Research (CERN). Originally, there was an ex-officio member from EFTA, but it is now part of the Framework Program (through EFTA-EC Science and Technology Cooperation Agreements) and hence has its eminent members on CODEST.

STRUCTURE AND OPERATIONS

CODEST elects a chairperson and four vice-chairpersons from among its members every four years. These officers are permanent representatives to the Commission. The vice-chairs were designed to accommodate extraordinary eminents, such as Nobel prize winners, and to accommodate the fact that some Member States have stronger science and technology activities than others.

CODEST meets four times per year, with each meeting lasting one or two days. The advisory aspect normally takes one-half day, and the running of the Science Program takes up the rest. The agenda is established prior to the meetings by a steering committee (called the 'Bureau') which consists of the chairperson and the four vice-chairpersons. Also, the secretariat has input into the agenda. The proceedings are recorded and the minutes are circulated to the members. CODEST ultimately reports to the Commission President, who is aware of the deliberations of CODEST via the annual report and via briefings from the Commission Vice-President responsible for science and technology.

Advice offered by CODEST is confidential to the Commission. Members of CODEST are required not to disclose any information which comes to their attention through the work of CODEST or its working groups, where the Commission informs them that an opinion or topic bears upon a question of a confidential nature. Members see classified information up to the point of internal working documents before publication. There are no secrecy agreements. Members are not privy to proposals made by applicants to the Framework Program.

CODEST is supported by a secretariat provided by the Commission, specifically DG XII. The secretariat consists of the Director General of DG XII (Secretary of CODEST), an administrative assistant, and the Science Program team of project officers. About twenty person-years are represented in the secretariat,

including the time of the Director General of DG XII, directors, and heads of divisions. Reports are written by the secretariat, sometimes with input from CODEST members. CODEST operates in English and French, despite there being nine official languages of the Commission.

CODEST's annual budget is 35 million ECUs (about $55 million Canadian dollars). About 0.5% is for travel and per diem costs and 4.5% is for administration, for a total of 5% for operational costs. The remaining 33 million ECUs is for the Science Program.

LINKAGES AND ACTIVITIES

CODEST members have informal links with economic and technology councils in the Member States, as they are often the same people. One of the basis for selecting members is the knowledge that the person has of national programs, priorities and skills. Some Member State governments even offer support to their CODEST members. However, members must not pass on information on CODEST proceedings to their supporting government officials.

CODEST is involved in original research and sponsors a Science Program totalling 33 million ECUs per year. It is 90% basic research and 10% industrial activity. There has been an independent evaluation of the program which reported that the research results were very exciting to date. The advice offered by CODEST is based in part on its own research program.

CODEST undertakes ad hoc assignments, such as preparing comments on specific programs. Such programs in the past have included: the United States' Strategic Defence Initiative, and Japan's Human Frontier Science Program. Members of CODEST are now on the Advisory Committee of the Human Frontier Science Program.

CODEST provides a specific advisory role on the priorities of the Commission's Framework Program and which directly relates to budgeting and fiscal allocation decisions that affect the science-based Directorates-General.

CODEST very rarely offers advice in "soft areas". However, the predecessor of CODEST had a program called Impact of Science and Technology on European Society (ESIST). CODEST no longer continues the ESIST program, but the program has not been excluded from being re-started in the future. There are other mechanisms of the Commission that cover "soft areas" such as public awareness and financing.

FUTURE

CODEST has earned an enviable reputation primarily because of the Science Program that it supervised. This supervisory role is part of its process and has yielded an ability to be objective and independent and very well placed to spot promising developments. However, after 1992, the Commission Vice-President responsible for science and technology has decided to modify the role of CODEST. One of the principal actions will be to terminate the Science Program. It is not a popular decision in the eyes of the members of the Commission and CODEST. However, there is great pressure on the Vice-President to be seen as addressing the real and immediate needs of European industry which are primarily the shortage of skilled workers and the mobility of trained personnel. It is a result of a trend to forsake long term research and take the Framework Program closer to industry, which was originally to be the preserve of the Member States.

PUBLICATIONS

CODEST publishes an annual report that is submitted to the Commission President, Vice-Presidents, and Commissioners.

CODEST has commissioned very little in the way of publications. One exception is a survey of the opinions of scientists on the state of science and technology in Europe. This was a project of CODEST's Science Program which was contracted to the European Science Foundation and resulted in a book being published entitled "The Community of Science in Europe: Pre-conditions for Research Effectiveness in European Community Countries" by Marc Franklin (University of Strathclyde) published in 1988 by Gower Publishing Co. (ISBN 0-566-05632-1).

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Mr. Paul Levaux	Fonds National de la Recherche Scientifique, Belgium
Prof. Doct. H. Markl	Deutschen Forschungsgemeinschaft, Germany
Sir William Mitchell	United Kingdom
* Prof. George S. Moschytz	Institut Fuer Signal-Und, Information Proessing, Switzerland
* Prof. Y. Neuvo	Tampere University of Technology, Signal Processing Laboratory, Finland
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* Members of the European Free Trade Assoication (EFTA)

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Information was collected by Peter Eggleton, Science and Technology Counsellor at the Mission of Canada to the European Communities in a personal interview with Charles White, who was Secretary of CODEST up to 1989. Currently, Charles White is Principal Administrator in the Office of Advisor.

APPENDIX 1

THE EUROPEAN COMMUNITY

The Economic Community has evolved from a number of initiatives, beginning with the Treaty of Paris (1952), which formalized the Schumann plan to achieve integration of the coal and steel industries of Western Europe through the creation of the European Coal and Steel Community (ECSC). Six nations were involved: Belgium, France, the Federal Republic of Germany, Italy, Luxembourg, and The Netherlands. In 1957, the Treaties of Rome effected the establishment of the European Economic Community (EEC) to achieve economic integration, and the European Atomic Energy Community (EURATOM) to foster cooperation in the development and peaceful use of atomic energy. The original six nations were joined by Denmark, Ireland, and the United Kingdom in 1973, by Greece in 1981, and by Spain and Portugal in 1986. The Single European Act (1987) conferred formal legal status on European political cooperation, and clearly anticipated the Community's objectives of achieving a Europe without frontiers. The target date is January 1, 1993. Special emphasis is accorded to social/regional policy, the environment, scientific research, monetary affairs, and foreign policy. In short, it has set a goal for greater economic, social and political cohesion.

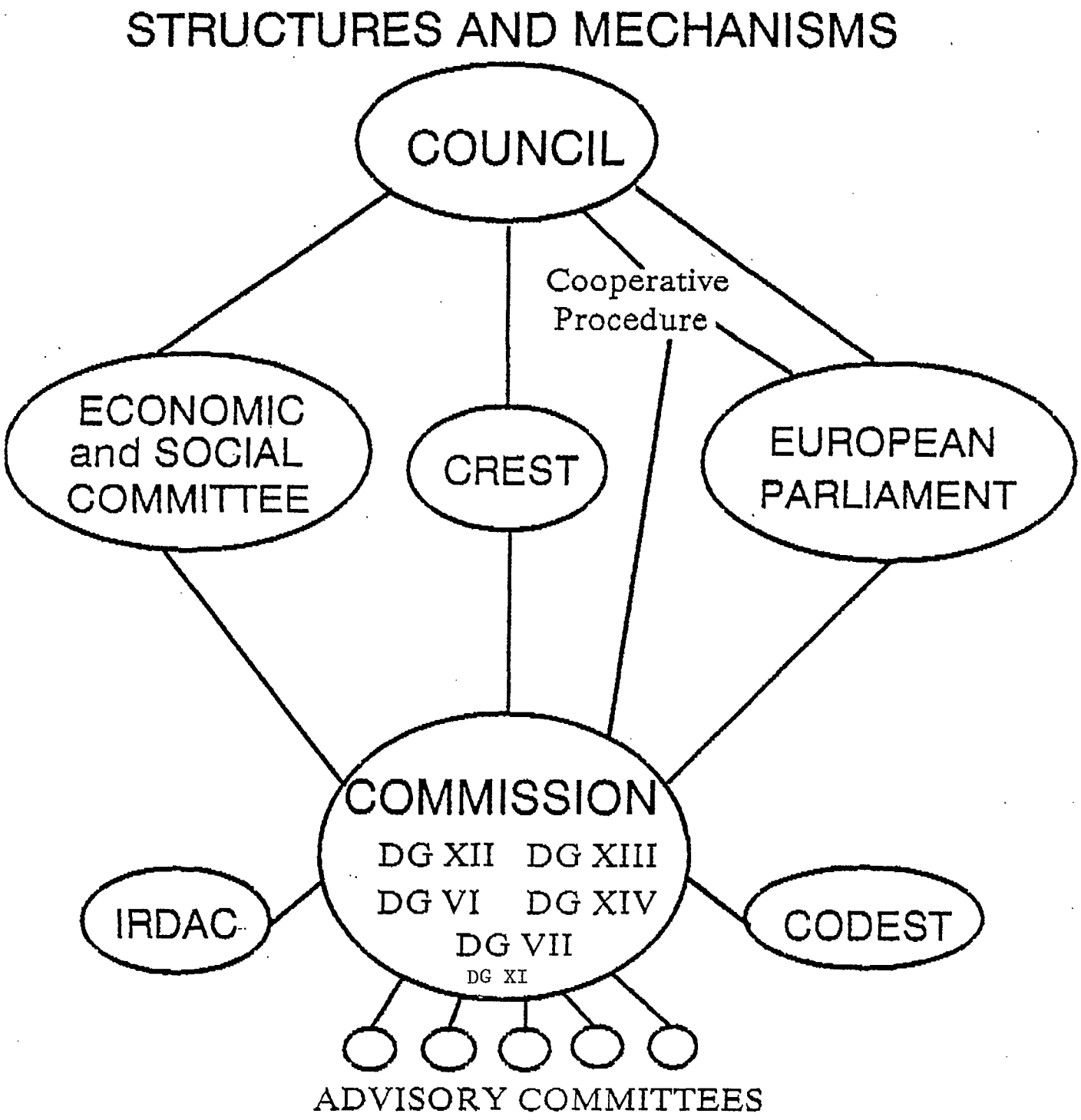

STRUCTURES AND MECHANISMS
COUNCIL
Cooperative Procedure
ECONOMIC and SOCIAL COMMITTEE
CREST
EUROPEAN PARLIAMENT
COMMISSION
DG XII DG XIII
DG VI DG XIV
DG VII
DG XI
IRDAC
CODEST
ADVISORY COMMITTEES

FIGURE 1

FRANCE
HIGHER COUNCIL FOR RESEARCH AND TECHNOLOGY (CSRT)
CONSEIL SUPERIEUR DE LA RECHERCHE ET DE LA TECHNOLOGIE

MANDATE

The Higher Council for Research and Technology (CSRT), formed in 1983, has a mandate to give advice to the French Minister for Research and Technology on all government R&D policy decisions. In particular, Council published its assessment on the civilian R&D budget in an annual report to Parliament. Its advice is also sought on the setting up of public research establishments, on organization and statutory questions.

MEMBERSHIP

The Council comprises 40 members plus statutory Chairman, the Minister of Research and Technology. Membership is by appointment of the Minister either directly or among candidates proposed by various research-concerned bodies in the country. Tenure of office is for two years, and can be renewed once.

STRUCTURE AND OPERATIONS

The Council meets in plenary session at least four times per year, chaired by the Minister. The Vice-President is co-opted among Council members for the duration of the tenure. The agenda for Council meetings is drawn up by the Chairman.

The Council sets up Standing Commissions and Working Groups to assess various issues. Each Commission - of which there are 6 in the present configuration - holds some 10 meetings per year.

A Secretariat provides administrative support. It comprises a Secretary General, a Deputy Secretary General and a clerical assistant.

LINKAGES AND ACTIVITIES

Council has formal links with the National Council for Research Evaluation (CNER) and informal links with the Observatory for Science and Technology (OST) and the Parliamentary Office for Science and Technology Policy (OPECST). It likewise has informal links with all research departments of the Ministry of Research and Technology and other ministerial offices with research areas of activity (e.g., industry, etc) and major national research bodies that either report to the Ministry of Research and Technology or to other ministries.

PUBLICATIONS

The Council publishes an annual report on French R&D policy, which is addressed to all members of Parliament. It likewise publishes special reports which can, if authorized, be viewed at the Secretariat.

CSRT MEMBERS 1991-1993

Mr. Hubert Curien, Minister of Research and Technology (chairman)

1 Representatives of the scientific and technical communities and of the different research sectors

1a National committee of scientific research

Monsieur Michel Combarnous
Monsieur Jean-Claude Duplessy
Monsieur Jean-Marie Martin
Monsieur Jean-Claude Mounolou

1b Scientific research and development councils

Monsieur Claude Amiel
Monsieur Jacques Bréton
Monsieur Pierre Dubreuil
Monsieur Laurent Kott

1c National evaluation of university research

Monsieur Robert Azencott
Monsieur Jean Rouxel

1d Chosen for their expertise in the areas of science, technology, and innovation

Monsieur Jean-Louis Armand
Monsieur Jean-Pierre Chevillot
Monsieur Claude Detraz
Madame Catherine Gremion
Monsieur Henri Korn
Madame Marianne Lambert
Madame Claudine Laurent
Monsieur Pierre Veltz

1e Learned societies

Monsieur Ivan Assenmacher
Monsieur Jean Leclant

2 Representatives of the business, labour, social and cultural communities

2a Representatives of national labour organizations

Monsieur Gilbert Bros
Monsieur Jean-Pierre Clapin
Monsieur Georges Depeyrot
Monsieur Serge Eyrolles
Monsieur Georges Garioud
Monsieur Gérard Giraud
Monsieur François Guinot
Monsieur Daniel Maire
Monsieur Philippe Pichat
Monsieur Jacques Pirot

2b Representatives of the economic, social, and cultural communities

Madame Ioana Dimo
Monsieur Claude Jablon
Monsieur Pierre Lallemand
Madame Noelle Lenoir
Monsieur Jean-Louis Malgrange

2c Representatives of regional advisory committees on R & D.

Monsieur Jean Baggioni
Monsieur Jean-Claude Bernier
Monsieur Delort-Laval
Monsieur Jacques de Fouquet
Monsieur Bernard Le Buanec

CONTACT

Monsieur Jean-Paul Karsenty
Secrétaire général
Conseil superieur de la recherche et de la technologie (CSRT)
1 rue Descartes
75231 Paris Cedex 05
46 34 39 62 fax

SPECIALIZED STUDY COMMISSIONS (1990-91)

- Industrial research and technological resources management
  President: Mr. Pierre Castillon, Scientific Director of the ELF-AQUITAINE Group

- Research staff and human resources management
  President: Mr. Jean-Louis Malgrange, Industrial Manager of the Thomson Group

- Research and regional development
  President: Mr. Jean-Louis Armand, Professor, President of the Mediterranean Institute of Technology (Marseille)

- International research and common market unification
  President: Mr. Philippe Chartier, Scientific Director of the AFME (Paris)

