

MOSST  
AN ORGANIZATION PROPOSAL  
June 20, 1975

Q  
127  
.C3C322

MINISTRY OF STATE  
MINISTÈRE D'ÉTAT  
BUREAU DE LA RECHERCHE  
OCT 18 1979  
LIBRARY  
SCIENCE AND TECHNOLOGY  
SCIENCES ET TECHNOLOGIE

Q  
127  
C3C322

AN ORGANIZATION PROPOSAL

MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY

29130

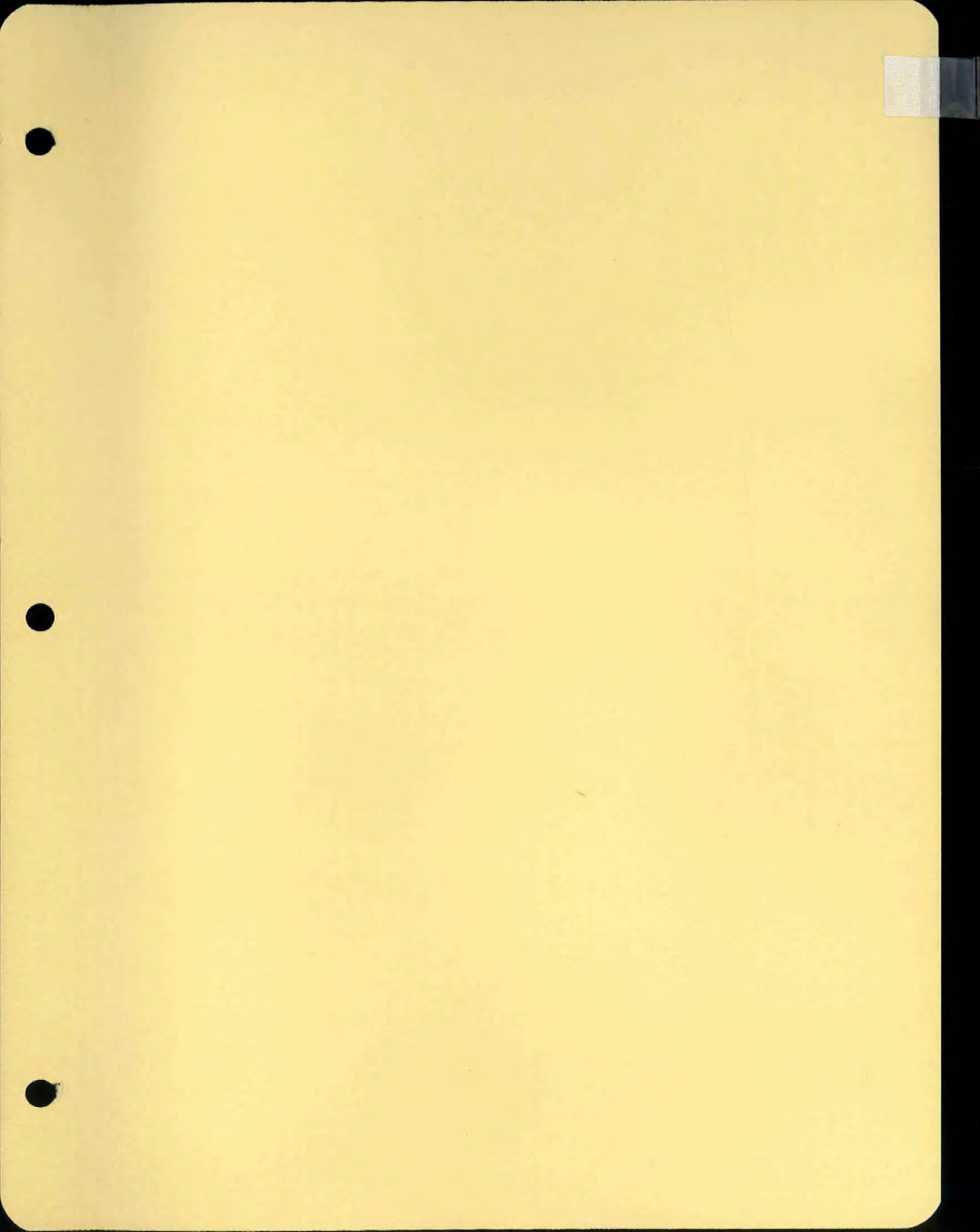
June 20, 1975

PROPOSAL INDEX

SECTION

SUBJECT

- A            The Ministry's proposal for program change
- B            The Ministry's proposal for organization change
- C            Position descriptions of senior staff
- D            The Branches' objectives, sub-objectives and  
             other organizational papers.
- Government Branch
  - Universities Branch
  - Industry Branch
  - Policy and Program Assessment Branch
- E            The Ministry's policy-making process in a  
             matrix organization



PROPOSAL

To revise the existing Objective, Sub-objectives and Program Description of the Ministry of State for Science and Technology (copy attached) to the following:

Objective:

To encourage the development and use of science and technology in support of national goals.

Sub - Objectives:

1. To formulate and develop policies for and to advise on the support of science and technology.
2. To formulate and develop policies for and to advise on the application of science and technology to national issues.
3. To foster the use of scientific and technological knowledge in the formulation and development of public policy.

Program Description:

Policy Development: Develop policies for the support of science and technology; develop policies for and advise on the application of scientific and technical resources to national issues, foster use of scientific and technological knowledge in the formulation and development of public policy.

Policy Development Support: Provide a policy and program review and evaluation capability; provide a secretariat for the Ministry project management committee; provide a science and technology data base in support of policy development and program review.

Department Administration: Offices of the Minister and Secretary; administrative, personnel and financial services.

REMARKS

Cabinet Document No. 20775 of March 17, 1975, proposed a conceptual framework for the role of the Federal Government in Science and Technology. Cabinet Committee approval of this document was given on May 27, 1975.

To reflect the change in emphasis of the Ministry's role as defined in the Cabinet Document it is deemed necessary to change the Ministry's existing Objective, Sub-Objectives, Program Description and Organization Structure.

MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY

Objective:

To assure the optimum use of science and technology in support of national objectives.

Sub-Objectives:

To formulate and develop objectives, priorities and policies for the optimum development and application of science and technology in support of national objectives.

To formulate and develop policies to achieve the most effective interrelationships among science and technology programs and with other federal policies and programs.

To formulate and develop policies to foster the most effective cooperative relationships with respect to science and technology within Canada and internationally.

To assist departments and agencies in the formulation and development of advice to the government with regard to the optimum investment in science and technology, the most satisfactory organization of scientific activities, the most appropriate allocation of resources, and the most effective participation in international scientific affairs.

To develop improved methods for evaluating the effectiveness of scientific policies and programs and to promote their most efficient application.

Program Description:

Policy Development: Assessment of the impact of science and technology on Canadian society; forecasts of likely developments in science and technology; conduct or sponsorship of science policy studies; formulation, development and recommendation of objectives and priorities for science and technology; advice and counsel of the science and technology implications of government policies or proposals; and development of policies related to science and technology in university, industrial and international affairs and to the coordination of intramural research programs.



Program Review and Assessment: Advice in the budgetary process on matters with a significant science and technology content; recommendations on the organization of research and development activities; advice to departments and agencies on the conduct of science and technology programs and activities; and development and promotion of methods of evaluating the effectiveness of science and technology policies and programs.

International and Domestic Cooperation: Facilitation of the exchange of information on domestic and international scientific activities, programs and results among all major users; recommendations on the extent and nature of participation in national and international scientific activities; assistance in the management of Canada's agreements and other cooperative relationships in science and technology with other countries; organization of government sponsored scientific missions and visits; and functional direction of a science counsellor network abroad.

Administration: Operation of the offices of the Minister and Secretary; Ministry program planning and review; and provision of financial, personnel, information and administrative services.