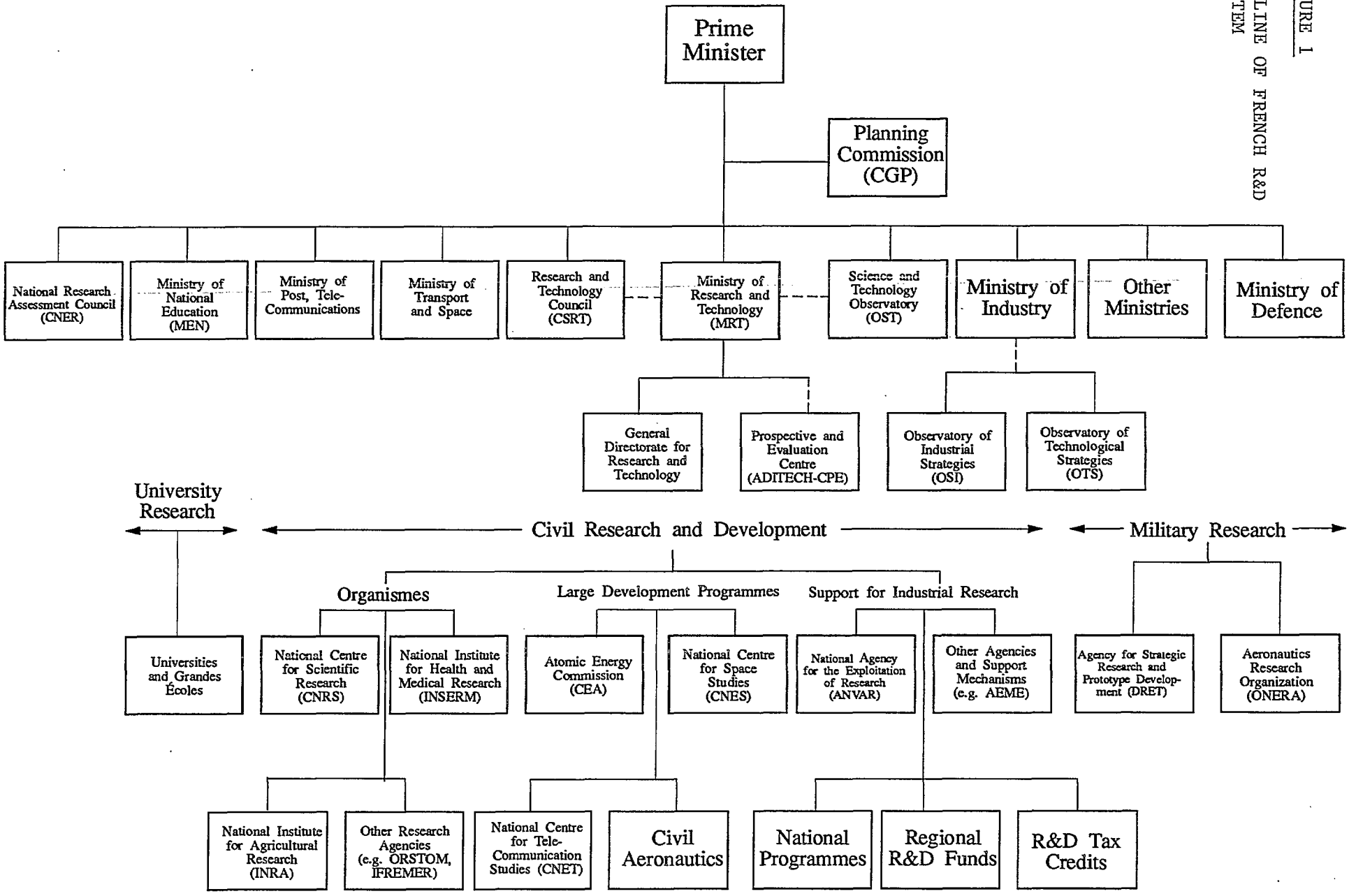
- Public institutions of research
  President: Mrs. Claudine Laurent, Research Director at the CNRS (Paris)

- Research financing
  President: Mr. Michel Combarnous, Professor at the University of Bordeaux

- Research and society stakes
  President: Mrs. Michele Fardeau, Professor at the University of Paris-Sorbonne

FIGURE 1

OUTLINE OF FRENCH R&D SYSTEM



Source: Martin And Irvine, Research Foresight, Pinter, London, 1989
(with revisions by Government of France)

GERMANY

Germany does not have an advisory council on science and technology that advises the Federal Chancellor. The Chancellery customarily keeps a low profile in science and technology because the Ministry of Research and Technology (BFMT) has the responsibility and plays a strong role, funding 70% of all civil research and development (see Figure 1).

The Chancellor receives advice on science and technology from several sources:

- Minister of Research and Technology
- Premiers of the Laender (provinces)
- heads of the science and technology agencies
- scientists and industrialists
- Chancellor's Office
- German Science Council

Minister of Research and Technology

Advice is mainly provided to the Chancellor by the Minister of Research of Technology ('Riesenhuber'), either directly through conversations or indirectly through cabinet meetings. The Chancellor is primarily concerned with science and technology issues which have international implications, such as the fast breeder reactor, the European Space Agency, and the formation of a new generation of academics ('Wissentschaftiche Nachwuchs' program). All three were major issues in the 1980s.

Premiers of the Laender

At regular conferences with the premiers of the Laender ('Minister Presidenten'), science and technology issues are often discussed, providing a good forum for input to the Chancellor. There is a much closer linkage between the federal and provincial governments in Germany than in Canada.

Heads of the Science and Technology Agencies

The Chancellor convenes an annual conference of the heads of the German science based agencies: German Research Society (equivalent to Canada's Natural Sciences and Engineering Research Council), German Science Council, Max Planck Society, Fraunhofer Society, Conference of University Rectors, and consortium of the national research centres.

Scientists and Industrialists

Approximately once every two years, the Chancellor personally invites an ad hoc group of eminent scientists and industrialists to the Chancellery to discuss current science and technology policy issues.

Chancellor's Office

The Chancellor's Office ('Bundeskanzleramt'), equivalent to Canada's Prime Minister's Office, has a research and technology section which provides input to the Chancellor.

German Science Council

The mandate of the German Science Council ('Wissentschaftsrat') is to advise German federal and Laender (provincial) governments on higher education and research policy.

The Council's main function is to prepare reports and recommendations on the structural development of the universities and research institutes (all of which are either public institutions or heavily state-supported), and on important aspects of higher education, arts, science, and research in general. The Council has an explicit mandate to consider quantitative and financial implications of proposals submitted as well as problems related to their implementation.

The Council has fifty-four members: sixteen academics, sixteen industry representatives, sixteen provincial government appointees, and six federal appointees. Thus, each of the sixteen provinces is represented by three persons from the academic, industry, and government communities. Members are appointed by the Bundespresident. There is a good balance of federal and provincial political interests. The concept of achieving consensus plays a paramount role.

The executive staff has thirty-seven people. The budget of the Council, which was 4.5 million German deutschemarks per year (about three million Canadian dollars), was increased by 3.4 million in 1991, specifically for the work on East Germany.

The Council's work program is set up annually by the general council. Reports and recommendations are prepared in committees and working parties. In general, there are six main areas of work:

- investment planning
- large-scale scientific instruments
- medical teaching and research
- the structure of higher education
- the promotion of young academics
- research policy

Also, there are twenty ad hoc working parties investigating particular areas, such as:

- polytechnics in the 1990s
- impact of European unification on West German higher education
- cooperation between national research centres and universities

Most of the Council's capacities were occupied with the evaluation of the research system as well as with the preparation of recommendations for the restructuring of the higher education system in the five new German provinces and the former East Berlin. The unification treaty allowed for a one year transition period, to December 31, 1991, to bring East Germany's science and technology establishment into harmony with West Germany.

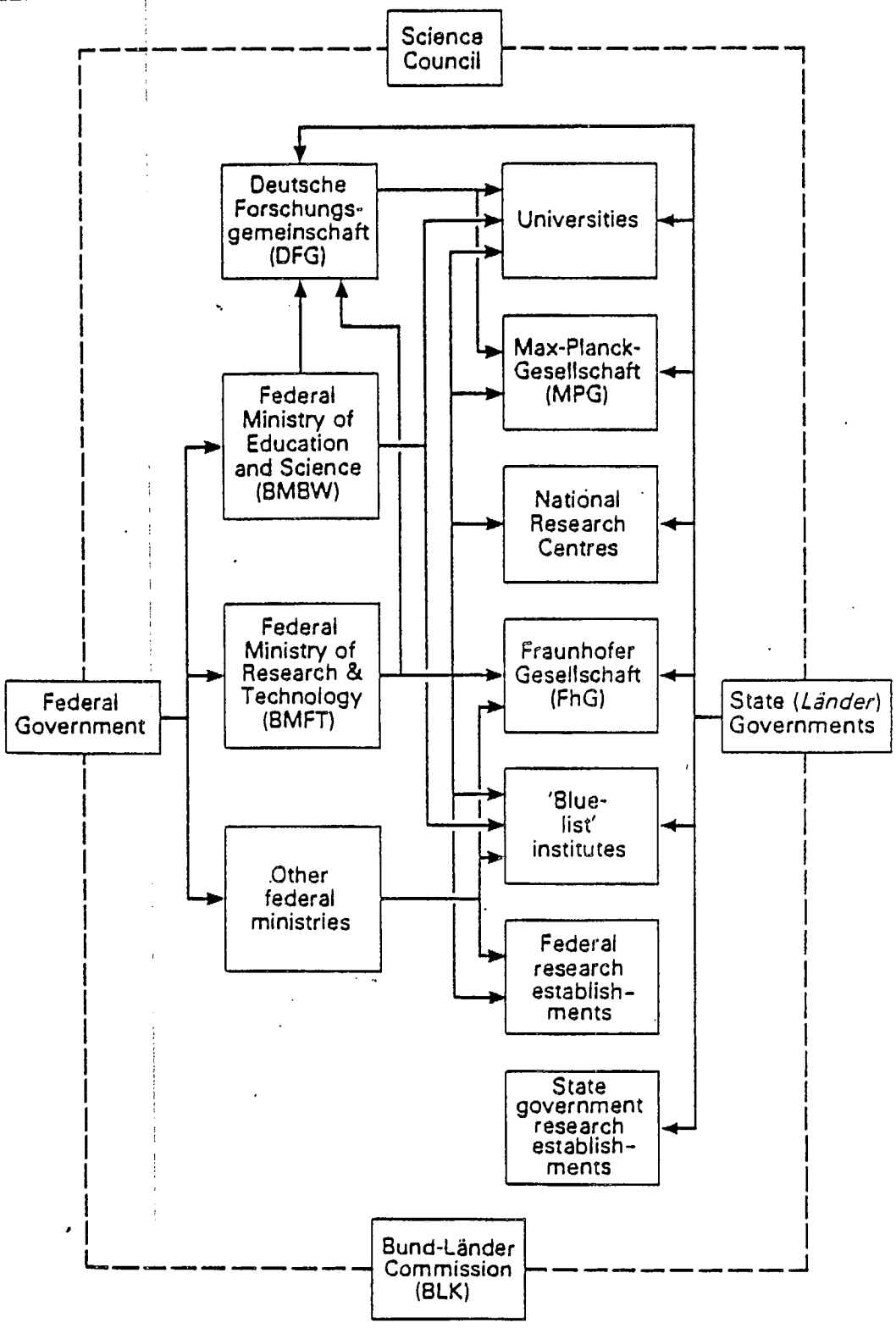
CONTACT

Dr. Eschelbacher
Bundershanzleramt
Adenauerallee 139
5300 Bonn 1
Germany

Information was obtained by the Science and Technology Counsellor at the Canadian Embassy in Germany in personal interviews with Dr. Eschelbacher and Dr. Josef Rembser of the Ministry of Research and Technology, and with Dr. Wilhelm Krull, Senior Executive of the German Science Council.

FIGURE 1

OUTLINE OF GERMAN R&D SYSTEM



Source: Constructed from official science-policy documents.

Source: Martin & Irvine, Research Foresight, Pinter, 1988.

JAPAN
PRIME MINISTER'S COUNCIL FOR SCIENCE AND TECHNOLOGY (CST)

MANDATE

The Council for Science and Technology (CST) was formed in 1959 in the Prime Minister's Office as the supreme deliberative organization for science and technology policy in Japan (see Figure 1). Its mandate is:

- To establish a fundamental and comprehensive framework for science and technology policy;
- To delineate comprehensive and long-term research objectives;
- To outline fundamental policy promotion programs for carrying out important areas of research; and
- To provide advice and guidance to the government through special inquiries and reports to the Science Council of Japan (a semi-governmental advisory body to the Prime Minister that provides general advice on research and development activities and on budgets for the institutes and laboratories under government control).

The Council makes recommendations at the request of the Prime Minister and on its own initiative. In particular, the Prime Minister "shall pay due consideration to" (i.e. cannot refuse) the recommendations of the Council.

MEMBERSHIP

The CST is composed of eleven members: the Prime Minister, four Ministers, the President of the Science Council of Japan, two full-time members with an administrative background (usually from universities), and three part-time members representing the corporate community. The Prime Minister, the four Ministers, and the President of the Science Council of Japan are ex officio members. The other five members are appointed by the Prime Minister for three-year terms, renewable for up to two additional terms. The corporate members are selected in consultation with the Federation of Economic Organizations (Keidanren). Other Ministers are invited to meetings as necessary, such as the Minister of International Trade and Industry, and the Minister of International Affairs. There are about three hundred people involved with the CST, including the committees and panels.

STRUCTURE AND OPERATIONS

The Council, chaired by the Prime Minister, holds plenary meetings two or three times per year. Proceedings are recorded and circulated to a limited distribution. The Council reports to the Prime Minister through written and verbal reports. All advice is available to the public after formal tabling at Council meetings. The Director General of the Science and Technology Bureau of the Science and Technology Agency is the Secretary.

The Council is supported by a Secretariat that resides within the Science and Technology Agency, specifically the Policy Division of the Policy Bureau. Reports are written by the Secretariat with input from Council members. There are seven full-time positions within the Secretariat. The budget for the Secretariat comes from the Science and Technology Agency.

To initiate a study, the Chairman of the Council makes a formal "Request for Recommendation" to the Council, to which the Council must respond. The Council also makes recommendations to requests from members of the Council, the government bureaucracy, and other councils.

The Committee on Policy Matters

The Council has a standing committee that meets two times per month. This committee, called the Committee on Policy Matters, was formed in 1983, and is the actual working body of the Council. The Committee consists of thirteen members, six of whom are members of the Council. The other seven members are prominent leaders from the business and education communities. In addition, the Director General of the Policy Bureau from the Science and Technology Agency and the Director General from the Ministry of Education, Science, and Culture are invited to meetings.

The Committee on Policy Matters sets the work program. The work program is driven by top down (Prime Minister) and bottom up (government bureaucracy) requests and are synthesized by the Committee. Through the Director General of the Policy Bureau, the bureaucracy can propose areas of study. Authors of these proposals are invited to explain their rationale to the Committee.

The Committee on Policy Matters is composed of an Ad-hoc Committee on International Affairs, and a Sub-Committee that oversees the "Special Coordination Funds for Promoting Science and Technology" (see Figure 2).

Panels

The Council has seven panels, with twenty to thirty people each, through which the ninety-odd national research organizations are represented. Panel members receive honorariums, which is the major expense of the Council's annual budget of 28 million Japanese yen (about $260,000 Canadian dollars). The seven panels are (see Figure 2):

- General Planning
- Research Objectives
- Energy Science and Technology
- Life Sciences
- Promotion
- Soft Science and Technology (public acceptance of nuclear energy, for example)
- Liaison with the Science Council of Japan

LINKAGES AND ACTIVITIES

The Council has no formal links with other federal government departments, apart from the four Ministers on the Council. However, it does have formal links with the science councils of local prefectural governments. Currently, nine of these local councils are represented on the panels. Agreements exist with twelve local councils in total.

The Council has an informal dialogue with the science council attached to the Ministry of Education, Science and Culture. The Ministry is formally involved when an issue under study by the Council impacts on the universities or the education system.

The Council is linked to economic organizations, such as the Federation of Economic Organizations (Keidanren), and the Kansai Economic Association.

General Guideline for Science and Technology Policy

Currently, the Government is promoting its science and technology policies in accordance to the "General Guideline for Science and Technology Policy" published in 1986. The Guideline, in turn, was based on recommendation #11, "Comprehensive Fundamental Policy for Promotion of Science and Technology to Focus Current Changing Situations from the Long Term View", submitted by the Council on Science and Technology in 1984.

Since 1984, the science and technology environment has changed dramatically. Therefore, the Government wanted to establish a new general guideline. In June 1990, the Prime Minister made a "Request for Recommendation" to the Council entitled

"Comprehensive and Basic Science and Technology Policy to be Taken Toward the New Century". The Council submitted its response at end of 1991.

Ad-hoc Committee on International Affairs

The Ad-hoc Committee on International Affairs has submitted several reports to the Council since its formation in September 1987. The Committee's most recent report, entitled "Toward the Globalization of Science and Technology", was submitted to the plenary meeting of the Council in January 1991. The report recommended the promotion of science and technology world-wide through strengthening the disclosure, distribution, and transfer of the achievements of science and technology activity, and through international cooperation on large-scale and long-term research and development projects.

Special Coordination Funds for Promoting Science and Technology

In 1981, this ten billion yen fund was set up under the Science and Technology Agency to promote important and comprehensive research programs. The fund extends over several ministries, universities, and the private sector. The fund is managed by the Agency in accordance to guidelines set by the Council.

Human Frontier Science Program

The Council, in cooperation with various government agencies, is trying to promote international joint research on living organisms. The Human Frontier Science Program was proposed by the Japanese Government at the Venetian Summit Meeting in June 1987. This led to the establishment of the International Human Frontier Science Program Organization in October 1989, with headquarters in Strasbourg, France. The Council played an important role in the start-up of the Program and continues to provide advice to ensure that the it is implemented successfully.

Other Activities

The Council reviews the activities of Ministries through hearings held twice per year and determines the priority of the programs to be promoted in the following year. The Council holds a "Science and Technology Forum" once per year to receive input on science and technology policy. In 1991, the Council started the "International Invitation Program" to exchange views with foreign countries and to encourage international cooperation in science and technology policy. The Council had a discussion meeting with its United States (PCAST) and European (CODEST) equivalents.