B

RESTRUCTURING OF THE MINISTRY OF  
STATE FOR SCIENCE AND TECHNOLOGY

Proposal

- (a) To abolish the three existing positions of
- (1) MST-2-01, Assistant Secretary, International and Domestic Cooperation Branch.
  - (2) MST-3-01, Assistant Secretary, Policy Branch.
  - (3) MST-4-01, Assistant Secretary, Program Review and Assessment Branch.
- (b) To create the following four Deputy Secretary positions:
- (1) MST-2-01, Deputy Secretary, Government Branch.
  - (2) MST-3-01, Deputy Secretary, Universities Branch.
  - (3) MST-4-01, Deputy Secretary, Industry Branch.
  - (4) MST-5-01, Deputy Secretary, Policy and Program Assessment Branch.

SUMMARY

Cabinet Document No. 20775 of March 17, 1975, proposed a conceptual framework for the role of the Federal Government in Science and Technology. Cabinet Committee approval of this document was given on May 27, 1975.

It is proposed to re-structure the Ministry of State for Science and Technology to give effect to this new framework and thus enable MOSST to perform its role more effectively.

HISTORICAL  
BACKGROUND:

1. A number of reports in the last few years, including the OECD Study of Canadian Science Policy, the Gendron Report, various Science Council Studies and the Lamontagne Report have stressed the need for a science policy which would bring a more cohesive and rational approach to government planning of science and technology. These and the establishment of the Ministry of State for Science and Technology in August 1971 have led to expectations that an overall science policy bringing such a rational approach would be developed and to the recognition of the value of an agreed policy framework for federal science and technology.

2. In January 1974, the Cabinet in considering proposals for certain changes to federal science organization, agreed to the following definition of the object of science policy:

"the object of science policy should be the rational generation and acquisition of scientific knowledge and the planned use of science and technology in support of national goals".

The terms "science" and "technology" were defined in Cabinet Document No. 1335/71, December 8, 1971 in the following way:

"science" the search for new knowledge of natural and social phenomena and the ordered accumulation of such knowledge.

"technology" the exploitation of science for the achievement of practical purposes.

FEDERAL  
SCIENCE POLICY:

1. From the Federal Government's point of view science policy is a collective term which serves to cover three distinct policy areas:

- (i) Policy for the support of science: that is to say for the acquisition of knowledge, the development of research capability, the provision of scientifically trained manpower and the dissemination of scientific information.

- (ii) Policy for the application of scientific and technological resources: that is to say for the wise, economic and coordinated use of scientific knowledge, manpower and facilities.
- (iii) Science in public policy: that is to say the introduction of scientific knowledge, reasoning and methodology into the development of public policy at the strategic level.

2. Canada's stock of scientific information is achieved by two means; by research in Canada and by importing information from outside the country. The results of basic research are in general freely exchanged on a worldwide basis and it can be argued that the federal government has no need to support such research since Canada has easy access to world sources. While it is true that Canadian researchers can at best contribute only a small fraction of the total world output of new knowledge, their contribution is nevertheless important to Canada.

The federal government can enhance the availability of basic scientific knowledge in Canada through its support of postgraduate university research, its arrangements for scientific representation abroad and its support of Canada's participation in the activities of international scientific organizations.

3. The highly qualified manpower requirements of Canada are met by a combination of training within the country and the immigration of skilled people from outside it. The high academic standard now achieved by Canadian universities is encouraging more emphasis on the home-grown product and this tendency is reinforced by a reluctance to strip less well endowed nations of their scientific talent.

The federal government is concerned with this situation from a number of points of view; support of higher education, immigration, employment and the ability of Canadians to cope with future S & T problems.

4. The sheer volume of scientific and technological information presently being generated worldwide presents a problem of great magnitude to all nations. A vast amount of information useful

to Canadians exists but the difficulty and cost of finding it may sometimes result in the original research being repeated needlessly because the information is not readily available.

In October 1974, the National Science Library and the Technical Information Services of the NRC were merged in the newly formed "Canada Institute for Scientific and Technical Information", which is undertaking a pilot Network Development Project giving concrete expression to the 1969 policy. Emphasis is being placed on evolutionary improvements and cooperative use of information resources, and the project could be the initial step in a progressive rationalization of information services.

5. Canadians use science and technology in innumerable ways as a means towards the achievement of their individual and collective objectives: health, economic prosperity, personal convenience, etc. The Federal Government, acting on behalf of Canadians, will be concerned not only with the deployment of its own S & T resources (i.e. those which its departments and agencies use in fulfillment of their statutory responsibilities), but also with ensuring that the total S & T resources of Canada are wisely used.

6. The employment of S & T in the achievement of departmental objectives can be considered from two points of view. The department looks upon S & T as an alternative resource, which it may or may not choose to use, to achieve its objectives. However, from the point of view of the government as a whole, the totality of the S & T programs of departments and agencies has additional meaning and importance in relation to broad national strategies.

The inter-relationship of scientific and technological activities, their demands on skilled manpower and special equipment, their long time-scale, and above all, their particular relevance to many of the major problems facing the nation, give them this special significance. Like finance, S & T are not only usable resources but also strong levers at the disposal of government to influence the formulation and implementation of national policies.

The advances made by science and technology provide opportunities and challenges which call for flexibility and adaptability in the Federal Government's machinery. It is clearly unwise, if not impractical, to amend the structure of government and the mandate of departments in order to continually adjust to the day-to-day expansion of the scope and influence of science and technology on national and international affairs. Systems have to be developed that will permit the structure to accept new responsibilities and tasks and to do so in an efficient and coordinated manner.

Two specific types of policy are required for this purpose. Policies for areas of priority concern such as oceans, space, etc. (these will usually be areas which do not fall within the statutory responsibility of any one department or agency), and policies governing general procedures relating to the use of S & T resources. These latter will be policies such as "Make or Buy" which the government wishes observed by all departments and agencies.

If these two types of policy, which are horizontal in nature, since they relate to two or more departments and agencies, are plotted in matrix fashion against the policies developed by individual departments and agencies, under their statutory mandates, then a useful picture of the federal S & T sphere of interest can be constructed.

Such a matrix can be considered as an aid to operating departments and agencies in the application of S & T resources and the formulation of appropriate policies and to central agencies in developing an overview of government S & T activities. Such matters as the allocation of resources (i.e. funds, manpower and facilities) can be examined by this mechanism. It should be of value in the identification of policy gaps (i.e. areas of concern not covered by either vertical or horizontal policies), duplication of effort, uneconomic location or employment of facilities such as laboratories. It should point up the need for cooperative interdepartmental programs, task forces and other methods for achieving a multidepartmental approach to the achievement of broad objectives. It should be made clear that the matrix refers to the policy elements (i) and (ii) in paragraph 1 and not to policy element (iii) i.e. science in public policy and therefore does not represent the total framework of the government's science policy. Nevertheless the matrix should be of use to those developing public policy.



7. In the past, federal government decisions regarding the provision or support of scientific facilities have been made on an individual basis and without any overall policy covering the subject. This is an area where there are many possible options for sharing costs and responsibilities between the various levels of government and the private sector. It is also an area of international significance since, as in the case of the telescope (Canada, France and Hawaii), opportunities arise for sharing major facilities with other countries.

Federal laboratories have grown up over the years in response to specific demands and interests. It is now apparent that there is an uneven distribution of such facilities both in terms of geographic location and objective. Consideration is presently being given to the possibility of decentralizing laboratories, away from the National Capital Region and further rationalization of the laboratories organization will be called for in the future.

The development of policies covering federal research facilities is therefore an important concern.

CO-ORDINATION  
OF NATIONAL  
SCIENTIFIC  
EFFORT:

8. With federal expenditure on science totalling over 1.4 billion dollars in 1975/76 and these expenditures spread over many departments and agencies there is clearly a strong need for coordinated planning and action if inefficiency, duplication and waste are to be avoided. Major programs now coming on stream in fields such as ocean technology, space technology and energy production technology involve a complex mix of federal departments, other levels of government, industry and groups in the private sector. International cooperative programs of a scientific nature involve Canada in a variety of tasks and call for good cooperation between those concerned with both science and foreign policy. It should be emphasized that the need for cooperation is at least as important at the planning stage as at the operational stage.

PROGRAM REVIEW  
AND ASSESSMENT:

9. The increasing use of science and technology in both the public and private sectors and the increasing cost of the programs involved, not only

in terms of money, but also in terms of skilled scientific manpower, make it essential that the federal government maintain a general overview of the science and technology scene, and develop policies aimed at getting the best overall value for all Canadians from the S & T resources available.

Within the federal public service various mechanisms have been developed for reviewing programs and assessing results. The need for specific attention to be paid to the S & T content of programs has lately been recognized and is one of the responsibilities of the Ministry of State for Science and Technology.

Some success has been achieved in the development of criteria against which the validity of proposed projects can be judged but it has so far proved extremely difficult to develop criteria which can be used to judge the degree of success of a project.

Within the wider national context the federal government can call on a number of sources both in the public and private sectors for advice. Of particular importance will be the role of the Science Council which should undertake regular assessments of the national S & T situation and offer both critical assessment of progress and advice on the future priorities.

TRANSFER OF  
TECHNOLOGY:

10. Information on applied science and technology is less freely exchanged than that on basic science. For various reasons, primarily concerned with commercial competition or national security, the most vital and up-to-date information tends to be guarded and only obtainable at a cost. The success of Canada's industry is highly dependent upon access to such information and even more on its ability to utilize it in the development of marketable goods and services. It should be part of federal science policies to encourage the transfer of technology from the laboratory to industry, and to assist industry to make profitable use of it in Canada; the "Make or Buy" policy is an expression of this need. Also many opportunities exist to improve our access to technology produced outside Canada and for its more effective transfer to persons and institutions that could benefit from its use.

The future of Canada's industry will be largely dependent upon the establishment of a strong indigenous technological capability in industry. It will be essential that federal policies in science and technology support the development of such a capability.

SCIENCE IN  
POLICY:

11. The conscious inclusion of scientific and technological input to the development of public policy is a relatively new concept and one that is far from fully developed. The importance of such an input is now, however, becoming generally recognized. It stems primarily from the fact that the problems and opportunities facing Canada and in fact all nations, require increasingly important contributions from both the natural and human sciences.

The urgent necessity of reaching decisions on vital issues concerned with population growth, depletion of resources, expenditure of energy, production of polluting waste products and other problems of this nature has become obvious. Such issues have a high sociological content and it is clear that the human sciences have a very major role to play. The physical sciences and the technology that stems from them have great power to influence the future; to solve problems and also to cause them. The most complex and intractable issues occur however in that ill-defined zone that lies between the values and desires of Canadians (i.e. their goals) and the long term national strategies which must form the basis of government action. As an example of the type of issue involved, one could point to the problem of establishing a satisfactory balance between the demands for economic prosperity, regional balance and environmental protection. The sciences, both physical and human, are deeply involved in such issues and there is a clear need for new mechanisms to assure a strong science input to strategic policy development.

Within the machinery of federal policy development there are three major areas where science should be expected to contribute; the provision of technological forecasts, the development of technological strategies and advice on the development and allocation of S & T

resources. Under the first of these headings, there are two types of forecast involved; forecasts of future situations and conditions - scenarios, and forecasts of probable S & T discoveries and developments. Under technological strategies one would list such issues as the choice of future energy supply systems and the development of arctic transport systems. The development and allocation of S & T resources has already been discussed at some length in previous sections of this submission. It is appropriate however to re-emphasize here the long time scale involved in training scientists and developing major facilities and items of equipment.

In summary, science has a major contribution to make to long range planning at the federal level. The establishment of the Ministry of State for Science and Technology "for the purpose of formulating and developing policies in relation to the activities of the Government of Canada that affect the development and application of science and technology" is witness to the government's recognition of this fact.

FEDERAL-  
PROVINCIAL  
CONSIDERATIONS:

12. The provinces are becoming increasingly interested in science policy development as it relates to the allocation of S & T resources to meet provincial needs. The proposed framework for federal science and technology, if accepted, would provide an important basis for federal-provincial negotiations relating to fiscal transfer arrangements for post secondary education to be reviewed in 1977, particularly in such matters as the support of research activities, the training of scientific manpower and information systems.

The framework would also be a sound federal base for discussions of the science and technology aspects of such priority policy areas as energy, resources and the environment.

IMPLICATIONS  
FOR ORGANIZA-  
TION STRUCTURE:

13. Having identified the role of science and technology in the structure and life of Canada, the following concepts are proposed as the guiding principles for the restructuring of the Ministry.

- (a) The managerial concept of MOSST as a vehicle for providing a universal approach to science in government through an all-encompassing, rigid, hierarchical organization structure is considered to be neither feasible nor desirable.
- (b) MOSST should become part of the central policy making apparatus working in conjunction with P.C.O., T.B.S., and major science departments in the preparation of proposals to Cabinet.
- (c) MOSST would complement and co-ordinate rather than duplicate the scientific or policy analysis expertise in departments or central agencies.
- (d) The major modus operandi of MOSST would be the selection of high priority projects, primarily of a cross-departmental, cross-discipline nature, for study and report.
- (e) To achieve these basic aims MOSST is seen as a matrix organization whose experienced, well-trained and mature policy analysts, supported by science-oriented analysts would be assigned across the organization to meet changing priorities.
- (f) Accepting that a true matrix organization militates against any sub-division of the Ministry's objectives and sub-objectives a Branch structure has been recommended within MOSST but only:
  - (1) To provide to departments, agencies, institutions, organizations and the scientific and technological communities outside the Ministry an apparent focus in the separate Branches of Government, Universities and Industry.
  - (2) To provide organizational distinction in the Policy and Program Assessment Branch for:
    - (i) as many continuing responsibilities as possible to enable the Sector Branch Deputy Secretaries to concentrate on the analysis of

pertinent information and the development of policy through the management of project teams drawn from the Ministry's matrix organization.

- (ii) those responsibilities which are deemed not to come within the ambit of any particular Sector Branch.
  - (iii) those services, supportive to the Ministry as a whole, which are best managed in a specialized Branch.
- (3) To provide an organizational rationale for the location of those continuing responsibilities which are seen as the domain of the Sector Branches.
  - (4) To provide an acceptable "home-base" affiliation to project directors and analysts for professional assessment and managerial appraisal.