MEMBERS (January 1992)

PRIME MINISTER'S COUNCIL ON SCIENCE AND TECHNOLOGY

[ex officio]

Kiichi Miyazawa	Prime Minister (Chairman)
Tsutomu Hata	Minister of Finance
Kunio Hatoyama	Minister of Education, Science and Culture
Takeshi Noda	Minister of State for Economic Planning
Kanzo Tanigawa	Minister of State for Science and Technology
Jiro Kondo	President, Science Council of Japan

[full-time]

Wataru Mori	Ex-President, University of Tokyo
Hiroyuki Osawa	Ex-Vice Minister for Science and Technology
Yasusada Kitahara	Advisor to the President of Nippon Telegraph and Telephone Corporation

[part-time]

Kiyoji Morii	Vice Chairman, Kansai Electric Power Co. Inc.
Shoichi Saba	Advisor to the Board, Toshiba Corporation
	Director General of the Science and Technology Bureau of the Science and Technology Agency (Secretary)

MEMBERS OF THE COMMITTEE ON POLICY MATTERS

Wataru Mori	member of Council (Chairman)
Hiroyuki Osawa	member of Council
Jiro Kondo	member of Council
Yasuada Kitahara	member of Council
Kiyoji Morii	member of Council
Shoichi Saba	member of Council
Yotaro IIda	Chairman, Mitsubishi Heavy Industries Ltd.
Kozo Iizuka	Managing Director, Kubota Corporation; Ex-Director General, Agency of Industry, Science and Technology, Ministry of International Trade and Industry
Hiroshi Inose	Director General, National Centre for Science Information System
Yoshikazu Ito	Chairman of the Board, Toray Industries Inc.
Kunihei Kishi	President, Tachikawa College of Tokyo; Ex-Director General, Agriculture, Forestry and Fisheries Council Secretariat, Ministry of Agriculture, Forestry and Fisheries
Hiromichi Miyazaki	Advisor, Dai-ichi Kangyo Bank Ltd.; Ex-Ambassador of Japan to Germany
Ikuzo Tanaka	President, National Institution for Academic Awards; Ex-President, Tokyo Institute of Technology

CONTACT

Mitsugi Chiba
Director
Office of Planning
Prime Minister's Council on Science and Technology

Masayuki Hamano
Policy Division
Science and Technology Bureau
Science and Technology Agency

Information was collected by G. Rust, Science and Technology Officer at the Embassy of Canada in Tokyo, Japan, through personal interviews with Mitsugi Chiba and Masayuki Hamano.

PUBLICATIONS

RECOMMENDATIONS BY THE COUNCIL TO THE PRIME MINISTER

#1 Comprehensive and Fundamental Measures for the Development of Science and Technology for the next ten years (October 4, 1960)

#1a Supplementary Report to Recommendation #1 "The Fundamental Law of Science and Technology" (December 1, 1965)

#2 Top Priority Measures for Development of Science and Technology for Fiscal 1960 (December 2, 1959)

#3 Measures for Renovation and Strengthening of National Research Institutions; The First Report (July 13, 1962), The Second Report (July 9, 1963)

#4 Fundamental Measures Concerning Flow of Scientific and Technological Information (October 31, 1969)

#5 The Fundamentals of Comprehensive Science and Technology Policy for the 1970s (April 21, 1971)

#6 The Foundation of Japan's Overall Science and Technology Policy Based on Long Term Prospects (May 25, 1977)

#7 Basic Programs for Energy Research and Development (July 28, 1978)

#8 The Fundamentals of Promotion of Recombinant DNA Research (August 9, 1979)

#9 Basic Program for the Research and Development on Disaster Prevention (July 6, 1981)

#10 Basic Plan for Research and Development on Leading and Fundamental Technology in Life Sciences (April 24, 1984)

#11 Comprehensive Fundamental Policy for Promotion of Science and Technology to Focus Current Changing Situations from the Long Term View (November 27, 1984)

#12 General Guidelines for Science and Technology Policy (December 3, 1985)

#13 Intermediate and Long Range Basic Policy of National Research Institutes (August 28, 1987)

#14 Basic Plans for Research and Development on Matter/Material Series of Science and Technology (August 28, 1987)

#15 Basic Plans for Research and Development on Information/Electronic Series of Science and Technology (March 14, 1989)

#16 Comprehensive Basic Policy for Upgrading and Strengthening of Infrastructures to support Science and Technology (December 5, 1989)

#17 Basic Research and Development on Earth Science and Technology (June 22, 1990)

#18 Comprehensive and Basic Science and Technology Policy Toward the Next Century (January 24, 1992)

PRIME MINISTER'S REQUESTS FOR RECOMMENDATIONS

#19 Basic Research and Development Plan on Soft Science and Technology (Requested January 22, 1991)

RECOMMENDATIONS BY THE COUNCIL

Comprehensive Basic Policies for the Advancement of Science and Technology in Japan (August 31, 1966)

Promotion of Science and Technology (August 16, 1967)

Measures of Cooperation in Research Promoted by Government between Research Institutes, Universities, and Industries (March 27, 1968)

Fundamental Issues on Long Term Plan for Science and Technology (August 2, 1968)

Research Objectives in the International Corporations (July 9, 1973)

Research Objectives Oriented to Improving the Quality of Life (February 19, 1976)

Promotion of Energy Science and Technology (February 19, 1976)

Promotion of Science and Technology Activities in Regions (December 22, 1978)

Promotion of Technology Transfer (August 19, 1980)

Promotion of Life Science (August 19, 1980)

Basic Policies for Promotion of Research and Development on Brain and Nerve System (August 28, 1982)

Basic Policies for Promotion of Research and Development on Immunity System (August 28, 1982)

Basic Policies for Promotion of Research and Development on Cancer (July 26, 1983)

Basic Policies for Promotion of Research and Development for Long Life (August 27, 1986)

REPORTS

Subcommittee on Information System for Science and Technology, "To Focus Current Problems on Science and Technology Information" (August 1, 1984)

Basic Policies for Research Evaluation (May 22, 1986)

Ad-hoc Committee on Superconductivity, "Basic Promotion Policies for Superconductivity Research and Development" (November 12, 1987)

Ad-hoc Committee on International Affairs, "International Relations in Science and Technology" (September 22, 1988)

Current Status of Measures Based on Recommendation #13 (October 6, 1989)

Activities of Ad-hoc Committee on Cooperative Affairs between Industries, National Institutes, and Academia (March 22, 1990)

Ad-hoc Committee on International Affairs, "Toward the Globalization of Science and Technology" (December 20, 1990)

DESCRIPTION OF RECENT RECOMMENDATIONS

Recommendation #11 (November 27, 1984)
Comprehensive Fundamental Policy for Promotion of Science and Technology to Focus Current Changing Situations from the Long Term View

The report states that "promotion of creative science and technology", "creating harmony between science and technology, and people and society", and "development of science and technology emphasizing international aspects" are the basic principles: for comprehensive development of science and technology; for the civilization and culture of the next century, and; for setting broad guidelines for science and technology policies and their implementation in the ten years to follow.

Recommendation #12 (December 3, 1985)
General Guidelines for Science and Technology Policy

The report shows basic priorities for promotion of science and technology on the administrative level in the present and short term. It places "promotion of creative science and technology" as the fundamental principle of future administrative policies, and requires the Government to pay full attention to "creating harmony between science and technology, and people and society" and "development of science and technology emphasizing international aspects" in the implementation of relevant policies with emphasis on fundamental frontier science and technology. The Government adopted the "General Guidelines for Science and Technology Policy" at the cabinet meeting in March 1986 as the basis for future administrative actions in this domain.

Recommendation #13 (August 28, 1987)
Intermediate and Long Range Basic Policy of National Research Institutes

The report considers changing the environment surrounding the national research institutions at present and various issues pertaining to them. It presents a proposal as to what should be the desirable roles and missions for the national institutions in the medium and long term if they are to be productive and efficient.

Recommendation #14 (August 28, 1987)
Basic Plans for Research and Development on Matter/Material Series of Science and Technology

The report shows what should be the key targets of research in this domain, as well as the ways and means to promote such efforts in the next decade.

Recommendation #15 (March 14, 1989)
Basic Plans for Research and Development on Information/Electronic Series of Science and Technology

The report concerns promises and expectations for the rapidly growing areas information and electronics technology. It also states the key targets of research and development in these domains as well as the ways and means necessary to promote these efforts.

Recommendation #16 (December 5, 1989)
Comprehensive Basic Policy for Upgrading and Strengthening of Infrastructures to support Science and Technology

The report suggest basic guidelines for developing and improving such infrastructure as:

- Databases and other advanced science and technology systems;
- Research and development equipment and facilities in universities as well as in government laboratories, with special attention to the problem of obsolescence of equipment;
- Systems for preservation and utilization of genetic and other biological research resources;
- Systems for providing incentives for research support personnel; and
- Systems for proper management and utilization of intellectual property rights.

Recommendation #17 (June 22, 1990)
Basic Research and Development on Earth Science and Technology

The report makes the following recommendations:

- Integrate Earth Science and Technology disciplines which have been developing individually into a comprehensive and consistent system for promoting efficient research and development of the earth as a total system;

- Ensure a proper balance between man and nature, by employing science and technology capable of preserving and improving the global environment as well as sustaining stable economic growth in consideration of existing global environmental problems; and

- Promote research focused on Asia and the Western Pacific by taking the initiative in establishing an international research mechanism to apply science and technology in solving global environmental problems.

FIGURE 1

Organization of National Science Administration in Japan

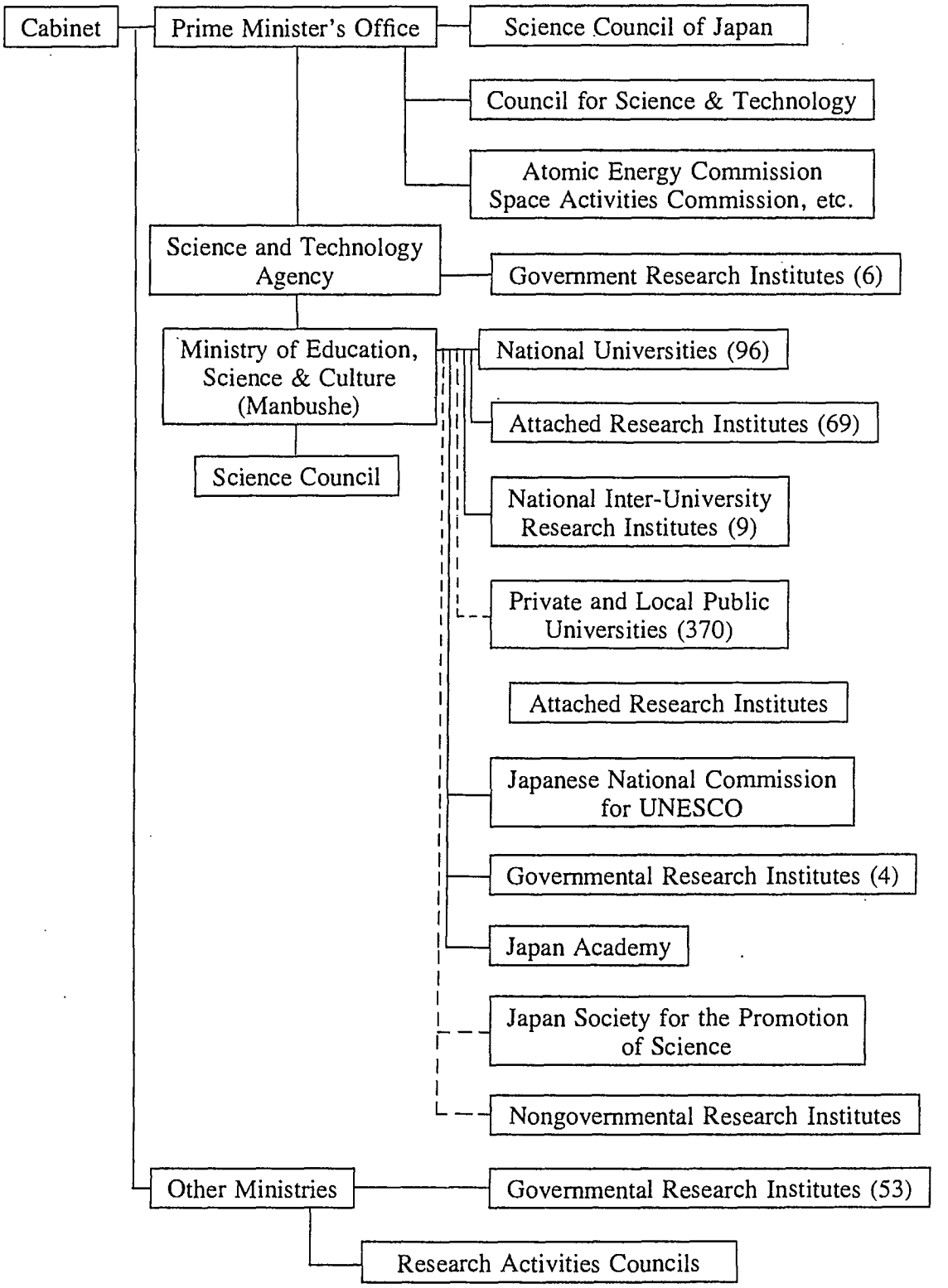
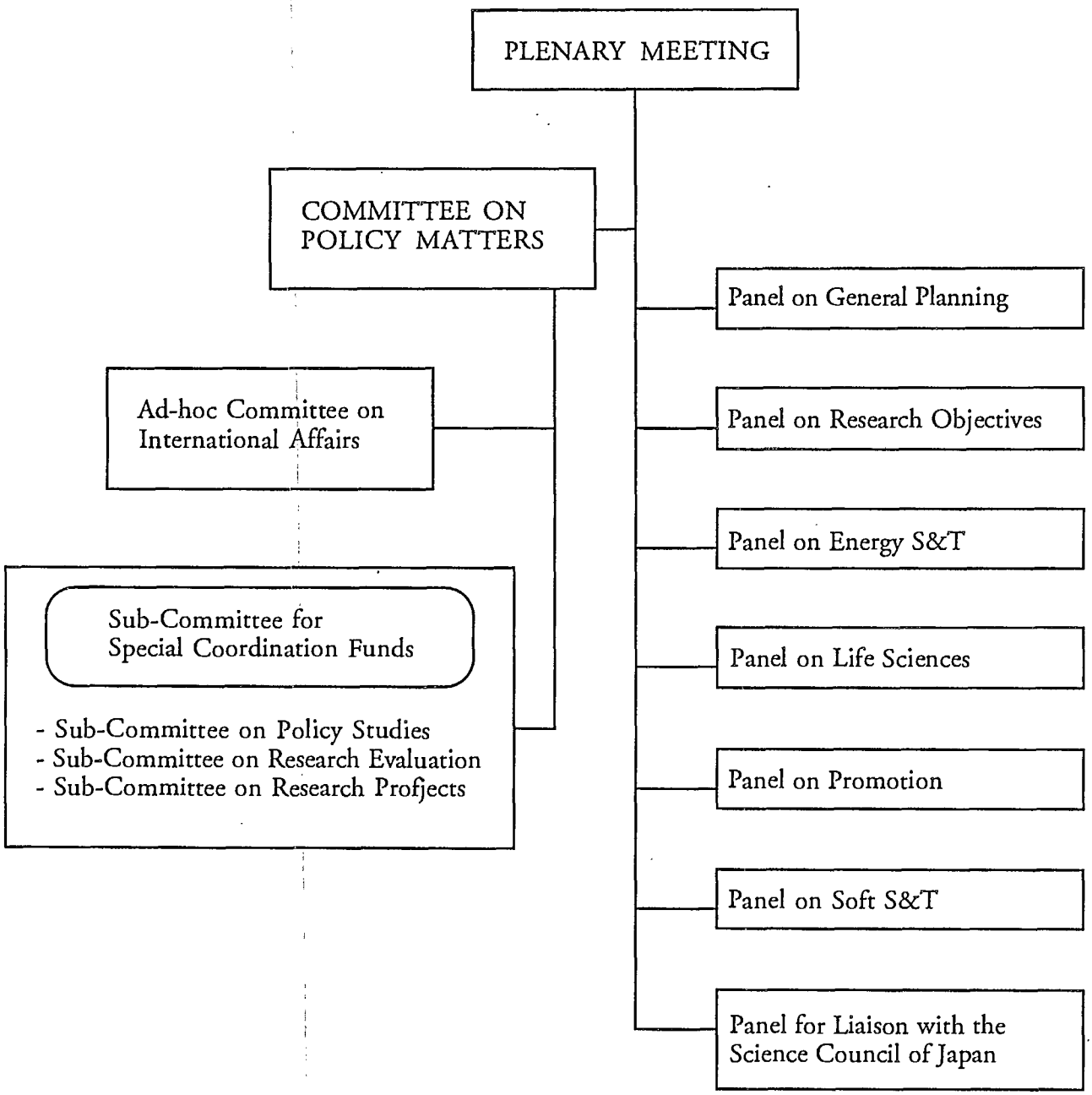


FIGURE 2

Prime Minister's Council for Science and Technology



MEXICO
NATIONAL COUNCIL ON SCIENCE AND TECHNOLOGY (CONACYT)
CONSEJO NACIONAL DE CIENCIA Y TECNOLOGIA

MANDATE

The mandate of the National Council on Science and Technology (CONACYT) is to advise the executive and to plan and coordinate execution of programs that contribute to development and strengthening of scientific research as well as putting into practice its results to the most relevant national problems of Mexico.

According to the national system of science and technology, the objective of these planning activities is to evaluate the national program on scientific and technological modernization, as well as to contribute to research as regards resources, instruments, products, and functioning of the National System of Science and Technology (NSST). To achieve this, the Council carries out the following actions:

- Gives elements for definition of development strategies of the NSST and compiles, organizes, reviews, circulates, and when necessary designs policy instruments for its own development;

- Makes diagnosis on NSST, as well as inventory of scientific and technological potential of the country;

- Coordinates, devises and executes the National Program on Science and Technology, 1989-1994; and

- Devises instruments and mechanisms to evaluate impact of national program on science and technology in the NSST, and in the process of goods and services.

Derived from the above objectives and with the purpose of achieving such actions, the Council selects prestigious research and development institutions as well as experts in the areas of interest for planning science and technology through contracts and agreements, being specific in the supervising, control, and evaluation of each project.

The Council was formed in 1970. The Council's predecessor was the National Institute of Scientific Research (INIC).

MEMBERSHIP

Up to 1991, the Council consisted of eleven permanent members and four temporary members, appointed by the President. Currently, the Council is being restructured and more members will be added. The eleven permanent members are composed of the General Director of the Council, the Dean of Mexico City University, the Dean of the National Polytechnical Institute, and eight Ministers. The four temporary members consists of two university deans, one government representative, and one private sector representative. Recently, the President of the Academy for Scientific Research was added to the membership as an ex officio member.

STRUCTURE AND OPERATIONS

There is no fixed number of meetings per year. The agenda is set by the Council with input from the Consultative Council on Science (CCC). Meetings are chaired by the General Director. The Secretary can be any one of five adjoined Directors: Planning, International Affairs, Scientific Development, Technological Modernization, and Management and Finances. Two other Directors (Communication, Legal Matters) report to the General Director. The Council reports to the Ministry of Programming and Budgeting and to the Ministry of Education through confidential written and verbal reports. The secretariat functions are handled by the Directors' staff. Reports are written by consultants.

Subcommittees are formed to address specific issues, and are disbanded when their tasks are complete. Advice is offered on Cabinet documents related to science and technology and to modernization programs. Some advice is available to the public.

The annual budget of the Council in 1990 was about $70 million Canadian dollars.

LINKAGES AND ACTIVITIES

The Council is highly decentralized, with sixteen regional councils in the different states of the country.

MEMBERS

CONTACT

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Information was collected by the Science and Technology Officer at the Canadian Embassy in Mexico, in a personal interview with Isabel Chong.

THE NETHERLANDS
ADVISORY COUNCIL FOR SCIENCE AND TECHNOLOGY (AWT)
ADVIESRAAD VOOR HET WETENSCHAPS-EN TECHNOLOGIEBELEID

MANDATE

The Advisory Council for Science and Technology Policy (AWT) is the central advisory body in the Netherlands on governmental policy making in the field of science and technology.

The Council was formed under the Act of November 2, 1990, replacing the Advisory Board on Science (RAWB). The Council's advisory activities are specified in the Act as follows:

- It is the responsibility of the Council on request or on its own initiative to provide written advice to its ministers (Minister of Education and Science and the Minister for Economic Affairs), or via its ministers to other ministers concerned, on science and technology policies to be pursued by the government in the national and international arena.

- The advice of the Council is to relate to the generation, transfer and application of knowledge.

- The Council is also to advise on policies to be pursued with regard to advisory councils and bodies operating in subsidiary areas of the Council's sphere of responsibility as well as on the general interrelationship of the policies to be pursued.

- At the request of the Lower House of the Dutch Parliament, the Council is to advise on private members' bills introduced in that House.

MEMBERSHIP

The Council consists of twelve members appointed by Royal Decree. The members are drawn from the various branches of society, including academia and industry. The members serve the Council in a personal capacity and do not represent any particular organization. The members are appointed for a period of four years, after which they can be reappointed for one further term. The post of Chairman of the Council is full-time.

STRUCTURE AND OPERATIONS

The Council meets once per month. The agenda is set by the Council with input from Ministers. The Council reports to the Minister of Education and Science or the Minister of Economic Affairs, depending on whether the issue is related to science or technology respectively. The budget of the Council is two million guilders (about $800,000 Canadian dollars), for staff and external research.

The Council acts independently both of the scientific and technological community and of the government. Where it feels the need, it may call upon the assistance of ad hoc committees, on which non-members may also serve.

The Council is assisted by the Secretary, who heads a Secretariat responsible for providing support for the Council's work. The Secretariat has a staff of sixteen, eight of whom hold university degrees and form the scientific staff. For the preparation of advice on specific topics, the staff can be supplemented by project workers. Reports are written by the Secretariat with input from Council members. The advisory reports of the Council are as a rule made public.

LINKAGES AND ACTIVITIES

The Chairman meets once per year with all twelve counterparts of the European Community.

The AWT has formal links with the Advisory Board on Science, Technology and Information (RWTI) and the three Interdepartmental Advisory Committees on Science (IOW), Technology (IOT), and Information (ICI), and informal links with the Royal Dutch Academy of Sciences (KNAW), and the Scientific Advisory Board for Government Policy (WRR) (see Figure 1).

The WRR is an independent advisory board of the Ministry of General Affairs with members from the private and public sectors. The role of the WRR is to promote and improve research, especially in the area of long-term planning both within and outside the government.

The role of the IOW, IOT and ICI are to coordinate policy in their respective areas of science, technology and information, and to prepare the policy for the Cabinet. The members of these three committees are government officials from different ministries. The committees are chaired by the Ministries of Education and Science (IOW), Economic Affairs (IOT), and General Affairs (ICI).

MEMBERS

dr. P. Kramer (chairman)
mrs.dr. E. Borst-Eilers
drs. P.M. Burghouts
dr. R.J. van Duinen
prof.dr. H.W. von der Dunk
prof.ir. W.A. de Jong
ir. J.J. Kaptein
prof.dr. J. Kommandeur
J.G. Schermer
prof.mr.dr. C.J.M. Schuyt
mrs.prof.dr. L. van Vloten-Doting
dr. G. Zoutendijk

Secretariat

dr.ir. E.A. Goewie	secretary
dr. A. van Heeringen	deputy secretary
dr.ir. C.M. Vos	senior staff member
drs. F.C. den Hollander	senior staff member
drs. ing. A.N.M. Langendorff	staff member
dr. T.C.M. Horn	staff member

Information Centre

mrs. M.J. Scheurkogel	documentalist
mrs. R. Waijer-de Jong	assistant documentalist
H.P. van Westen	librarian

CONTACT

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Secretary
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PUBLICATIONS

The Council has its own documentation centre, the AWT Information Centre. Information on national and international developments in the field of science and technology policy is assembled in the Information Centre. An external activity of the AWT Information Centre is the publication of 'Selectief', a Dutch language periodical carrying a selection of relevant articles from national and international newspapers and journals together with a select list of official publications, reports, books and articles. 'Selectief' is available by subscription to anyone interested. The Council also publishes a series of Background Studies.

The following is a list of recent publications. Most publications are available in Dutch only, as indicated by a "(D)". English publications are indicated by a "(E)".

Advice

- Suggestions for the agenda of the Consultative Committee on Foresight Studies (D)
- Advice on the Technical Universities (D)
- Annual Report 1991 (D)
- Advice on government financing of university research (D)

Publications

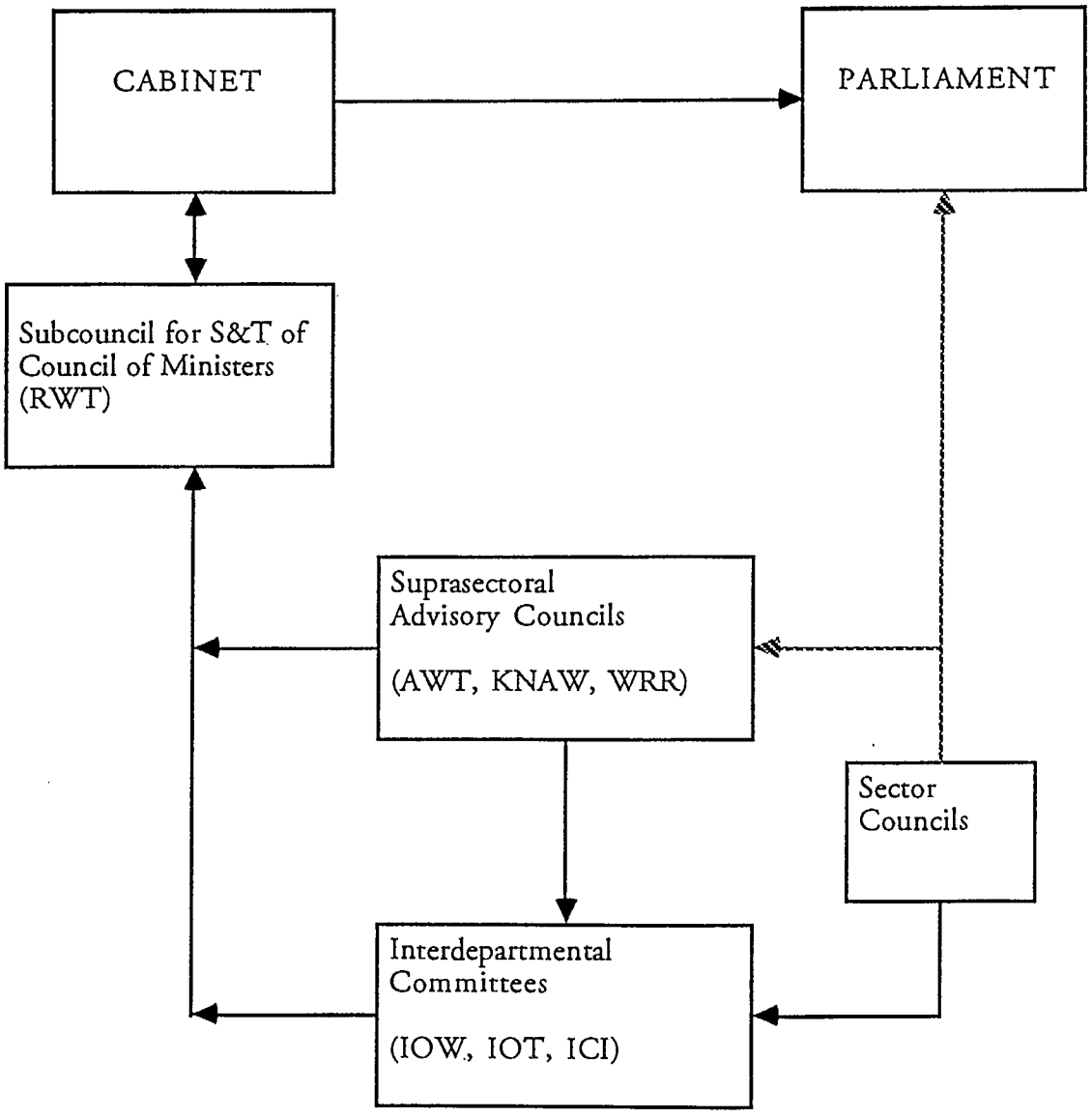
#71 Within New Boundaries (E)
#72 Advice on Eureka (D)
#73 The Netherlands: Know-How Country
Advice on the strengths and weaknesses of the R&D system on behalf of the Dutch economy (D)
#74 Advice on the civil engineering and research in the Netherlands (D)
#75 Annual Report 1990: 25 years of science policy (D)
#76 The future of the Humanities in the Netherlands (D)

Background Studies

- Science and technology indicators 1991 (E)
#21 Beyond frontiers: science policy in European perspective (E)
#22 The use of R&D for the service sector (D)
#23 The humanities in the Netherlands - an overview (D)

FIGURE 1

Advisory Structure of The Netherlands Government



UNITED KINGDOM
ADVISORY COUNCIL ON SCIENCE AND TECHNOLOGY (ACOST)

MANDATE

The mandate of the Council is to advise the Government on:

- Priorities for science and technology in the United Kingdom;
- The application of science and technology, developed in the United Kingdom and elsewhere, for the benefit of both the public and private sectors in accordance with national needs;
- The coordination, in collaboration with Departmental Advisory Bodies, of science and technology activities; and
- The nature and extent of United Kingdom participation in international collaboration in science and technology.

The Council was formed in July 1987. The Council replaced the Advisory Council for Applied Research and Development (ACARD), which was formed in 1976. The membership and terms of reference of ACOST were widened from those of ACARD to embrace all aspects of science and technology.

MEMBERSHIP

The Council has eighteen members, though the intention is to reduce the number to sixteen in 1992. Members are appointed by the Prime Minister, usually for a period of three years. Members are selected from the business and academic communities. The Chairperson has always been selected from the private sector. The Chief Scientific Adviser of the Cabinet Office attends all meetings. The Chief Scientists and Scientific Advisers of government departments attend only those meetings when the Prime Minister is not present. Ex officio members include the Chairperson of the Advisory Board for Research Councils and the Chairperson of the Universities Funding Council. There are no Ministers on the Council. As members will work with classified documents, security clearances are carried out.

STRUCTURE AND OPERATIONS

The full Council meets six times per year for half a day. The Prime Minister typically attends two meetings per year, and chairs the meeting when present. The Chairperson sets the agenda, with input from the Council and Secretariat. The Secretary is a public servant on secondment to the Cabinet Office. Minutes are kept, but are confidential.

The Council is supported by a Secretariat that reports to the Chief Scientific Adviser. It consists of the Secretary and four professional staff. Two of the staff are from the private sector, and the other two are on secondment from other government departments, research councils, and universities for periods of two to three years. There are also five support staff who are permanent Cabinet Office staff. Reports are written by the Secretariat with input from Council members. Generally, reports are published.

Some of the work carried out by the Council is initiated by its members while some of it is undertaken at the request of the Prime Minister. In either case, the Council's advice is submitted to the Prime Minister through confidential written and verbal reports, and sometimes to other Government Ministers. Advice on Cabinet documents is not given.

Much of the Council's work is carried out in Subcommittees or small Working Groups. The membership of such groups is drawn partly from the Council and partly from co-opted members who can make a special contribution to the subject under review. There are three standing committees: one dealing with international matters, a second with the annual review process, and a third which monitors key areas of science and technology.

The Council provides advice each year on priorities for science and technology expenditure, which is intended to assist overall Government decision making during the Public Expenditure Survey.

The annual budget of the Council is 434,000 British pounds (about $850,000 Canadian dollars), which includes the salaries of the Secretariat staff.

LINKAGES AND ACTIVITIES

The Chief Scientific Adviser of the Cabinet Office attends meetings of ACOST and acts as the prime link between the Council and the Government.

The work of the Council relates to that of the various Department Advisory Bodies which are the:

- Advisory Board for the Research Councils which advises the Secretary of State for Education and Science
- University Funding Council which advises the Secretary of State for Education and Science
- Innovation Advisory Board which advises the Department of Trade and Industry
- Advisory Council on Research and Development for Fuel and Power which advises the Department of Energy
- Defence Scientific Advisory Council which advises the Ministry of Defence
- Priorities Board for Research and Development in Agriculture and Food which advises the Ministry of Agriculture, Fisheries, and Food

In addition, in July 1987, following from the recommendations of the ACARD report "Exploitable Areas of Science", an independent national body called the Centre for Exploitation of Science and Technology (CEST) was established. The Centre has a close relationship with ACOST. The Government provides one-fifth of its budget. The other four-fifths is provided by industry and commerce. The purpose of the Centre is to bring science, industry, business investors, and government together to discuss issues of common concern.

FUTURE

The Council was scheduled to prepare a strategic review of public and private sector science and technology issues by the end of 1991. This is undertaken generally every three years.