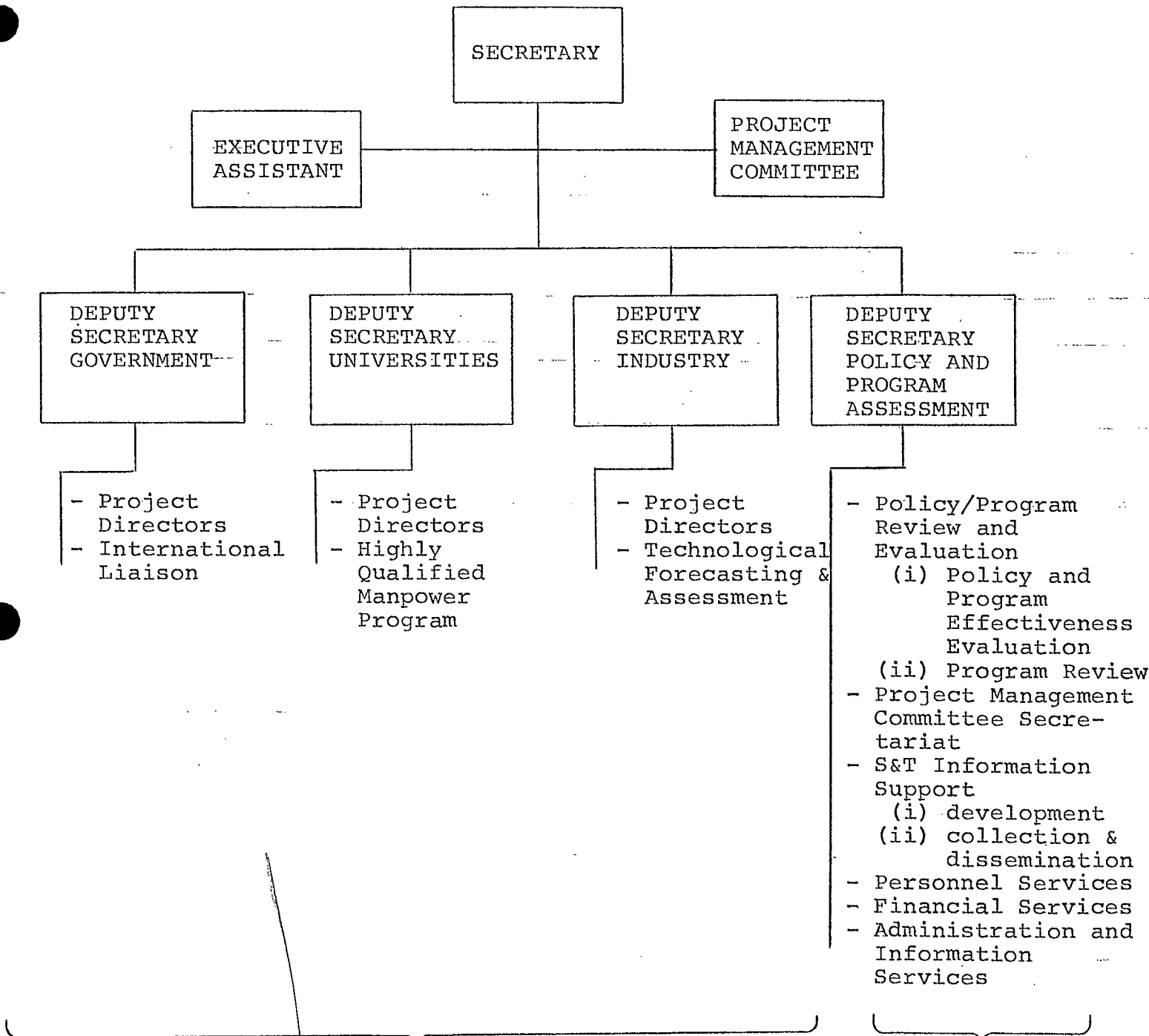
14. The basic management strategy underlying this proposal is that the orientation of MOSST would not be towards mounting a broad attack on science and technology nor aspiring to be ombudsman for Canadian science or scientists but that the major work of the department would be mainly the selection and pursuit of high-priority projects, primarily of a cross-departmental, cross-discipline nature under the direction of the three Sector Branch Deputy Secretaries and that the Policy and Program Assessment Branch would facilitate this orientation by relieving the Sector Branch Deputy Secretaries of as many continuing responsibilities as possible. Projects would encompass such subject matter as:

- (a) Policy development (e.g. a policy defining the role and funding mechanisms of departments and the granting councils in relation to university research activities).
- (b) Policy development (e.g. development of a policy and integrated program for creation of an operational capability for Canada in ice covered waters).

- (c) Development of policy guidelines (e.g. revision of guidelines for implementation of the "Unsolicited Proposals" policy).
- (d) Development of priorities (e.g. preferences for the establishment of national facilities in basic research).
- (e) Machinery of government (e.g. advice on the role and reporting relationships of a sea-bed mining engineering institute).
- (f) Recommendation of policy criteria (e.g. criteria for measuring the success of the R&D Make or Buy Policy).

15. In support of all of the foregoing a proposed organization structure is attached as Annex A. For comparison a copy of the existing structure is attached as Annex B. Job profiles for the four proposed Deputy Secretary positions are attached as Annex C.

THE PROPOSED ORGANIZATION STRUCTURE



3 SX-3 Deputy Secretaries  
 1 SX-2 Director TF & TA  
 1 ES-5 H.Q.M.  
 11 SX and Equivalent to be Allocated to Project Teams by Project Management Committee

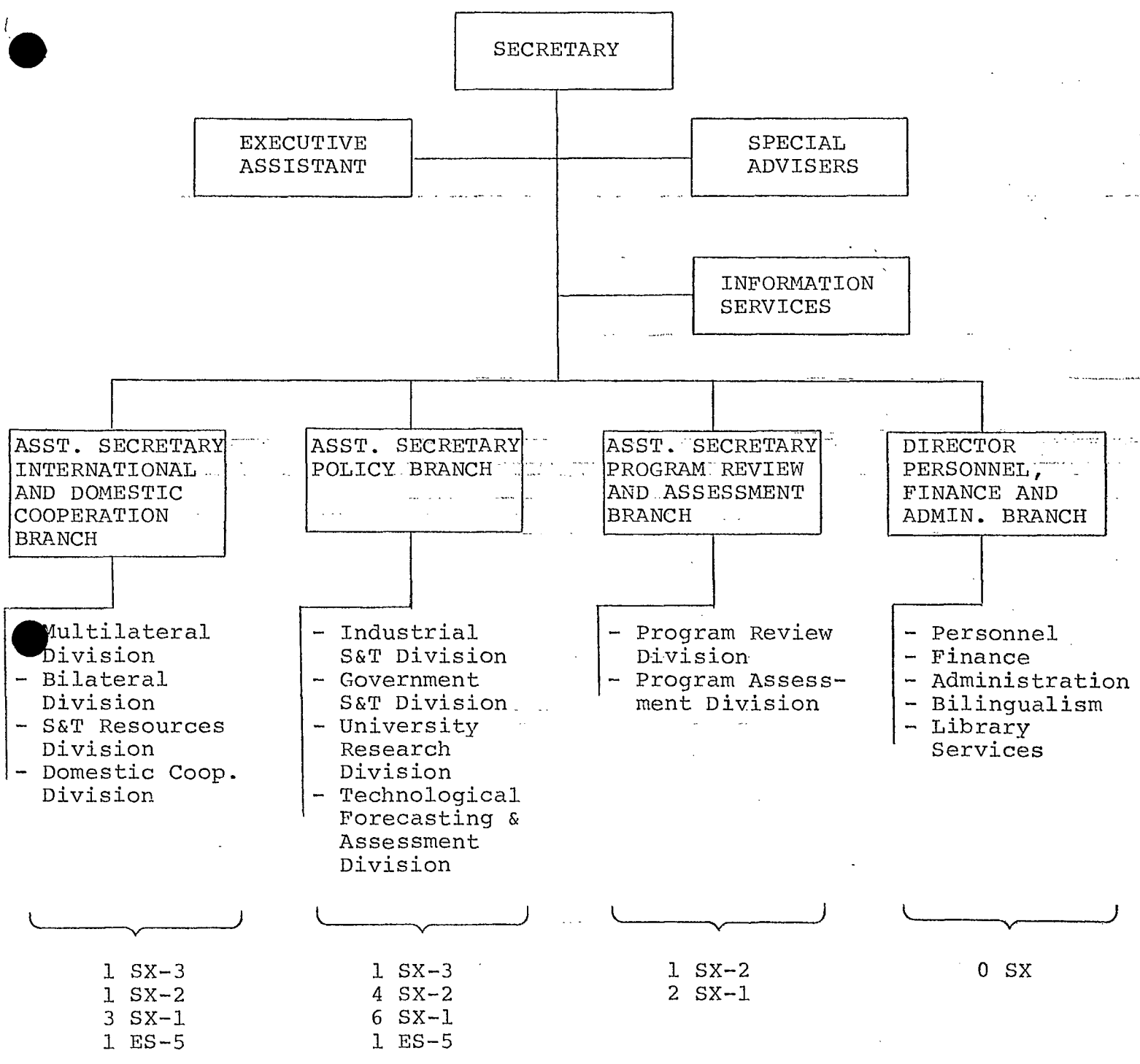
1 SX-3  
 1 SX-2  
 3 SX-1

Tentative Allocation of Senior Management Complement

Total 21 SX or Equivalent



THE EXISTING ORGANIZATION STRUCTURE



Existing Allocation of Senior Management Complement

Total 21 SX or Equivalent

C

POSITION DESCRIPTIONS OF SENIOR STAFF

The position descriptions which follow are written on the basis that they do not distinguish areas of specialization or types of project and are thus truly descriptive of levels of responsibility only, as is appropriate to a matrix type organization (excepting the Policy and Program Assessment Branch which is developed in full hierarchical detail).