MEMBERS

Sir Robin Nicholson	Executive Director, Pilkington plc (Chairperson)
Prof Roy Anderson	Department of Pure and Applied Biology, Imperial College of Science
Sir Michael Atiyah	President of the Royal Society
Prof Michael Brady	Department of Engineering Science, University of Oxford
Prof Graeme Davies	Chief Executive, Universities Funding Council
Dr Peter Doyle	Director of Research and Technology, Imperial Chemical Industries plc
Mr Ian Harvey	Chief Executive, British Technology Group
Mr Keith Henry	Chief Executive, Brown and Root Ltd
Sir Graham Hills	Principal and Vice Chancellor, University of Strathclyde
Dr Nigel Horne	Partner, Head of Information Technology Practice, KPMG Management Consulting
Prof Christopher Smith	Chairman of Physics, University of Oxford
Prof Leonard Maunder	Department of Mechanical, Materials and Manufacturing Engineering, University of Newcastle upon Tyne
Prof Sir David Phillips	Chairman of the Advisory Board for the Research Councils
Prof Gareth Roberts	Vice Chancellor, University of Sheffield
Sir Alfred Shepperd	Former Chairperson and Chief Executive, Wellcome plc
Dr David Smith	Consultant
Dr William Wilkinson	Deputy Chief Executive British Nuclear Fuels plc
Sir Martin Wood	Deputy Chairperson, Oxford Instruments Group plc

Secretariat

David Lumley Secretary

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PUBLICATIONS

1978 The Applications of Semiconductor Technology

1979 Joining and Assembly: The Impacts of Robots and Automation

1979 Industrial Innovation

1980 Information Technology

1980 Biotechnology (with the Royal Society and the Advisory Board for the Research Councils)

1980 Research and Development for Public Purchasing

1980 Computer Aided Design and Manufacture

1980 Technological Change: Threats and Opportunities for the United Kingdom

1982 The Food Industry and Technology

1982 Facing International Competition: The Impact on Product Design of Standard Regulations, Certificates and Approvals

1983 Improving Research Links between Higher Education and Industry

1983 New Opportunities in Manufacturing: The Management of Technology

1986 Medical Equipment

1986 Software: A vital key to United Kingdom competitiveness

1986 Exploitable Areas of Science

1988 Optoelectronics: Building on our Investment

1988 The Industrial Impact of Sizewell B

1989 Our Future World (with Natural Environment Research Council)

1989 Defence Research and Development: A National Resource

1990 The Enterprise Challenge: Overcoming Barriers to Growth in Small Firms

1990 Developments in Biotechnology

1991 Advanced Manufacturing Technology

1991 Science and Technology: Education and Employment

1991 Science and Technology: Education and Employment, Working Group Reports

1991 The European Framework Programme for Research and Development

1991 The Impact of the Completion of the Single European Market on United Kingdom Science and Technology

UNITED STATES
PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY (PCAST)

MANDATE

The mandate of the Council is to advise the President on "matters involving all areas of science and technology". The Council is mandated to conduct a continuing review and assessment of developments in science and technology, and report to the President whenever requested by him.

The Council was formed in February 1990 under an executive order signed by President Bush. It replaced the scientific advisory council which had existed prior to that. PCAST is one of ten presidential councils, but it is one of the most important.

MEMBERSHIP

The Council currently has ten members plus the chairperson who at this time is Dr. Allan Bromley, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy in the Executive Office of the President. Ultimately, up to fourteen members can be appointed according to the executive order, but ten has been found to be optimal. The membership list is attached (see Appendix 1).

Members are appointed on the recommendation of Dr. Bromley with the President making the final decision based on inputs received from Dr. Bromley as well as other parts of the Executive Office of the President. The appointment term is indefinite. Since the appointments are presidential, there are no specific guidelines for sectoral or other representation but the current Council exhibits a balance between industry and university members. Members are required to have top secret clearance, and must agree to complete confidentiality. (Clearance takes once month instead of the usual nine months as these are presidential appointments.)

There are no ex-officio status members, but senior advisors to the President (Chief of Staff, Director of Office Management of Budget, and Assistant to the President for Domestic Policy) attend Council meetings when they wish. There are no Cabinet members on the Council. Although Dr. Bromley is not a Cabinet member, he holds a Cabinet level position.

STRUCTURE AND OPERATIONS

The Council meets once every six weeks, usually for one and a half days per session. The President is invited to all meetings and he has been present for about half of them. The time he has spent with the Council during those meetings has ranged from fifteen minutes to three hours with the latter being the case in only one session. All meetings take place in Washington.

Dr. Bromley chairs the meetings and the Executive Secretary functions as Secretary of the Council. Minutes are taken of the proceedings. Meetings are considered classified as they involve advice to the President. However, approximately two hours during each meeting is open to the public, and some passages of the minutes are unclassified, complying with the Freedom of Information Act and the Federal Advisory Committees Act. Segments of the meetings are closed where they relate to national security, personnel, or where agency/departmental plans could be adversely affected. Reports are not published or distributed. An undoubted advantage of maintaining some level of confidentiality is that it encourages Council members to be frank in their assessment and recommendations for action to the President.

The Council has its own Secretariat headed by the Executive Secretary. It has one policy analyst and one secretary. Policy advisors in the Office of Science and Technology Policy provide substantive policy and organizational assistance to the chairpersons of the Council's committees called 'panels'. Dr. Bromley has the ultimate responsibility for written work of the Council, but in practice, members write the drafts with the Executive Secretary providing assistance to the members in the preparation of these documents. Dr. Bromley then handles the editing of the documents prior to presentation to the President.

The annual budget of the Council is $600,000 US dollars (about $700,000 Canadian dollars).

When he attends, the President plays a pivotal role in the Council. He listens, he asks specific questions, and he tasks individuals or panels to report back to him on particular issues. Sometimes the President's requests relate to shorter term issues requiring very quick responses. Dr. Bromley's role, as chair of the Council, is to ensure follow up on the President's requests of the Council. He also will consult with the Council in terms of issues or perspectives that either he or the Council believe the President needs to know in the area of science and technology. In more practical terms, he and the Executive Secretary of the Council must coordinate consultation and work on the studies, prepare the agendas for the Council meetings and handle the short term responses often in terms of one page issue briefs.

The work program is developed jointly between the President and members. The agenda is also influenced by Cabinet members, heads of agencies, and senior advisors in the Presidency, who make recommendations either to Dr. Bromley or to the President. Darman (Office of Management and Budget), Scowcroft (National Security Affairs), and Porter (Domestic Policy) have all been active at various points in this process. This is particularly the case where science and technology have relevance for their respective responsibilities:

Darman - expenditures for science and technology
Porter - education and competitiveness
Scowcroft - national economic security

LINKAGES AND ACTIVITIES

The Council does not undertake original research. Its findings and recommendations are derived from what its members already know from their own readings, experience, and research. The Council currently has seven panels of two to eight members each, undertaking reports on:

- High Performance Computing and Communications
- International Economic Competitiveness
- Bio-Science and Biotechnology
- Education and Human Resources
- Science and Technology and National Security
- Global Environment and Natural Resources
- Megaprojects in the Sciences

A list of these panels and their respective chairpersons is attached (see Appendix 2). Panels are normally in place for two to six months. The competitiveness panel has focused on the science and technology dimension rather than broader questions of exchange rates, etc.

Reports are usually verbal, that is to say, they are delivered in oral summary to the President at Council meetings. At most, there may be a two page summary of the findings. These reports are not available to the public.

Nearly all of the panels are engaged in specific policy development. Outside experts are often consulted by the panels, and some may become panel members, though not full members of the Council. These experts are encouraged, and are usually prepared to invest their own time and effort without expense to the government. The outside experts on the National Security panel were drawn from a list of individuals who already had top secret security clearances due to the sensitive nature of the material they review. Other experts are not security cleared, but are asked to be discreet and not speak with members of Congress or the media.

Advice is offered on cabinet documents including documents to the Domestic Policy Council, the Economic Policy Council, and the National Space Council. This is an area where the President's Council of Advisors on Science and Technology has a great deal of indirect influence. On several issues it has been responsible for shifting the outcome of policy options adopted on economic and security related issues.

The Council is affiliated with the Office of Science and Technology Policy, located in the Executive Office of the President. There is a formal bureaucratic link in that the Chairperson is the advisor to the President for science and technology. Also, as indicated above, some advisors from the Office of Science and Technology Policy are assigned to assist certain PCAST panels. Furthermore, there are informal links between some of the Council members and senior bureaucrats throughout the system.

The Council plays a role in budgeting decisions, and the full Council is given briefings (general rather than very detailed) on proposed departmental budgets. It is anticipated that in the future, the various panels will become very familiar with the budgets and programs of specific departments which are responsible for issues of interest to the panels. Dr. Bromley sits in with the Director of Office of Management and Budget (Dick Darman) on the preparation of the Administration Budget, reviewing budget requests of the various departments responsible for science and technology (Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Science Foundation (NSF), National Institute of Health (NIH)) and policy recommendations on their budget levels and composition.

The Council also influences science and technology program coordination. The Federal Coordinating Council for Science Engineering and Technology (FCCSET) coordinates development of the policy and programs of the United States Government in science and technology (see Appendix 3). The Council offers a view on many of the programs of individual departments having multi-departmental impacts and on inter-departmental (jointly undertaken) programs. The primary line of advice is through Dr. Bromley who, in turn, introduces the Council's views in his review of departmental and inter-departmental programs with the Director of the Office of Management and Budget, and on occasion, with the President. In addition, the Council reviews and provides advice on "cross-cut" budget proposals from FCCSET, and there is coordination through information exchange at the staff level of both councils. While reluctant initially regarding the Council's overview and budgetary role, departments have since come to the view that the Council's support for their programs can aid them immensely. This evolution of views was further assisted by the fact that the Council's departmental budgetary review was voluntary. Departments learned that they were more

likely to fare well at the Office of Management and Budget (OMB) if they had the Council's review and endorsement.

A key feature of the Council is its "Presidentiality" - its main mission is to deliver information and advice of use directly to the President. Therefore, in its deliberations, it takes less a governmental perspective than a presidential perspective on science and technology issues and its focus is on the President's science and technology agenda.

The Council plays no role in policy coordination within the federal government, or between the federal and state governments. Its mandate is strictly advisory.

There are evidently many indirect links with a variety of economic and science and technology organizations throughout the United States. However, the Council has no informal or formal relationships with science and technology councils of other countries. However, the Council has indicated that it would be interested in cultivating a relationship with other councils such as Canada's National Advisory Board on Science and Technology.

PUBLICATIONS

The Council has no publications. Its recommendations to the President are confidential, and as the Council is considered to have no public role, there is little need to provide information on it to the outside world. The executive order creating the Council is the only publicly available description of the Council (see Appendix 4).

APPENDIX 1

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

MEMBERS

Allan Bromley	Assistant to the President for Science and Technology, and Director of the Office of Science and Technology Policy, Executive Office of the President (Chairperson)
Norman Borlaug	Distinguished Professor, Department of Soils and Crop Sciences, Texas A&M University
Solomon Buchsbaum	Senior Vice President, Technology Systems, AT&T Bell Laboratories
Charles Drake	Albert Bradley Professor of Earth Sciences and Professor of Geology, Dartmouth College
Ralph Gomory	President, The Sloan Foundation
Peter Likins	President, Lehigh University
Thomas Lovejoy	Assistant Secretary for External Affairs, The Smithsonian Institution
John McTague	Vice President, Technical Affairs, Ford Motor Company
Thomas Murrin	Dean, School of Business Administration, Duquesney University
Daniel Nathans	Professor of Molecular Biology and Genetics, John Hopkins University School of Medicine
David Packard	Chairman of the Board, Hewlett-Packard Company
Harold Shapiro	President, Princeton University

CONTACT

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Executive Secretary
President's Council of Advisors on Science and Technology
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United States
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Information was collected through personal interviews with then Executive Director Tom Welch and the current Executive Secretary Alicia Dustira, by Michael Stephens, Science and Technology Counsellor at the Canadian Embassy in Washington, and by Margaret McCuaig-Johnston, Assistant Secretary of Canada's National Advisory Board on Science and Technology.

APPENDIX 2

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

PANELS AND THEIR CHAIRPERSONS

High Performance Computing and Communications
S. Buchsbaum, R. Gomory

International Economic Competitiveness
R. Gomory, J. McTague

Bio-science and Biotechnology
D. Nathans

Education and Human Resources
P. Likins, C. Drake

Science and Technology and National Security
S. Buchsbaum, John S. Foster*

Global Environment and Natural Resources
T. Lovejoy, D. Packard, N. Borlaug

Megaprojects in the Sciences
J. McTague, H. Shapiro

* Chairman, Defence Science Board

APPENDIX 3

FEDERAL COORDINATING COUNCIL FOR SCIENCE ENGINEERING AND TECHNOLOGY (FCCSET)

CHAIRPERSON

Allan Bromley
Assistant to the President for Science and Technology, and
Director of the Office of Science and Technology Policy,
Executive Office of the President

MEMBERS

The Honorable Manuel Lujan, Jr.
Secretary of the Interior

The Honorable Jack C. Parnell
Acting Secretary of Agriculture

The Honorable Louis W. Sullivan
Secretary of Health and Human Services

The Honorable James D. Watkins
Secretary of Energy

The Honorable John T.(Ted) Sanders
Acting Secretary of Education

The Honorable William K. Reily
Administrator, Environmental Protection Agency

The Honorable Richard H. Truly
Administrator, National Aeronautics and Space Administration

The Honorable Brent Scowcroft
Assistant to the President for National Security Affairs

The Honorable Walter E. Massey
Director, National Science Foundation

The Honorable Richard T. McCormack
Under Secretary for Economic Affairs, Department of State

The Honorable Donald J. Atwood, Jr.
Deputy Secretary of Defense

The Honorable Robert A. Mosbacher
Secretary, Department of Commerce

The Honorable Alfred DelliBovi
Under Secretary, Department of Housing and Urban Development

The Honorable Elaine Chao
Deputy Secretary, Department of Transportation

The Honorable Anthony J. Principi
Deputy Secretary, Department of Veteran Affairs

The Honorable Richard G. Darman
Director, Office of Management and Budget

APPENDIX 4

EXECUTIVE ORDER

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to establish, in accordance with the provisions of the Federal Advisory Committee Act, as amended (5 U.S.C App. 2), an advisory committee on science and technology, it is hereby ordered as follows:

Section 1. Establishment. There is established the President's Council of Advisors on Science and Technology ("Council"). The Council shall be composed of not more than 15 members, one of whom shall be the Director of the Office of Science and Technology Policy, and 14 of whom shall be distinguished individuals from the private sector to be appointed by the President. The Director of the Office of Science and Technology Policy shall serve as Chairman of the Council. The Vice Chairman shall be appointed by the President from among the 14 private sector members. The Chairman shall report directly to the President.

Section 2. Functions. (a) The Council shall advise the President on matters involving all areas of science and technology.

(b) In the performance of its advisory duties the Council shall conduct a continuing review and assessment of developments in science and technology, and shall, through the Chairman, report thereon to the President whenever requested.

(c) The Chairman may, from time to time, invite experts to investigate and report to the Council on specific issues of national consequence.

Section 3. Administration. (a) The heads of Executive agencies shall, to the extent permitted by law, provide the Council and its panels such information with respect to scientific and technological matters as required for the purpose of carrying out its functions.

(b) Members of the Council shall serve without any compensation for their work on the Council. However, members appointed from among private citizens of the United States may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by law for persons serving intermittently in the Government service (5 U.S.C 5701-5707).

(d) The Office of Administration shall, on a reimbursable basis, provide such administrative services as may be required.

B

B. PROVINCIAL ADVISORY COUNCILS ON SCIENCE AND TECHNOLOGY

SECTION	PROVINCE	NAME
1	Alberta	Premier's Council on Science and Technology
2	British Columbia	Premier's Advisory Council on Science and Technology
3	Manitoba	Economic and Innovation Technology Council
4	New Brunswick	Minister's Advisory Board on Science and Technology
5	Newfoundland	Science and Technology Advisory Council
6	Northwest Territories	Science Institute of the Northwest Territories
7	Nova Scotia	Council of Applied Science and Technology
8	Ontario	Premier's Council on Economic Renewal
9	Prince Edward Island	Advisory Council on Science and Technology
10	Quebec	Council on Science and Technology
11	Saskatchewan	Economic Diversification Council
12	Yukon	Yukon Science Institute

SUMMARY

PROVINCIAL ADVISORY COUNCILS ON SCIENCE AND TECHNOLOGY

Each of the ten Canadian provincial governments has an advisory council on science and technology. All councils, except for the Manitoba council, were formed after 1983. Their mandates have a common theme: to advise the provincial government on science and technology as they relate to economic development in the province. The councils report either to the premier or to a minister whose portfolio is related to industry, science, and/or economic development. The premier chairs the council in three provinces: Alberta, Saskatchewan, and Ontario. The number of meetings ranges from three to twelve per year.

Council members are appointed for two or three year terms by any one of: the premier, minister, or cabinet. The size of the councils ranges from seven (New Brunswick) to forty-seven (Ontario). All councils have members chosen from the business and academic communities. Two councils (New Brunswick and Newfoundland) do not have representatives from government.

In general, the councils provide advice in the form of confidential written and verbal reports. Reports are drafted by a secretariat that provides administrative and research support. Some councils have access to cabinet documents. Except for the British Columbia council, none of the councils has a budgetary role. Committees are formed to address specific issues and are disbanded once their goals have been met. Recurring themes in the activities of the councils include public awareness, education, training, and technology transfer.

The Yukon and Northwest Territories do not have advisory councils, but have science institutes that undertake a broad range of activities that includes providing advice on science and technology to their territorial governments.

ALBERTA
PREMIER'S COUNCIL ON SCIENCE AND TECHNOLOGY

MANDATE

The mandate of the Council is to advise the Government of Alberta on:

- Science and technology as they relate to economic and social development and to the ability of Alberta to compete effectively in the global marketplace;

- The resources within and outside the Government that should be devoted to the development of science and technology and recommend guidelines for the allocation of those resources; and

- The objectives of a science and technology development policy.

The Council was formed in 1990.

MEMBERSHIP

The Council consists of the Premier, the Minister of Technology, Research and Telecommunications, and twenty-four members appointed by the Premier. Members are appointed for three years, with the possibility of renewal. Members are selected from the business, labour, and education communities. Currently, the Council has four ex officio members and five Ministers (Education; Advanced Education; Agriculture; Environment; and Technology, Research and Telecommunications).

STRUCTURE AND OPERATIONS

Meetings are held four times per year. The agenda is set by the Premier with input from the Minister and the Council. The Premier is the Chairperson. The Minister of Technology, Research and Telecommunications and a non-government Council member are Co-Chairpersons. The Council reports to the Premier in the form of confidential written and verbal reports. Committees are formed to address specific issues and are disbanded once their goals have been met. There is a permanent Steering Sub-Committee.

A Secretariat provides research and administrative support. It consists of the Secretary of the Council, a research director, and an administrative officer.

The Council has an annual budget of $375,000.

LINKAGES AND ACTIVITIES

The Council has formal and informal relations with other provincial and federal advisory councils on science and technology.

Recommendations have been made in the following areas:

- Science and technology awareness programs
- Research consortia
- Total quality management
- Education
- Women in science and technology
- Government support for science and technology
- High performance computing policy

The following committees have been formed:

- Steering sub-committee
- Role of government support for science and technology
- Alberta in the future and the role of science and technology
- Encouraging the science and technology culture in Alberta
- National strategies on science and technology
- High performance computing policy

PUBLICATIONS

There are no publications.

MEMBERS

Hon. Don Getty	Premier of Alberta (Chairperson)
Hon. Fred Stewart	Minister of Technology, Research and Telecommunications (Co-Chairperson)
Hon. Jim Dinning	Minister of Education
Hon. John Gogo	Minister of Advanced Education
Hon. Ralph Klein	Minister of Environment
Hon. Shirley McClellan	Associate Minister of Agriculture
Dr. Bob Church	Professor, University of Calgary (Co-Chairperson)
Mr. Arthur Dubbeldam	President, Jireh Industries Ltd., Ardrossan
Dr. Eric Geddes	Chairperson, Advanced Technology Project, Edmonton
Ms. Patricia Glenn	President, InteCura Consulting, Edmonton
Mr. Jim Gray	Executive Vice President, Canadian Hunter Exploration Ltd., Calgary
Mr. Hugh Kellough	President, Kellobilt Industries Ltd., Stettler
Mr. Mark McCullough	Business Manager, Iron Workers Local 720, Edmonton
Mr. John McDougall	President, Dalcor Innoventures Ltd., Edmonton
Mr. Lester Oilund	President, Ultimate Forest Products Ltd., Grand Prairie
Dr. Seamus O'Shea	Vice President, Academic, University of Lethbridge
Ms. Alice Payne	Senior Geologist, Gulf Canada Corporation, Calgary
Mr. B.J. Seaman	Chairman of the Board, Bovar Inc., Calgary

Mr. Sandy Slator	President and CEO, Vencap Equities Alberta Ltd., Edmonton
Mr. Ron Southern	Deputy Chairman and CEO, ATCO Ltd., Calgary
Dr. Mary Spencer	University Professor Emeritus, University of Alberta
Mr. Norman Storch	Farmer, Hanna
Mrs. Merle Taylor	President, Merle Taylor Management Consulting, Edmonton
Ms. Sharon Thomas	Senior High School Chemistry Teacher, Doctoral Candidate, University of Calgary
Mr. Marshall Williams	Corporate Director, TransAlta Utilities, Calgary
Mr. Clifford Wright	Pharmacist, Medicine Hat

Ex Officio

Dr. Brian Barge	President, Alberta Research Council
Dr. Paul Davenport	President, University of Alberta
Dr. Murray Fraser	President, University of Calgary
Dr. Stanley Souch	President, Northern Alberta Institute of Technology

Secretariat

Dr. Alan Vanterpool	Secretary of the Council
Barbara Nyland	Director of Research and Assistant Secretary

CONTACT

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BRITISH COLUMBIA
PREMIER'S ADVISORY COUNCIL ON SCIENCE AND TECHNOLOGY

MANDATE

The mandate of the Council is:

- To advise the Premier on science and technology policy development and implementation;
- To advise the Premier on specific issues and initiatives of particular importance to the province; and
- To promote awareness of science and technology.

The Council was formed in June 1987.

MEMBERSHIP

The Council consists of fifteen members appointed by the Premier. Members are appointed for three years, with the possibility of renewal. Members are recommended from the science, business, and academic communities to the Minister of Advanced Education, Training and Technology, and thence to the Premier. The Minister is an ex officio member. There are no other Ministers or ex officio members on the Council.

STRUCTURE AND OPERATIONS

Meetings are held approximately once per month. The agenda is set by the Chairperson with input from the Premier, the Minister, the Council, and the Secretariat. The Council reports to the Premier in the form of confidential written and verbal reports. Regular communications are held with the Cabinet Committee. Advice is given on Cabinet documents. Task Forces are struck to address specific issues and are disbanded once their goals have been met. There are no standing committees.

A Secretariat provides research and administrative support. It consists of: a part-time director, who works on policy, special events, studies, and presentations; and two full-time administrative staff, who are responsible for the daily operations of the Council.

The Council has a budget of approximately $300,000, with over $100,000 being spent on consulting services.

LINKAGES AND ACTIVITIES

The Council has formal and informal relations with other federal and provincial advisory councils. Within the province, the Council receives briefings from the Science Council of British Columbia. Also, the Council meets annually with the Premier's Economic Advisory Council. Outside the province, linkages include regular communication/liaison with: science and technology developments in the northwest United States; the education and post-secondary education systems in other states and provinces; and various national organizations such as the Canadian Manufacturers' Association, the Business Council on National Issues, and the National Research Council.

The Council has input on fiscal planning through the evaluation of the province's $420 million Science and Technology Fund.

The Council's accomplishments include:

- Developing a provincial science and technology policy;
- Recommending the implementation of the Science and Technology Action Plan;
- Identification, and ongoing review, of new initiatives;
- Holding regional workshops throughout the province; and
- Hosting the 1991 National Forum on Science and Technology Advisory Councils

The Council has formed the following Task Forces:

- TRIUMF-KAON
- Canada Space Plan
- Hydrogen (as an alternative fuel)
- Education and Training
- Communications
- Free Trade
- Wireless Communications Institute
- Pharmaceuticals
- Geographic Information Systems
- Science and Technology Fund
- Public Awareness
- Technology Transfer

PUBLICATIONS

The Council does not publish documents.

MEMBERS

Bob Alexander	Vice-President, Planning and Technology, Commonwealth Games Society, Victoria (Chairperson)
Philip Beckman	Professor, University College of the Okanagan, Kelowna
Larry Bell	President, Westar Group, Vancouver
Hilda Ching	Professor, Simon Fraser University, Burnaby
Haig Farris	President, Fractal Corporation, Vancouver
Roger Fox	Retired Teacher, Prince George
Gail Gabel	Managing Director, Aanderaa Instruments, Victoria
John Kitson	Consulting Food Technologist, Summerland
John MacDonald	Chairman of the Board, MacDonald-Dettwiler and Associates, Richmond
Al Matheson	Dean of Science, University of Victoria
Jim McEwen	President, Andronic Devices, Richmond
David Strangway	President and Vice-Chancellor, University of British Columbia, Vancouver
John Watson	President, British Columbia Institute of Technology, Burnaby
John Webster	Professor, Simon Fraser University, Burnaby
Jack Wilson	President, Robotics Systems International, Sidney

Secretariat

Jim Garton	Executive Director, Vancouver
Ian Thomas	Administrator, Victoria
Margaret Hierons	Administrative Assistant, Victoria

CONTACT

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ECONOMIC AND INNOVATION TECHNOLOGY COUNCIL

MANDATE

The Manitoba Research Council (MRC) was both an advisory council and a provincial research organization. As an advisory council, its mandate was to advise the Government of Manitoba on science and technology policies appropriate for the economic development of the province. The Council was formed in 1963.

In September 1991, a restructuring of the Manitoba Research Council into the Economic and Innovation Technology Council (EITC) was announced by the Government. A new Economic Development Cabinet Committee will be formed to act as a focal and coordination point for economic priorities and initiatives. The restructured Council will serve as this new Cabinet Committee's link to the private sector.

MEMBERSHIP

In January 1992, the Government appointed twenty-nine council members to the EITC, representing the academic, business, and labour sectors, for terms ranging from one to three years. The chair of the MRC, Russ Hood, will continue as chair of the EITC.

STRUCTURE AND OPERATIONS

Details of the operations of the EITC have not yet been delineated. Meetings of the MRC were held approximately six times per year. The agenda was set by the Chairperson and the Council. The Council reported to the Minister of Industry, Trade and Tourism through confidential written reports and formal presentations. The Council had four standing committees: executive, finance, planning, and marketing.

LINKAGES AND ACTIVITIES

The MRC had formal and informal relationships with federal and provincial research organizations. For example, there was a close working relationship with the National Research Council for the delivery of industrial research assistance program services. In addition, the MRC was a member of the Association of Provincial Research Organizations. These relationships may be retained by the EITC.

PUBLICATIONS

- Annual reports of the MRC

- The Manitoba Consultation Findings: A Review of the Draft National Science and Technology Action Plan, September 1990.

  The report presents the findings of a consultation process with Manitoba stakeholders on the Action Plan. The review was conducted by the Manitoba Research Council in its capacity as Manitoba's Science and Technology Advisory Council. There was strong agreement that the cornerstones of a provincial implementation plan should: stimulate industrial innovation, develop a science culture, develop human resources, and promote relevant research.

MEMBERS OF THE ECONOMIC AND INNOVATION TECHNOLOGY COUNCIL (January 1992)

Russ Hood	Vice-President, UMA Group (Chairperson)
John Wade	Consultant, St. Boniface General Hospital Research Centre (Vice-Chairperson)
Colin Allan	Vice-President, Whiteshell Nuclear Research Laboratories
Lorne Ames	President, INCO Ltd.
Barbara Bruce	Executive Director, Canadian Council for Native Business
Steve Childerhouse	President, Winnipeg Chamber of Commerce
Harley Cohen	Dean of Science, University of Manitoba
Dick Dawson	Senior Vice-President, Cargill Ltd.
Ken Einarson	Vice-President and General Manager, Simplot Canada Ltd.
Sarah Everett	President and CEO, DOMO Gasoline Ltd.
Jo Franje	General Manager, Triple E Canada Ltd.
Ed Fullerton	International Association of Machinists and Aerospace Workers
Robert Hamaberg	President, Standard Aero Ltd.
Marsha Hanen	President, University of Winnipeg
G.E. Laliberte	Dean of Engineering, University of Manitoba
Garry Leach	President and General Manager, Manitoba Rolling Mills
Doneta A. Porteous	Senior Vice-President, Canadian Imperial Bank of Commerce
Ed Prefontaine	President, Rescom Ventures Inc.
Lynn Raskin-Levine	Managing Partner, Peat Marwick Stevenson & Kellogg

Paul Richards	Vice-President and General Manager, REPAP Manitoba
Sanford Riley	President, Investors Group
Terry Robson	President, Manitoba Chamber of Commerce
Bob Silver	President, Western Glove Works Ltd.
Frank Sissons	President, Sissons Farms Ltd.
Paul Soubry	Chairman of the Board of Ford New Holland Canada Ltd. and General Manager of Versatile Farm Equipment Operations
Ernest Stefanson	President-Elect, Canadian Pharmaceutical Association
Mary Tiller	President, Tribal Council Investment Group Inc.
Garth Whyte	Director of Provincial Affairs for Manitoba and Saskatchewan, Canadian Federation of Independent Business
Dan Will	United Steelworkers

CONTACT

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NEW BRUNSWICK
MINISTER'S ADVISORY BOARD ON SCIENCE AND TECHNOLOGY

MANDATE

The mandate of the Board is to advise the Government of New Brunswick on science and technology policy and activities and the effect that these may have on social and economic development in the province.

The Board was formed in 1987.

MEMBERSHIP

The Board currently consists of seven members, appointed by the Minister of Economic Development and Tourism. There are no specific guidelines for sector representation or for appointment terms. There are no ex officio members.

STRUCTURE AND OPERATIONS

The Council usually meets two or three times per year. The agenda is set by the Department of Economic Development and Tourism. Currently, Dr. K. Grotterod is the Chairperson. He is also the Chairperson of the New Brunswick Research and Productivity Council, the provincial research organization. The Assistant Deputy Minister of Commerce and Technology is the Secretary. The Council reports to the Minister in the form of confidential written reports. No advice is offered on Cabinet documents.

A Departmental staff person provides research and administrative support. Reports are written by the Department with input from the Council.

The Council has no specific annual budget.

LINKAGES AND ACTIVITIES

The Council has informal relations with other federal and provincial advisory councils.

The Council has undertaken a study on a science and technology policy for the province. The Council has no fiscal planning role. The Board's activities will be reviewed in 1992.

There are no publications.

MEMBERS

Knut Grotterod	Chairman of the Board, New Brunswick Research and Productivity Council (Chair)
Charles F. Baird	Vice-President, New Brunswick Electric Power Commission
N. Byron Cavadias	Senior Vice-President, CAE Electronics Ltd., Saint-Laurent, Quebec
James H. Evans	Chief Engineer, McCain Foods Ltd., Florenceville
Dermot Kingston	Representative of the New Brunswick Federation of Labour
Dr. Margarida Krause	Professor of Biology, University of New Brunswick
Dr. Salem E. Masry	President, Universal Systems Ltd., Fredericton

Secretariat

G. Stephenson Wheatley	Secretary of the Council, Assistant Deputy Minister of Commerce and Technology
Dr. Peter G. Daye	Policy Advisor

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NEWFOUNDLAND AND LABRADOR
SCIENCE AND TECHNOLOGY ADVISORY COUNCIL

MANDATE

The mandate of the Council is to advise the Newfoundland Cabinet in a wide range of areas related to science and technology, and to promote consultation and discussion within the community. The terms of reference are as follows:

- Advise on the formation and implementation of science and technology policies;
- Advise on needs for and mechanisms to gather, organize, and disseminate information on scientific research, technology transfer and innovation;
- Advise on mechanisms (educational, promotional, or otherwise) to encourage the development and use of technology and the enhancement of skilled personnel in the province;
- Advise on mechanisms and criteria for the evaluation and funding of research and development proposals and contribution to identifying strategic priorities and opportunities;
- Advise on the impact of technology on business and labour and on the most effective means for dealing with technological change;
- Facilitate discussions on science and technology policy with the federal government, the governments of other provinces, and interested groups or individuals;
- Consider all matters brought to it by Ministers and report back to Ministers on such matters; and
- Present an annual report on the status of science and technology initiatives within the province.

The Council was formed in May 1988.

MEMBERSHIP

The Council consists of fourteen members appointed by the Premier. Members are appointed for two years with the possibility of renewal. The varied background of the members, drawn from research, education and industry, allows the Council to address a wide range of science issues. There are no Ministers or ex officio members on the Council.

STRUCTURE AND OPERATIONS

Meetings are held ten times per year. The agenda is set by the Council with input from the Secretariat. The Council reports to the Cabinet Committee through the Minister of Development in the form of confidential written and verbal reports. Advice is offered on Cabinet documents. Committees are formed to address specific issues and are disbanded once their goals have been met.

A Secretariat provides research and administrative support. It consists of a director, a research officer, and an administrative officer. Reports are written by the Secretariat with input from members of the Council and occasionally consultants.

The Council has an annual budget of $300,000.

LINKAGES AND ACTIVITIES

The Council has informal relations with other federal and provincial advisory councils, in particular with the Science Council of Canada, and the councils in British Columbia and Nova Scotia.

The Council has formed ad hoc committees on:

- Oil and Gas
- Medical Research
- Public Awareness
- Forestry
- Education

The Council plays no role in the budgeting and fiscal allocation decisions of the science and technology department or other departments.

In the past two years, the Council has pursued three areas: industrial activity, education, and science awareness.

Industrial Activity

In the past year, the Council has pursued three goals related to industrial activity and innovation. The first is to raise the profile of science and technology based industrial innovation. The second is to provide the provincial government with specific recommendations toward the enhancement of industrial innovation. The third goal is the initiation of a strategic planning process related to the implementation of industrial innovation on a sectoral basis.

In October 1989, the Council held a public seminar entitled "Changing Newfoundland's Economy Through Science and Technology". The seminar attracted about 200 people representing the business, labour, education, and government communities. Speakers were chosen to reflect a national perspective, approaches from other provinces, and local examples. The main value of the seminar was in the dialogue established, particularly between educators and industry.