The apparent distinction of the Deputy Secretary positions for Government, Universities and Industry is made to accommodate both Branch Focus and Continuing Responsibilities, otherwise, one block description only has been prepared for each of:

<u>Position</u>	<u>Classification Levels</u>
<u>Deputy Secretary</u>	SX-3
<u>Project Director</u>	SX-1 and SX-2
<u>Policy Adviser</u>	AS-5 to AS-7 and equivalent
<u>Policy Analyst</u>	AS-2 to AS-4 and equivalent

The classification levels shown at the side are the ranges envisaged which would recognize that projects will vary considerably in size and complexity and would therefore require staffing at varying classification levels even though the position titles would be the same.

POSITION ANALYSIS SCHEDULE

## IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY      POSITION TITLE: DEPUTY SECRETARY GOVERNMENT

BRANCH: GOVERNMENT      POSITION NUMBER: MST-2-01

DIVISION:      POSITION CLASSIFICATION: SX-3

SECTION:      SUPERVISOR'S TITLE: SECRETARY OF THE MINISTRY

LOCATION: OTTAWA      SUPERVISOR'S CLASSIFICATION: DM-2

EFFECTIVE DATE: JULY 1, 1975

Directs the organization, resources, operations and programs of the Government Branch responsible for encouraging the development and maintenance of a strong scientific and technological research capability within the Government Sector, providing maximum inputs to policy formulation and advisory roles of the Ministry concerning science and technology in the government sector and related effects on the quality of life in Canada, formulating and developing policies for the application of Government scientific and technological resources resulting in effective, co-ordinated and economic use of such resources, fostering the use of scientific and technological knowledge in the formulation and development of public policy, and ensuring that the total operations, services and outputs of the Branch are effective, efficient and meet Ministry and Government goals and objectives concerning science and technology in the Government Sector.

Participates, as a full member, in the Project Management Committee of MOSST, which is responsible for ensuring the effectiveness of the matrix organization of the Ministry through the provision of extensive advisory services to the Secretary concerning the preparation, presentation, operation, review and recommendations concerning projects and related outputs, all involving discussions between the Deputy Secretaries concerning programs, resources and organization of resources, changes required for operations given changed inputs to Branches, interfaces and inter-relationships between Branch projects and programs and between Branches and the planning requirements necessary to ensure comprehensive Branch and Ministry operational and output co-ordination.

Plans for, directs the development of and makes presentations, as the Secretary's representative, to the Treasury Board and Cabinet, Parliamentary and Senate Committees, of Science and Technology policies for the Government Sector that include resource plans, organization priorities, implementation plans and co-ordinative machinery and effectiveness criteria, to ensure that Science and Technology research capabilities, policy and program formulation and program operations will be effective and efficient in relation to Government goals and objectives and that optimal co-ordination of programs, policies, services and outputs will be achieved.

Directs the planning, co-ordination, development and operation of all Branch policies, programs, services, projects and outputs involving areas such as: the development and formulation of overviews concerning the adequacy of Science and Technology policies; the recommendation of objectives and priorities for Science and Technology in Canada in government; the development of policy initiatives for the Ministry; development of Science and Technology policies and recommendations concerning programs that affect the Government Sector; evaluating the total impact of Science and Technology policies pertaining to the Government Sector and the preparation of adaptations as necessary; the co-ordination of Science and Technology policies and programs with other departments; the conducting or sponsoring of research on the development of Science and Technology policies which will impact in the Government Sector; assuring the compatibility of other government policies affecting Science and Technology in the government sector; proposing policy initiatives for the Ministry related to international Science and Technology activities and participating in their development; formulating recommendations on Canadian participation in Science and Technology activities; analyzing Canadian international Science and Technology policies and undertaking their effective co-ordination with related domestic activities, organizing the development of an effective science counsellor network and providing necessary functional direction.

Advises the Secretary, Deputy Secretaries, Cabinet, P.C.O., and other Heads and Senior Management of Central Agencies and Departments throughout the Public Service concerning Government Branch resources, policies, programs, projects, services, plans and activities, necessary to achieve national Science and Technology goals and objectives in relation to the Government Sector, to ensure the effective and efficient utilization of Branch outputs, to ensure that programs, policies, services and activities of the Branch are comprehensively understood and adhered to, to develop maximum co-ordination and co-operation in meeting national policy, program and project requirements in Science and Technology,

to ensure that strategies and directions for Government Sector S & T meet Ministry requirements and to ensure that all problems and difficulties concerning the design, development, co-ordination, integration and operation of Government Sector S & T policies, programs, projects, services, activities and outputs will be resolved on an effective, efficient and timely basis.

Represents the Ministry at a number of National and International Conferences and Committees in which there is a national interest concerned with the development, design, formulation, co-ordination and integration of S & T activities, programs, policies and services.

POSITION ANALYSIS SCHEDULE

IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY      POSITION TITLE: DEPUTY SECRETARY UNIVERSITIES

BRANCH: UNIVERSITIES      POSITION NUMBER: MST-3-01

DIVISION:      POSITION CLASSIFICATION: SX-3

SECTION:      SUPERVISOR'S TITLE: SECRETARY OF THE MINISTRY

LOCATION: OTTAWA      SUPERVISOR'S CLASSIFICATION: DM-2

EFFECTIVE DATE: JULY 1, 1975

Directs the organization, resources, operations and programs of the Universities Branch responsible for encouraging the development and maintenance of a strong scientific and technological research capability within the Universities Sector, providing maximum inputs to policy formulation and advisory roles of the Ministry concerning science and technology in the Universities Sector and related effects on the quality of life in Canada, formulating and developing policies for the application of Universities Sector scientific and technological resources resulting in effective, co-ordinated and economic use of such resources, fostering the use of scientific and technological knowledge in the formulation and development of public policy; and ensuring that the total operations, services and outputs of the Branch are effective, efficient and meet Ministry and Government goals and objectives concerning science and technology in the Universities Sector.

Participates, as a full member, in the Project Management Committee of MOSST, which is responsible for ensuring the effectiveness of the matrix organization of the Ministry through the provision of extensive advisory services to the Secretary concerning the preparation, presentation, operation, review and recommendations concerning projects and related outputs, all involving discussions between the Deputy Secretaries concerning programs, resources and organization of resources, changes required for operations given changed inputs to Branches, interfaces and inter-relationships between Branch projects and programs and between Branches and the planning requirements necessary to ensure comprehensive Branch and Ministry operational and output co-ordination.

Plans for, directs the development of and makes presentations, as the Secretary's representative, to the Treasury Board and Cabinet, Parliamentary and Senate Committees, of S & T policies for the Universities Sector that include resource plans, organization priorities, implementation plans and co-ordinative machinery and effectiveness criteria, to ensure that S & T research capabilities, policy and program formulation and program operations will be effective and efficient in relation to University Sector goals and objectives and that optimal co-ordination of programs, policies, services and outputs will be achieved.