Based upon independent research and a consultative round table process, the Council provided the Government with recommendations for the enhancement of industrial innovation and the growth of advanced technology business in the province. The recommendations resulted from a round table debate involving 34 participants from the technology community, investment community, research institutes, and government agencies. Areas of consensus included the importance of the Government's leadership in establishing a clear science policy, initiating a process of strategic planning, and using strategic procurement and enabling contracts to strengthen the local technology community. Recommendations are intended to both provide some outline of suggested direction for the Government, plus more specific approaches for a shorter time frame.

Last year, work was started on a sector-by-sector strategic plan to establish targets for science and technology based industrial innovation. The first two sectors selected by the Council were Fish and Food Processing, and Information Technologies. The planning process will proceed through research and round table discussion through 1991.

Communities themselves must also be directly involved in planning to apply aspects of science and technology for economic development. In a pilot project, this regional planning process began in Western Newfoundland in cooperation with this Council and the Science Council of Canada and resulted in a strategic planning session in November 1990.

Education

The Council has been very active of late in looking at education, with the release of several reports including that of the Task Force on Mathematics and Science Education. Through its Secretariat, the Council has direct input into the development of the science curriculum and course design, and is also developing programs such as the "Scientists in the Schools" speakers program which emphasizes links between education and industry. Consultation and research will be focused on strategies for enhancing science education at the elementary level, particularly related to teacher training.

Science Awareness

The Council participates in many science awareness projects, for example the Science Fair movement and the Shad Valley program. Also, the Council collaborates with organizations such as Women in Science and Engineering. The Council's workshops and seminars have sometimes been targeted to specific groups such as science teachers in the school system, or on pertinent issues such as the establishment of a science centre in the province.

PUBLICATIONS

Newfoundland and Labrador Science and Technology Advisory Council, Annual Report 1990/1991. In the appendices of this document, there are four papers:

- What is a Science Centre?
- Science Education in the Early Grades
- Recommendations for the Enhancement of Industrial Innovation
- Towards a Sector Plan for Newfoundland's Food Industries

MEMBERS

Dr. Lou Visentin	Dean of Science, Memorial University (Chairperson)
Mr. David Fong	President, RDS Engineering Ltd. (Vice-Chairperson)
Ms. Heather Anderson	Retired School Teacher, St. John's
Dr. Chris Campbell	Vice-President of Applied Technology, Marine Institute
Ms. Leslie Grattan	Environmental Supervisor, Hibernia Management and Development Co. Ltd.
Mr. Timothy Gushue	School Teacher, Corner Brook
Dr. Max House	Director of MEDICOR and Telemedicine Centre, Health Science Centre
Dr. Linda Inkpen	President, Cabot Institute
Mr. John Lee	Manager of Capital Projects, Corner Brook Pulp and Paper Ltd.
Ms. Darlene Ludlow	Regional Investigations Supervisor, Environment and Lands, Corner Brook
Mr. Rex Parsons	President, NORDCO
Mr. Derrick Rowe	President, Ultimateast Data Communications Ltd.
Ms. Darlene Whalen	Department of Co-op Education, Memorial University
Dr. Edgar Williams	Department of Mathematics and Statistics, Memorial University

Secretariat

Dr. Les Hulett	Executive Director
Dr. Jack Botsford	Director of Research
Ms. Dolarosa Power	Administrator

CONTACT

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SCIENCE INSTITUTE OF THE NORTHWEST TERRITORIES

MANDATE

The Science Institute of the Northwest Territories was established in 1985 under legislation of the Government of the Northwest Territories (NWT). The mandate of the Institute is to provide scientific, engineering and technological perspectives to the Legislative Assembly on the social and economic needs of the people.

MEMBERSHIP

The Institute, a non-profit organization, is governed by a Board of Directors of seven to thirteen members, at least half of whom must be resident in the Northwest Territories.

STRUCTURE AND FUNCTION

The Board of Directors met twice in 1990/91. At its second meeting, an in-depth discussion of the mandate and future course of the Institute was considered during a day-long workshop.

The Institute's goals are achieved through an Executive Director, Program and Research Centre Managers, a Finance/Administration Manager, and support staff.

The budget of the Institute in 1991 was $1.97 million Canadian dollars, most of which came from the Government of the NWT.

LINKAGES AND ACTIVITIES

To achieve the Institute's mandate of fostering science and technology, four complementary programs have been developed:

- **Science Advisory Services Program:** Issues licenses for research conducted within the NWT. Through this registration process, information is shared amongst researchers and the northern populace.

- **Scientific Services Program:** Offers logistical support to researchers through three Research Centres in Igloolik, Iqaluit, and Inuvik.

- **Information/Education Program:** Assists in developing a science culture within the northern society. A Public Education Working Group was formed to encourage information and resource sharing among those charged with public science

education. Members of the Group included people from the Government of the NWT, federal departments (Industry, Science and Technology Canada; Environment Canada; Canadian Wildlife Service), and non-government agencies (Ecology North; NWT Association of Professional Engineers, Geologists and Geophysicists).

- **Technology Development Program** (including the NWT component of the Industrial Research Assistance Program of the National Research Council): Brings viable technology to northern businesses and assists northern industry to develop unique technologies for the domestic and international marketplace. Initial research has led to five technological foci: alternative energies, environment, food production, engineering/building science, and traditional knowledge database/artificial intelligence.

The Executive Director participates in a number of territorial, national and international committees. As Science Advisor to the Government of the NWT, he accompanies the Territorial Minister responsible for scientific matters to meetings of the Council of Science and Technology Ministers, and collaborates with colleagues across Canada on related committees. As part of the task, the Director participated in preparing the National Action Plan for Science and Technology.

The Executive Director also sits on the Arctic Contaminants Technical and Policy Advisory Committee, the Northern Scientific Training Program Adjudication Committee, the International Arctic Science Committee, the Government of the NWT Remote Sensing Committee, the Churchill Northern Studies Advisory Committee, and the Advisory Committee for the Canadian Circumpolar Institute.

PUBLICATIONS

The Institute publishes an education newsletter, a researcher newsletter, a public newsletter on the Institute, and an annual report.

BOARD OF DIRECTORS

Mr. John Parker	Chairperson, Science Institute of the Northwest Territories, Yellowknife, NWT
Ms. Joanne Barnaby	Executive Director, Dene Cultural Institute, Yellowknife, NWT
Dr. Noah Carpenter	Doctor, St. Joseph's Hospital, Comox, British Columbia
Mr. George Hobson	Geophysicist, Manotick, Ontario
Mr. John Jamieson	Educator, Wrigley, NWT
Dr. Kaye MacInnes	Environmental Scientist, Indian and Northern Affairs, Yellowknife, NWT
Dr. Malcolm A. Ramsay	Associate Professor, Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan

SCIENCE INSTITUTE OF THE NORTHWEST TERRITORIES

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Mr. J. Douglas Heyland	Executive Director
Mrs. Anna Buss	Science Administrator, Science Advisory Services
Dr. S.Y. (Joe) Ahmad	Manager, Technology Development Program
Mr. Craig d'Entremont	Industrial Technology Advisor, Industrial Research Assistance Program
Mr. David Sherstone	Director, Scientific Services
Mrs. Yvonne Leonardis	Manager, Finance and Administration
Ms. Elaine Riddell	Clerk/Secretary III
Ms. Gwen Cochrane	Clerk/Secretary II
Ms. Sany Wayling	Clerk/Secretary II
Vacant	Coordinator of Information/Education
Vacant	Executive Secretary

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Mr. George Qulaut	Operations Manager
Mr. Maurice Arnatsiaq	Technician

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Mr. Gary White	Manager
Mr. Les Kutny	Technician
Ms. Mabel Kudlak	Clerk/Secretary

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Mr. Robert Longworth	Manager
Ms. Panik Lynn Cousins	Technician

NOVA SCOTIA
COUNCIL OF APPLIED SCIENCE AND TECHNOLOGY

MANDATE

In pursuance of fundamental objectives of supporting and enhancing the overall quality of life in Nova Scotia, the mandate of the Council is as follows:

- To stimulate the application of science and technology and the utilization of the province's science and technology assets in support of economic development;

- To advise and make recommendations to the Government on science and technology policies which will contribute to economic development; and

- To contribute to increasing the awareness of the importance of science and technology to economic development.

The Council was formed in October 1987.

MEMBERSHIP

The Council consists of fifteen members appointed by Cabinet. Members are appointed for two years. Members are chosen from the business, labour, education, and government communities. The Deputy Minister of Industry, Trade and Technology is an ex officio member.

STRUCTURE AND OPERATIONS

Meetings are held eleven times per year. The agenda is set by Council. The Council reports to the Minister of Industry, Trade and Technology in the form of confidential written and verbal reports. The Council forms committees to address specific issues. Once their goals have been met, the committees are disbanded. There are no standing committees. Reports are written by the Secretary of the Council.

The Council has an annual budget of $100,000.

LINKAGES AND ACTIVITIES

The Council has formal and informal relations with other federal and provincial advisory councils, particularly the Atlantic councils.

The Council's accomplishments include:

- Analysis and advice on the reduction of sulphur emissions from coal fired power stations;
- Preparation of a comprehensive program to raise awareness of science and technology among small and medium sized businesses;
- Preparation of a report to the Council of Maritime Premiers on a regional approach to technological innovation and diffusion;
- Organizing the first Canadian conference of provincial and federal science and technology advisory councils;
- Advice on community colleges and technology transfer to rural areas;
- Recommendations on government financed technology institutes;
- Enhancement of institutional-industry linkages;
- Input on the technology section of the Nova Scotia Economic Strategy;
- Recommendations regarding criteria and programs for the Nova Scotia First Fund;
- Publication of a promotional brochure on science and technology capabilities in Nova Scotia;

The Council's ongoing activities include:

- Investigation of the impact of adopting a GERD/GDP ratio target of 2.5% for the province;
- Organizing workshops by the Task Force on Industry/Institutional Linkages;
- Driving a product development laboratory initiative;
- Evaluation of the Greenplan by the Task Force on the Environment;
- Collaboration with various government departments on the implementation of the Nova Scotia Economic Strategy;

The Council's future plans include:

- Improving the regulatory environment; and
- Further work on information technology, technology transfer, awareness, and education.

PUBLICATIONS

- Report to the Council of Maritime Premiers on a regional approach to technological innovation and diffusion.
- Promotional brochure on science and technology capabilities in Nova Scotia.

MEMBERS

Robert O. Fournier	Dalhousie University, Halifax (Chairman)
Peter Adams	President, Technical University of Nova Scotia, Halifax
Patricia Bewers	Principal, Patricia Bewers Consulting, Halifax
Willard S. Boyle	Atlantic Research Associates, Wallace
Dennis Covill	Chairman, Nautel, Tantallon
James D. Eisenhauer	President, ABCO Industries Ltd., Lunenburg
Hector Jacques	Chairman of the Board, Jacques Whitford and Associates, Dartmouth
William MacLennan	Executive Director, Atlantic Institute of Biotechnology, Halifax
Hugh Macpherson	President, Oceanroutes Canada Inc., Dartmouth
Steve MacPhee	Regional Director of Science, Bedford Institute of Oceanography, Dartmouth
Charles McMillan	Yamaichi International (Canada) Ltd., Toronto, Ontario
Thomas B. Nickerson	President and Chairman of the Board, Nova Scotia Research Foundation, Dartmouth
Kelvin Ogilvie	Vice-President Academic, Acadia University, Wolfville
Douglas Pincock	President, Applied Microelectronics Institute, Halifax
Bob A. Russell	Regional Executive Director, Industry Trade and Technology Canada

Ex Officio

Tom Merriam	Deputy Minister, Department of Industry, Trade and Technology

Observer

Ivor Harrington	Department of Industry, Trade and Technology

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ONTARIO
PREMIER'S COUNCIL ON ECONOMIC RENEWAL

MANDATE

The mandate of the Council is to accelerate economic renewal in Ontario by:

- Providing the Premier with strategic advice on long term economic issues facing the province;
- Exploring creative means to engage wide public participation; and
- Providing a forum for consensus building on issues between stakeholder groups.

The Council is action-oriented, with an emphasis on implementing change rather than recommending solutions.

The first Council was formed in April 1986. The current Council was formed in February 1991 under the name of the Premier's Council on the Economy and Quality of Life. The name was changed in June 1991 to emphasize the Council's specific interest, but the intention was not to isolate economic policy from social policy.

MEMBERSHIP

The Council consists of the Premier, nine Ministers, and thirty-seven people from the business, labour and education communities. Members are appointed by the Premier, and serve three year terms. In addition to sectoral representation, a balance is sought based on region and gender. Eight members were on the previous Council. The Deputy Ministers to the Ministers on the Council are ex officio members.

STRUCTURE AND OPERATIONS

The Premier is the Chair of the Council and the Treasurer is the Vice-Chair. Meetings are held four times per year. The agenda is set by the Steering Committee, which is chaired by the Premier, with input from the Council and the Secretariat. Subcommittees or task forces are formed to address specific issues and are disbanded once their goals have been met.

A Secretariat provides research and administrative support. It is headed by a Deputy Minister who reports to the Premier. The Secretariat is divided into two groups, research and partnership,

each headed by an Executive Director reporting to the Deputy Minister. There are several professional staff and support staff in each group for a total of twenty person years. The Deputy Minister attends confidential Cabinet Committee meetings. Regular communications are held with the Cabinet Office. The Secretariat is privy to confidential Cabinet documents. Administration and communication services are shared with the Premier's Council on Health, Well-Being and Social Justice.

The Council has an annual budget of $3.7 million.

LINKAGES AND ACTIVITIES

The Council has no formal relations with other advisory councils, but maintains informal working relationships with many other bodies both through the Secretariat and through the members. The Council has no direct role in fiscal planning.

The Council has created Task Forces in the following areas:

- Investment in Ontario
- A Review of the Technology Fund
- Life Long Learning
- Organization of Work

PUBLICATIONS

Competing in the New Global Economy (1989)

People and Skills in the New Global Economy (1990)

MEMBERS

Bob Rae	Premier of Ontario (Chair)
Floyd Laughren	Provincial Treasurer and Minister of Economics (Vice-Chair)
Richard Allen	Minister of Colleges and Universities and Skills Development
Elmer Buchanan	Minister of Agriculture and Food
Ruth Grier	Minister of Environment
Bob Mackenzie	Minister of Labour
Shelley Martel	Minister of Northern Development
Ed Philip	Minister of Industry, Trade and Technology
Gilles Pouliot	Minister of Transportation
Tony Silipo	Minister of Education

Dan Alexander	President and CEO, St. Mary's Paper Inc.
Clare Beingessner	Vice-President, B and W Heat Treating Ltd.
Avie Bennett	President, Chair and CEO, McClelland and Stewart Inc.
Karl Bennett	Professor of Economics, University of Waterloo
Jalynn Bennett	President, Jalynn H. Bennett and Associates
Pat Bird	Counsellor Times Change Women's Employment Service
Paul Cantor	President, Investment Banking, Canadian Imperial Bank of Commerce
David Clark	Chair and CEO, Campbell Soup Co.
Walter Curlook	Executive Vice-President, INCO Ltd.
Margot Franssen	President and Owner, The Body Shop (Canada)
Leo Gerard	Director, United Steelworkers of America, District 6

Judy Goldie	Manager, Canadian Cooperative Association
Peter Herrndorf	Publisher, Toronto Life magazine
Deszo Horvath	Dean, York University
Ron Ianni	President, University of Windsor
G. Kenney-Wallace	President, McMaster University
Bill Kuehnbaum	Teacher, Cambrian College
Claude Lamoureux	CEO, Ontario Teachers' Pension Plan Board
Michael List	Vice-President, International Semi-Tech Microelectronic
Andree Lortie	President, La Cite collegiale
Guy Matte	Administrative Assistant, Franco-Ontarian Teachers' Association
Marcia McClung	President, Applause Communications
Les McClean	Vice-President, Stelco Inc.
J. Fraser Mustard	President, The Canadian Institute for Advanced Research
Roly Nicholls	President, Milne and Nicholls Ltd.
Robert Ogilvie	Chair and CEO, Toromont Industries Ltd.
Delia Opekokew	Lawyer and consultant to native communities on economic development
Bonnie Patterson	Dean, Ryerson Polytechnical Institute
George Peapples	President and General Manager, General Motors of Canada
Fred Pomeroy	President, Communications and Electrical Workers of Canada
Robert Rosehart	President, Lakehead University
Anita Ross	Vice-President Personnel, IBM Canada Ltd.
Helen Sinclair	President, Canadian Bankers' Association
George Smyth	President, Bell Northern Research

John Stefanini	Business Manager, Labourers' District Council of Ontario
Dennis Williams	Chair and CEO, General Electric Canada Inc.
Gordon Wilson	President, Ontario Federation of Labour

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PRINCE EDWARD ISLAND
ADVISORY COUNCIL ON SCIENCE AND TECHNOLOGY

MANDATE

The mandate of the Council is to work with institutions and industry to promote and enhance science, innovation, industrial research and development, and technology transfer in Prince Edward Island.