Directs the planning, co-ordination, development and operation of all Branch policies, programs, services, projects and outputs involving areas such as: developing and formulating overviews of the adequacy of S & T and related policies and programs that affect the Universities Sector; providing advice on the S & T implications of policies or initiatives originating from other sectors for the Universities Sector and developing policy initiatives for the Ministry; developing and formulating S & T policies and recommendations concerning programs that affect the Universities Sector; recommending policies for the Universities Sector in S & T fields that include effectiveness criteria, co-ordination machinery and implementation plans; evaluating the total impact of S & T policies pertaining to the Universities Sector and preparing adaptations and refinements as necessary; ensuring the co-ordination of S & T policies and collaborating with other departments and agencies to ensure the co-ordination of programs with significant S & T content that affect the Universities Sector; conducting or sponsoring research concerning the development of science policy which will impact in the Universities Sector; advising on the relevance, validity, organization, co-ordination, resourcing and effectiveness of S & T activities in the Universities Sector; assuring the existence of comprehensive, well planned and integrated federal policies for S & T and the compatibility of other policies affecting the Universities Sector; and preparing and making available forecasts of the HQM supply and demand situation in Canada and recommending on how the development and utilization of HQM could be improved by Ministry initiatives, federal policies and programs and the efforts of non-federal organizations, all to ensure that national S & T objectives and goals in the Universities Sector can be achieved, that S & T activities in the Universities Sector will be effectively and efficiently carried out and that policies, programs, projects, services and activities of an S & T nature in the Universities Sector will be comprehensive, well planned and effectively integrated.



Advises the Secretary, Deputy Secretaries, Cabinet, P.C.O., other Heads and Senior Management of Central Agencies and Departments throughout the Public Service and private sector areas concerning Universities Branch resources, policies, programs, projects, services, plans and activities, necessary to achieve national S & T goals and objectives in relation to the Universities Sector, to ensure the effective and efficient utilization of Branch outputs, to ensure that programs, policies, services and activities of the Branch are comprehensively understood and adhered to, to develop maximum co-ordination and co-operation in meeting national policy, program and project requirements in S & T, to ensure that strategies and directions for University Sector S & T meet Ministry requirements and to ensure that all problems and difficulties concerning the design, development, co-ordination, integration and operation of Universities Sector S & T policies, programs, projects, services, activities and outputs will be resolved on an effective, efficient and timely basis.

Represents the Ministry at a number of National and International Conferences and Committees in which there is a national interest concerned with the development, design, formulation, co-ordination and integration of S & T activities, programs, policies and services.

POSITION ANALYSIS SCHEDULE

IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY      POSITION TITLE: DEPUTY SECRETARY INDUSTRY

BRANCH: INDUSTRY      POSITION NUMBER: MST-4-01

DIVISION:      POSITION CLASSIFICATION: SX-3

SECTION:      SUPERVISOR'S TITLE: SECRETARY OF THE MINISTRY

LOCATION: OTTAWA      SUPERVISOR'S CLASSIFICATION: DM-2

EFFECTIVE DATE: JULY 1, 1975

Directs the organization, resources, operations and programs of the Industry Branch responsible for encouraging the development and maintenance of a strong scientific and technological research capability within the Industry Sector, providing maximum inputs to policy formulation and advisory roles of the Ministry concerning science and technology in the Industry Sector and related effects on the quality of life in Canada, formulating and developing policies for the application of Industry Sector scientific and technological resources resulting in effective, co-ordinated and economic use of such resources, fostering the use of scientific and technological knowledge in the formulation and development of public policy, and ensuring that the total operations, services and outputs of the Branch are effective, efficient and meet Ministry and Government goals and objectives concerning science and technology in the Industry Sector.

Participates, as a full member, in the Project Management Committee of MOSST, which is responsible for ensuring the effectiveness of the matrix organization of the Ministry through the provision of extensive advisory services to the Secretary concerning the preparation, presentation, operation, review and recommendations concerning projects and related outputs, all involving discussions between the Deputy Secretaries concerning programs, resources and organization of resources, changes required for operations given changed inputs to Branches, interfaces and inter-relationships between Branch projects and programs and between Branches and the planning requirements necessary to ensure comprehensive Branch and Ministry operational and output co-ordination.

Plans for, directs the development of and makes presentations, as the Secretary's representative, to the Treasury Board and Cabinet, Parliamentary and Senate Committees, of S & T policies for the Industry Sector that include resource plans, organization priorities, implementation plans and co-ordinative machinery and effectiveness criteria, to ensure that S & T research capabilities, policy and program formulation and program operations will be effective and efficient in relation to Industry Sector goals and objectives and that optimal co-ordination of programs, policies, services and outputs will be achieved.

Directs the planning, co-ordination, development and operation of all Branch policies, programs, projects, services and outputs involving areas such as: developing and formulating overviews of the adequacy of S & T and related policies and programs that affect the Industry Sector; providing advice on the S & T implications of policy proposals and initiatives from elsewhere in the government on Industry Sector policies and programs; developing and promoting S & T policies and recommendations concerning programs that affect the Industry Sector; recommending objectives and priorities for S & T in Canada in the Industry Sector and recommending and developing policy initiatives for the Ministry; recommending S & T policies for the Industry Sector which include co-ordination machinery, implementation plans and effectiveness criteria; evaluating the total impact of S & T policies pertaining to the Industry Sector and preparing adaptations and refinements as necessary; ensuring the co-ordination of S & T policies and, in collaboration with other Departments and Agencies, ensuring the co-ordination of programs with significant S & T content that affect the Industry Sector; conducting or sponsoring research on the development of S & T policy which will impact in the Industry Sector; advising on the relevance, validity, organization, co-ordination, resourcing and effectiveness of S & T activities in the Industry Sector; assuring the existence of comprehensive, well planned and integrated federal policies for S & T and the compatibility of other government policies affecting the Industry Sector; forecasting medium and long range trends and advances in S & T; assessing the impact of S & T on Canadian society and on the achievement of government objectives and identifying problems and opportunities for S & T policy development; providing advice on the long term S & T implications of proposals being advanced to the government; and ensuring that forecasts and assessments are properly interpreted in the formulation of S & T policies in the Ministry all to ensure that national goals and objectives in the Industry Sector can be achieved, that S & T activities in the Industry Sector will be effectively and efficiently carried out and that policies, programs and activities of an S & T nature in the Industry Sector will be comprehensive, well planned and effectively integrated.

Advises the Secretary, Deputy Secretaries, Cabinet, P.C.O., other Heads and Senior Management of Central Agencies and Departments throughout the Public Service and heads of various industries concerning Industry Branch resources, policies, programs, projects, services, plans and activities, necessary to achieve national S & T goals and objectives in relation to the Industry Sector, to ensure the effective and efficient utilization of Branch outputs, to ensure that programs, policies, services and activities of the Branch are comprehensively understood and adhered to, to develop maximum co-ordination and co-operation in meeting national policy, program and project requirements in S & T, to ensure that strategies and directions for Industry Sector S & T meet Ministry requirements and to ensure that all problems and difficulties concerning the design, development, co-ordination, integration and operation of Industry Sector S & T policies, programs, projects, services, activities and outputs will be resolved on an effective, efficient and timely basis.

Represents the Ministry at a number of National and International Conferences and Committees in which there is a national interest concerned with the development, design, formulation, co-ordination and integration of S & T activities, programs, policies and services.

POSITION ANALYSIS SCHEDULE

IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR  
SCIENCE AND TECHNOLOGY

POSITION TITLE: DEPUTY SECRETARY  
POLICY AND PROGRA  
ASSESSMENT

BRANCH: POLICY AND PROGRAM ASSESS-  
MENT

POSITION NUMBER: MST-5-01

DIVISION:

POSITION CLASSIFICATION: SX-3

SECTION:

SUPERVISOR'S TITLE: SECRETARY OF  
THE MINISTRY

LOCATION: OTTAWA

SUPERVISOR'S CLASSIFICATION: DM-2

EFFECTIVE DATE: JULY 1, 1975

Directs the organization, resources, operations and programs of the Policy and Program Assessment Branch responsible for promoting an increase in the cohesiveness and effectiveness of federal government activities in S & T, through the provision of advice and support to departments, agencies and policy development group in the Ministry on matters pertaining to the relevance, priority and potential of present or proposed policies or programs with a significant content of science and technology, establishing the optimum means of meeting Ministry requirements for information on S & T resources and activities, recommending methods for the improved utilization of S & T information, developing and operating a science and technology expenditure reporting system and, improving the overall management effectiveness and efficiency of the Ministry, all to ensure that total operations, services and outputs of the Branch are effective and efficient.