The objectives of the Council are:

- To increase public awareness and understanding of, and attitudes towards, science and technology that will enhance the ability of people to adapt to new appropriate technologies and increase initiatives in the science fields;

- To maximize the inflow of dollars into provincial research, innovation and technological advancements;

- To stimulate the application of science and technology to enhance industrial competitiveness and job creation through research and development and exploitation of technology; and

- To create a coordinated infrastructure through identification of linkages between industry and institutions (government, college and university) influencing science related activities, innovation and technological advancements.

The Council was formed in August 1988.

MEMBERSHIP

The Council consists of ten members appointed by Cabinet. Members are appointed for two to three years, with the possibility of renewal. Members are selected from the business, research, educational, and government communities. The Deputy Minister of Industry is a member.

STRUCTURE AND OPERATIONS

Meetings are held about four times per year. The agenda is set by Council. The Council reports to the Minister of Industry in the form of confidential written and verbal reports. Advice is given on Cabinet documents. Committees are formed to address specific issues and are disbanded once their goals have been met. The Department of Industry provides funding and staff support for the operations of the Council.

LINKAGES AND ACTIVITIES

The Council has:

- Provided advice on a number of science and technology topics to the Government through the Department of Industry;
- Presented a brief on science and technology to the Cabinet;
- Sponsored a campaign to educate people of all ages to the importance of science and technology;
- Recommended the establishment and helped to develop the guidelines for the Innovation PEI program of the Department of Industry. Also, reviewed applications received under the program and recommended projects for approval;
- Acted as one of the major sponsors of the annual provincial science fair;
- Noted and supported the several projects advanced by the University and Holland College to link the province externally as well as internally to computer networks;
- Participated in three National Forums of Science and Technology Advisory Councils; and
- Cooperated with the Nova Scotia Council of Applied Science and Technology and the New Brunswick Minister's Advisory Board on Science and Technology in the development of advice for consideration by the Council of Maritime Premiers.

PUBLICATIONS

Two newsletters have been produced by the Council.

MEMBERS

Regis Duffy	President, Diagnostic Chemicals Ltd., West Royalty (Chairperson)
Ginger Breedon	Deputy Minister of Industry
Richard Ablett	Executive Director, Food Technology Centre, Charlottetown
James Bellamy	Coordinator of Graduate Studies and Research, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown
Austin Bowman	Development Officer, Industry, Science and Technology Canada
C. William J. Eliot	President, University of Prince Edward Island
Nora Gaudette	Manager, Westech Agriculture, Alberton
Dave Healey	Acting Provincial Coordinator, Industrial Research Assistance Program, National Research Council, Charlottetown
George Power	Interim President, Holland College
Wayne VanToever	Integrated Aquatic Systems Ltd., North Wiltshire

Secretariat

Steve Szabo	Department of Industry

CONTACT

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QUEBEC
SCIENCE AND TECHNOLOGY COUNCIL
CONSEIL DE LA SCIENCE ET DE LA TECHNOLOGIE

MANDATE

The mandate of the Council is to advise the Government of Quebec on any matter relating generally to the advancement of science and technology.

The Council was formed in 1972, and was reformed in 1983.

MEMBERSHIP

The Council consists of fourteen members appointed by the Cabinet. Members are appointed for up to three years, with a possibility of renewal. Members are selected from the research, college and university, business and labour communities, the field of scientific and technical information and the public and para-public sectors. In addition to the regular members, there are three Government appointed observers: the Deputy Minister of Science and Higher Education; the Deputy Minister of Industry, Trade and Technology; and the Vice-President of Biotechnology from the National Research Council of Canada.

STRUCTURE AND OPERATIONS

Meetings are held eight to ten times per year. The agenda is set by the President. The President is the Chairperson and a full-time employee of the Council. The Council reports to the Minister of Science and Higher Education in the form of written reports, which are made public after the Minister has reviewed them. The Minister of Science and Higher Education meets occasionally with the Council and with the President. Committees are formed to address specific issues and are disbanded once their goals have been met.

A Secretariat provides research and administrative support. It consists of fourteen full-time employees and five part-time employees. These include seven full-time science advisors who are given assignments according to the Council's agenda. There is also a documentation centre and a person responsible for public relations and publications.

The Council has an annual budget of $1.327 million.

LINKAGES AND ACTIVITIES

The Council has informal relations with other federal and provincial councils.

The Council's current activities include:

- Development of strategic and action plans based on a Science and Technology survey for the Montreal region which is to be completed by the end of 1992; and

- Development of strategic and action plans based on a survey of the activities in biotechnology in Quebec, to be released in the beginning of 1992. A Committee on Biotechnology is working on these plans.

The new Council is working on its agenda for 1992. Committees will be formed for each activity approved.

The Council is required by law to report periodically to the Minister on the state of science and technology in Quebec.

MEMBERS

Louis Berlinguet	President of the Council
André Bazerguy	Director, Polytechnical School of Montreal
Laurent A. Bergeron	Executive Vice-President, Canadian Space Agency
André Besner	Researcher, Research Institute of Hydro Quebec
Micheline Bouchard	Vice-President Marketing, DMR Group Inc.
André Carrier	Director General, Sigma Mines Ltd.
Guy Fouquet	Vice-President, S.M. Group Inc.
Toby Gilsig	President, 3M Systems
Bernard S. Lachance	Director General, CEGEP (College) Bois de Boulogne, Montreal
Real L'Archevêque	Vice-President, Research and Technology, SNC-Lavalin Inc.
Richard Le Hir	Vice-President, Manufacturers' Association of Quebec
Laurent Picard	Professor, McGill University
Andrée G. Roberge	Scientific Advisor to the President of the University of Quebec
Gabriel Savard	President and Director General, Society of Industrial Development of Quebec

Observers

Michel Audet	Deputy Minister of Industry, Commerce and Technology
Maurice Brossard	Vice-President of Biotechnology, National Research Council; and Director General, Biotechnology Research Institute of Montreal
Pierre Lucier	Deputy Minister of Higher Education and Science

CONTACT

Camil Guy
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Quebec conseil de la science et de la technologie
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(418) 646-0920 fax

PUBLICATIONS

Unless translated, all publications are in French.

Conjoncture scientifique et technologique

- Science et technologie - Conjoncture 1985
  Vol. 1 Les enjeux, avril 1986, 63 p.
  Vol. 2 La situation, avril 1986, 125 p.

- Science et technologie - Conjoncture 1988
  Septembre 1988, 220 p.

- Science et technologie - Conjoncture 1988
  Résumé, septembre 1988, 64 p.

- Science et technologie - Conjoncture 1991
  Avril 1991, 94 p.

- Science et technologie - Conjoncture 1991. Les enjeux
  Avril 1991, 31 p.
  Science and technology - Status report 1991. Key Issues
  April 1991, 29 p.

Avis

- Les technologies de l'information
  Février 1984, 55 p.

- Le virage technolgique (Programme d'action économique 1982-1986). Février 1984, 76 p.

- Le programme de soutien à l'emploi scientifique du ministère de la science et de la technologie. Juin 1984, 42 p.

- Le développement industriel des biotechnologies au Québec
  Mai 1985, 68 p.

- L'emploi des diplômés en sciences sociales et humaines dans l'entreprise. Mars 1986, 64 p.

- La participation des femmes en science et en technologie au Québec. Septembre 1986, 102 p.

- La politique des subventions de contrepartie et les universités du Québec. Novembre 1987, 68 p.

- La performance du Québec dans le cadre de la politique fédérale d'impartition. Avril 1988, 83 p.

- Le marché public et le développement technologique au Québec. Octobre 1989, 74 p.

- Le Plan d'action national pour les sciences et la technologie. Août 1990, 64 p.

- L'adaption des entreprises aux nouvelles technologies. Novembre 1990, 147 p.
  The adaption of firms to new technologies - Summary and recommendations. January 1991, 22 p.

- La science et la technologie: en enjou prioritaire dans le débat sur l'avenir politique et constitutionel du Québec. Février 1991, 40 p.
  Science and Technology: a key issue in the debate on Quebec's political and constitutional future - Summary. February 1991, 10 p.

Mémoires

- Mémoire au groupe de travail sur les politiques et programmes fédéraux en matière de développement technologique. Février 1984, 30 p.

- La protection des programmes informatiques par le droit d'auteur. Mémoire au sous-comité de la Chambre des Communes du Canada. Mars 1985, 52 p.

- La collaboration université-entreprise et le financement de la recherche universitaire. Mémoire à la Commission parlementaire de l'éducation à l'occasion de la consultation générale sur les orientations et le cadre de financement du réseau universitaire québécois. Septembre 1986, 30 p.

- L'organisation de la politique scientifique et technologique au Québec. Document de réflexion. Novembre 1986, 31 p.

- Les avantages fiscaux associés aux activités de recherche et de développement. Mémoire. Mars 1988, 53 p.

Études

- La diffusion de la culture scientifique et technique au Québec. Par Jean-Marc Gagnon et Lise Morin. Mars 1986, 123 p.

- Recherche et formation en biologie végétale au Québec. Par Pierre Morisset et Rose-Marie Pelletier. Octobre 1986, 130 p.

- Les conséquences de la décentralization régionale des activités de R-D. Par Robert Lacroix et Fernand Martin. Mai 1987, 157 p.

- La diffusion des nouvelles technologies dans trois secteurs industriels. Par Pierre-André Julien, Jean-Bernard Carrière et Louis Hébert. Avril 1988, 125 p.

- Le marché public et le développement technologique au Québec: six rapports d'étude. Août 1989, 269 p.

- L'enseignement des sciences et des mathématiques en Amérique du Nord: en progrès ou en déclin? Par Graham Orpwood. Février 1990, 167 p.

- La recherche-développement dans l'industrie québécois du génie-conseil. Par Jorge Niosi. Avril 1991, 53 p.

- La mondialisation des marchés et la technologie. Par Yvan Bernier, Benoit Lapointe et Manon Tessier. Avril 1991, 75 p.

- Le Québec et le commerce international de haute technologie. Par Christian De Bresson, Hu Xiaoping et John Cotsomitis. Juin 1991, 93 p.

Colloques

- Les priorités de la politique scientifique et technologique du Québec. Colloque organisé par le Conseil et tenu le 8 février 1984, à Montréal. Juillet 1984, 21 p.

- Sciences sociales et transformations technologiques. Colloque organisé conjointement par le Conseil et le Regroupement québécois des sciences sociales et tenu le 25 avril 1986, à Montréal. Juin 1987, 305 p.

- Les conditions du développement technologique de l'entreprise en région. Colloque organisé par le Conseil et tenu à Sainte-Foy, les 28 et 29 avril 1988. Janvier 1989, 188 p.

- Séminaire sur les mesures fiscales d'incitation à la R-D. Séminaire organisé par le Conseil et tenu à Montréal, le 31 mars 1989. Mai 1989, 190 p.

- Les pratiques de l'évaluation sociale des technologies. Colloque organisé conjointement par l'Association canadienne-française pour l'avancement des sciences (ACFAS), le Centre de recherche en évaluation sociale des technologies (CREST), le Conseil de la science et de la technologie (CST) et le ministère de l'Enseignement supérieur et de la Science (MESS), tenu les 15 et 16 octobre 1990, à Québec. Mai 1991, 189 p.

Pour aider les chercheurs

- Les biotechnologies: bibliographie sélective. Par Élise Nadeau, Dominik Paquet et Yves Robertson. Avril 1991, 73 p.

SASKATCHEWAN
ECONOMIC DIVERSIFICATION COUNCIL

MANDATE

The mandate of the Council is to advise the Government of Saskatchewan on the development and diversification of the provincial economy, and specifically:

- To work with the Government to develop new initiatives to expand and diversify the economy;

- To advise the Premier and the Government on the practicality and feasibility of economic policy and program proposals from consultations held by Ministers, Consensus Saskatchewan, Government, and other economic interest groups; and

- To advance an economic blueprint for the province into the year 2000.

The terms of reference of the Council are to review proposals and assist in the development of new proposals related to expanding and diversifying the economy including taxation policy, diversification programs, federal-provincial initiatives, business regulations, and environmental regulations.

The original Council was formed in January 1989, but was re-formed with a new mandate in September 1990. Note that the Advisory Council on Science, Technology, and Innovation has been disbanded.

MEMBERSHIP

The Council consists of the Premier, the Chief Economist, and seventeen members appointed by Cabinet. Members are appointed for two years, with the possibility of renewal. Members are selected from the business, education and government communities. There are no Ministers and no ex officio members on the Council.

STRUCTURE AND OPERATIONS

Meetings are held three or four times per year. The agenda is set by the Premier with input from the Council and the Secretariat. The Premier is the Chairperson, and the Chief Economist is the Secretary. The Council reports to the Premier in the form of confidential written and verbal reports. Committees are formed to address specific issues and are disbanded once their goals have been met. Advice on Cabinet

documents is not offered.

A Secretariat provides research and administrative support. It consists of the Secretary of the Council, a coordinator, and a research officer. The Secretariat drafts all reports for final approval by the Council.

The annual budget of the Council varies depending on its activities.

LINKAGES AND ACTIVITIES

The Council has met with various groups, such as the high technology community, the Science and Technology Division of the Government, and the National Forum of Science and Technology Advisory Councils.

The Council has no direct input to fiscal planning.

The Council has undertaken studies in the areas of:

- Rural Investment
- Rural Employment
- Future of Agriculture

The future of the Council is uncertain due to the change in Government in October 1991.

PUBLICATIONS

Terms of Reference for an Economic Blueprint for Saskatchewan

MEMBERS

Roy Romanow	Premier (Chairperson)
Graham Parsons	Chief Economist (Secretary)
Walter Bauer	Vice-President, Harvest Meats Co., Regina
Terry Bergan	CEO, International Road Dynamics, Saskatoon
Buckley Belanger	Mayor, Ile a la Crosse
John Cross	President, Philom Bios, Saskatoon
Robert Hawkins	General Manager, Del-Air Systems, Humboldt
Terry Johnson	Vice-President, CDSL, Regina
Joan Kessenheimer	Secretary Treasurer, West Boundary Fish Co-op, Peirceland
Allan Laughland	Publisher, Western Producer Publications, Saskatoon
Brian Mallard	President, Dataplan Financial Services, Saskatoon
Peter McCann	President, Great Western Brewing Co., Saskatoon
Caroline McLean	Shani Clothing Co. Inc., Saskatoon
Rose Richardson	President, Fuhrmann Meats, Regina
Lyle Spencer	Chief Financial Officer, Saskatchewan Wheat Pool, Regina
John Stewart	Dean, College of Agriculture, Saskatoon
Jack Thompson	President, Ormiston Mining and Smelting, Moose Jaw
Mel Watson	President, Watson Distributors, Weyburn
Cindy Zabolotney	Town Administrator, Eastend

Secretariat

Graham Parsons	Secretary of the Council
Jan Morgan	Coordinator

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YUKON SCIENCE INSTITUTE

MANDATE

The Yukon Science Institute (YSI) was established in 1985 under legislation of the Government of the Yukon. Its mandate is to foster science and technology to meet the social and economic needs of the Yukon people.

MEMBERSHIP

The Institute, a non-profit organization, is governed by a Board of Directors of ten members, and has a membership of over 140 members.

STRUCTURE AND FUNCTION

The Institute carries out the programs and projects with paid staff, Committees of the Board of Directors, contractors, and Institute members. As additional programs and projects are identified and funding is secured, the activities will increase in scope.

LINKAGES AND ACTIVITIES

The Institute has participated on an ad hoc basis in science and technology policy development. In this regard, the Institute's Board members are delegated to various other organizations such as the Arctic Institute of North America, Science Council of Canada, American Association for the Advancement of Science (Arctic Division), and the Yukon Curriculum Advisory Committee.

The Institute's activities fall into two groups: public awareness and research.

Public Awareness Programs

- Lecture Series
- Seminar Series
- Sourdough Scientist, a weekly newspaper column
- Something Scientific, a weekly radio spot
- Yukon Science Newsletter
- Science Awards
- Registry of Yukon Scientists
- Yukon Regional Science Fair
- Canada Wide Science Fair 1995
- Job Shadowing, a mentor program for students
- Theme Conference

Research Programs

- Canada Patent Office
- Industrial Research Assistance Program, delivered for the National Research Council
- Research Project Management, projects managed on behalf of granting agencies.

PUBLICATIONS

The Institute publishes a science newsletter on a quarterly basis.

MEMBERS

Board of Directors

Doug Craig
Jenny Cuthbertson
Alan Fry
Jim Hawkings
Ruth McIntyre
Ken McKinnon
Aron Senkpiel
Steve Smyth
Kim Tanner
Trace Vickerman

Staff

Art Pearson	President
Steve Morison	Vice-President
Tim Koepke	Secretary Treasurer
John Pattimore	Coordinator
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