Participates, as a full member, in the Project Management Committee of MOSST, which is responsible for ensuring the effectiveness of the matrix organization of the Ministry through the provision of extensive advisory services to the Secretary concerning the preparation, presentation, operation, review and recommendations concerning projects and related outputs, all involving discussions between the Deputy Secretaries concerning programs, resources and organization of resources, changes required for operations given changed inputs to Branches, interfaces and inter-relationships between Branch projects and programs and between Branches and the planning requirements necessary to ensure comprehensive Branch and Ministry operational and output co-ordination.

Plans for, directs the development of and makes presentations, as the Secretary's representative, to the Treasury Board and Cabinet, Parliamentary and Senate Committees, of S & T information, budget, evaluation and other policies for the Ministry and other areas that include resource plans, organization priorities, implementation plans and co-ordinative machinery and effectiveness criteria, to ensure that S & T capabilities, policy and program formulation and program operations will be effective and efficient in relation to MOSST and federal goals and objectives and that optimal co-ordination of programs, policies, services and outputs will be achieved.

Directs the planning, co-ordination and development of all Policy and Program Assessment Branch policies, programs, projects, services and activities involving areas such as: developing, promoting and applying methods of evaluating and improving the effectiveness of S & T policies, programs and projects; providing a permanent Secretariat for the Project Management Committee of the Ministry; providing advice to federal government departments and agencies concerning S & T related programs in regard to content, organization and allocation of resources; assisting federal government departments and agencies in the identification, formulation and presentation of new and improved policies and programs in S & T to T.B.S., the P.C.O., and Cabinet; supporting decision making in Treasury Board on the relevance, priority and potential effectiveness of budgetary matters submitted by departments and agencies having significant S & T content; identifying policy issues for study and development within the Ministry; identifying, developing and maintaining the optimum means of meeting the Ministry's requirements for continuing information on S & T resources and activities; recommending improved S & T information and transfer systems in Canada; aiding in the implementation of S & T related policies within the federal government when required; providing personnel, finance, administrative and information services, policies, programs and procedures to MOSST; and developing and operating a manpower planning and project reporting system to meet MOSST matrix organization requirements, to ensure that national S & T goals and objectives will be effectively achieved through the provision of Policy and Program Assessment Branch programs, policies, and services, that programs and policies of the Branch will be efficiently and effectively carried out and that activities of the Branch in information, evaluation, assessment, formulation and planning fields will be comprehensive, well planned and effectively integrated with MOSST and federal government S & T activities and operations.

Advises the Secretary, Deputy Secretaries, Cabinet, P.C.O., other Heads and Senior Management of Central Agencies and Departments throughout the Public Service concerning Policy and Program Assessment Branch resources, policies, programs, projects, services, plans and activities, necessary support and aid in the achievement of national S & T goals and objectives to ensure the effective and efficient utilization of Branch outputs, to ensure that programs, policies, services and activities of the Branch are comprehensively understood and adhered to, to develop maximum co-ordination and co-operation in meeting national policy, program and project requirements in S & T, to ensure that strategies and directions for Policy and Program Assessment Branch outputs meet Ministry requirements and to ensure that all problems and difficulties concerning the design, development, co-ordination, integration and operation of Branch policies, programs, projects, services, activities and outputs will be resolved on an effective, efficient and timely basis.

Represents the Ministry at a number of National and International Conferences and Committees in which there is a national interest concerned with the development, design, formulation, co-ordination and integration of S & T activities, programs, policies and services.

POSITION ANALYSIS SCHEDULE

IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR  
SCIENCE AND TECHNOLOGY

POSITION TITLE: PROJECT DIRECTOR

POSITION NUMBER:

BRANCH:

POSITION CLASSIFICATION: SX-1 &  
SX-2

DIVISION:

LOCATION: OTTAWA

SUPERVISOR'S TITLE: DEPUTY  
SECRETARY

EFFECTIVE DATE: JULY 1, 1975

SUPERVISOR'S CLASSIFICATION: SX-3

MAJOR RESPONSIBILITIES

1. Develops science and technology policy proposals and revisions to current policies, including implementation processes and procedures, and policy assessment criteria, based on comprehensive examinations of sector activities, policies, requirements, studies, research, feedback from sector areas, discussions, consultations, identification of S & T policy problems and opportunities, and other analyses and evaluations conducted within the Branch or in other areas, internal or external to the Government, which utilize or inter-relate with the Branch.
2. Prepares policy project proposals concerning sector area requirements, develops project master plans, discusses overall project requirements with the Director, Project Management Committee (PMC) Secretariat, Deputy Secretaries and other Project Directors and develops implementation plans and procedures for S & T policy projects and related policy outputs.
3. Organizes, tasks and directs project teams, which involves the assessment of project requirements, the development and implementation of plans, priorities, schedules, and other parameters for project teams, the making of initial contacts inside and outside the Public Service to be utilized by members of the project teams for obtaining information and advice, the managing of project resources (financial, personnel, seconded personnel, consultants, etc.), and the planning, organizing and co-ordinating of overall projects and major segments of extremely large projects.



4. Attends meetings of the PMC, as requested by the Deputy Secretary, to provide specialized advice on major projects.
5. Develops and co-ordinates the development of ways and means to meet project goals and objectives, which involves the formulation of methodologies, procedures and techniques required for the definition of issues, policy options and consequences.
6. Determines those data requirements which may be required to be provided by the Policy and Program Assessment Branch.
7. Reports on and discusses project progress to the Director, PMC Secretariat, regarding relationships to the master plan, and proposes changes in resourcing and/or timing as necessary to reach defined objectives.
8. Provides expert advice, on request, within or outside the Ministry in the incumbent's fields of speciality.
9. Directs and participates in extensive liaison, consultation, co-ordination and advisory services for purposes such as advising senior level officials inside the Government and in other areas concerning projects, setting up information flows and exchanges, hiring consultants and specialists for projects, attending and/or representing the Ministry and, on occasion, the Government of Canada at various national and international conferences and committees concerned with sector outputs and impacts thereof, consulting interested parties concerning project working papers, obtaining and co-ordinating the evaluation and discussion of feedback from interested parties..
10. Directs the consolidation of research, analysis, evaluation, liaison inputs, feedback and other materials of the project, and controls the preparation, analysis and editing of final reports and related policy and program recommendations.
11. Provides the Deputy Secretary with advice on and support in the provision and preparation of policy proposals for Ministerial or Cabinet Approval and discusses the proposals and related materials with the Director, PMC Secretariat, as required, in order to ensure that proposals and materials can be effectively screened, scheduled, distributed, examined and approved.
12. Prepares and submits to the Director, PMC Secretariat, the project review and completion report following examination of proposals and the approval of policy proposals by the Minister or Cabinet.

13. Directs and participates in liaison with the policy implementation Department, Agency or other areas involved to provide expert advice concerning policies and their impact, their design and operation potentials, their expected benefits and returns and other variables, in order to ensure that policies will be implemented as developed to achieve optimal goals and objectives for S & T.
14. Maintains a comprehensive, expert knowledge of sector policies, programs, issues, activities, trends and developments, in order to ensure the effective direction of, development of, and refinement of projects, to allow for the initiation of proposals for projects, to ensure effective utilization of outputs within the sector concerned and to ensure that effective leadership in relation to continuing objectives is provided to project teams, input areas and user areas.
15. Manages personnel and other project resources involving such matters as input into personnel selection, hiring, assessment and development, to meet effectiveness and efficiency criteria for projects and major segments of large projects.

#### RELATIONSHIPS AND DISTINGUISHING FEATURES

The project director reports to the Deputy Secretary and is responsible, after agreement with the Deputy Secretary, for reporting to the Director, PMC Secretariat any proposed changes to the resourcing and/or timing of a project under the incumbent's direction. The incumbent will initiate projects and segments thereof, evaluate and determine ways and means to operate projects initiated by other areas, resolve project execution stage problems, develop comprehensive master plans for projects and ensure that they are adhered to, provide leadership to project teams, evaluate team work and outputs, co-ordinate and undertake extensive liaison and advisory functions, control project resources, develop policy proposals and related materials, and ensure their effective implementation. Accordingly, planning and co-ordination responsibilities are extensive and vital to overall Ministry and sector S&T objectives. As well, liaison, advisory, consultation and co-ordination services will encompass government, other jurisdictions in Canada, private sector areas, national and international organizations and institutions and other countries as the Ministry's representative and, on occasion, as the Government of Canada representative. Project outputs, in the form of policy statements, often have major impact upon the future life style of major sectors of Canadian society and on the level of funding and mechanism for Canada's S&T expenditures.

## POSITION ANALYSIS SCHEDULE

### IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR  
SCIENCE AND TECHNOLOGY

POSITION TITLE: POLICY ADVISER

BRANCH:

POSITION NUMBER:

DIVISION:

POSITION CLASSIFICATION: AS-5 to  
AS-7 and Equivalents

LOCATION: OTTAWA

SUPERVISOR'S TITLE: PROJECT  
DIRECTOR

EFFECTIVE DATE: JULY 1, 1975

SUPERVISOR'S CLASSIFICATION: SX-1  
or SX-2

### MAJOR RESPONSIBILITIES

1. Identifies Science and Technology (S&T) policy problem areas and opportunity areas for policy development, and participates in the development of policy proposals and revisions to current policies, including implementation processes and procedures, and policy assessment criteria, based on specialized examinations of sector activities, policies, requirements, studies, research, feedback from sector areas, discussions, consultations and other analysis and evaluations conducted by the incumbent, by project teams in the Branch, and by other areas, internal or external to the Government, which utilize or inter-relate with the Branch.
2. Participates in the preparation of policy project proposals, develops proposals for small projects or for segments of large projects, undertakes evaluations, analyses and activities required for the development of project master plans, discusses overall project requirements with the Project Director, other project Policy Advisers, and Policy Analysts, and develops project operations plans to effectively undertake projects or co-ordinate project teams working on small projects.
3. Plans, organizes, tasks, and co-ordinates the work of specialized project teams and manages such teams for small projects, which involves the development of guidelines, priorities, schedules and other parameters for work within master plans, the making of initial contacts inside and outside the Public Service to be utilized by members of the project team for obtaining information and advice, the managing of project resources, or segments thereof, and the evaluation of project progress for small projects and segments of larger projects.

4. Determines appropriate methodologies, procedures and techniques to meet project goals and objectives based on comprehensive research, evaluation, discussion, consultation, liaison and development work involving Project Directors, other Policy Advisors, other areas of the Ministry, other departments and agencies, other levels of government, academic institutions and private sector areas, in order to ensure that projects can be effectively carried out.
5. Attends meetings of the Project Management Committee, (PMC) upon request, to provide specialized advice on small projects or segments of larger projects.
6. Develops comprehensive and precise definitions of issues, policy options and consequences of various options, in order to effectively orient project work, to evaluate project progress, and to assess the viability of various courses of action open under various options, and reports on and discusses the progress of studies and small projects, including proposed changes to the resourcing and/or timing, with the Project Director, the Director, PMC Secretariat, and other interested Ministry officials.
7. Provides expert, specialist liaison, advisory, consultation, co-ordination and support services to senior officials inside and outside the Government for purposes such as providing expert input to various projects, developing information flows and exchanges, discussing problems and issues relating to projects, utilizing consultants, attending and/or representing the Branch, and, on occasion, the Ministry, at various national and international conferences, committees, etc. and obtaining feedback concerning projects.
8. Consolidates studies, research, analysis, evaluations, liaison inputs, feedback and other materials of the projects, prepares and analyzes project reports, edits final reports for small projects and assesses the effectiveness and efficiency potentials of recommendations and proposals contained in reports.
9. Conducts, as a member of a project team, complex and specialized studies, research and analysis concerning various segments of large projects, which involves discussions with the Project Director, other Policy Advisors, and Policy Analysts, assessment of roles provided or expected, determination of priorities and other variables, development of information flows and exchanges, evaluation of information and data and, in more complex areas, the development of new methods and techniques required to meet specialized segment goals and objectives.
10. Participates in the preparation and provision of policy proposals for Cabinet or Ministerial approval, either directly for small projects or in consolidation activities for larger projects, and discusses the feedback received on proposals resulting from screening, analysis and examination processes of the PMC Secretariat, Minister and Cabinet.

11. Directs the work of Policy Analysts assigned during various small projects and for various segments of large projects.
12. Participates, with the Project Director, in the provision of liaison services to the policy implementation agency responsible for implementing approved policies, to provide specialized advice concerning policies, policy segments and their impact, their design and operation potentials, their expected returns and benefits and other variables, in order to ensure the most effective utilization and implementation of policies that is possible.
13. Maintains a good knowledge of sector area policies, programs, issues, activities and developments, as well as a comprehensive, expert knowledge of a specialized field therein, in order to ensure effective planning, organization and co-ordination of projects and segments of projects, to initiate proposals for small projects and to ensure that policy outputs resulting from projects will be optimally efficient and effective in relation to the Branch and the Ministry's goals and objectives.

#### RELATIONSHIPS AND DISTINGUISHING FEATURES

The Policy Adviser reports to the Project Director, SX-1, or SX-2. Responsibilities of the position are similar to those of the Project Director except that they involve small projects and segments of larger ones. Accordingly, the potential for initiating project proposals and undertaking projects exists in the position and planning and co-ordination responsibilities are extensive. Also the work involves extensive development, study, research, analysis and evaluation work at senior levels under various projects. The work further involves directing other personnel and providing specialist inputs to large projects. Contacts are extensive both within and outside of government, involving specialized advisory functions as well as representing the Branch and, on occasion, the Ministry at national and international conferences, committees and meetings.

## POSITION ANALYSIS SCHEDULE

### IDENTIFYING INFORMATION

DEPARTMENT: MINISTRY OF STATE FOR  
SCIENCE AND TECHNOLOGY

POSITION TITLE: POLICY ANALYST

BRANCH:

POSITION NUMBER:

DIVISION:

POSITION CLASSIFICATION: AS-2 to  
AS-4 and Equivalents

LOCATION: OTTAWA

SUPERVISOR'S TITLE: PROJECT  
DIRECTOR/POLICY ADVISER

EFFECTIVE DATE: JULY 1, 1975

SUPERVISOR'S CLASSIFICATION: AS-5  
to SX-2 and Equivalents

### MAJOR RESPONSIBILITIES

1. Identifies science and technology policy problem and opportunity areas based on examinations of specialized areas of sector activity, previous research and analysis, discussions with other Policy Analysts and officers of other departments, agencies and areas, feedback from previous project work and evaluations conducted by the incumbent.
2. Conducts, as a member of a project team, complex and specialized studies, research and analysis concerning various segments of projects, which involves discussions with the Project Director, Policy Advisers, and other Policy Analysts, assessment of roles provided or expected, determination of priorities and other variables, development of information flows and exchanges, evaluation of information and data and, in more complex areas, the development of new methods and techniques required to meet specialized segment goals and objectives.
3. Provides extensive support to the Project Director and Policy Advisers in carrying out their work, such as obtaining, analyzing and commenting upon data and information required for such things as policy option analyses and formulation of alternative policy structures.

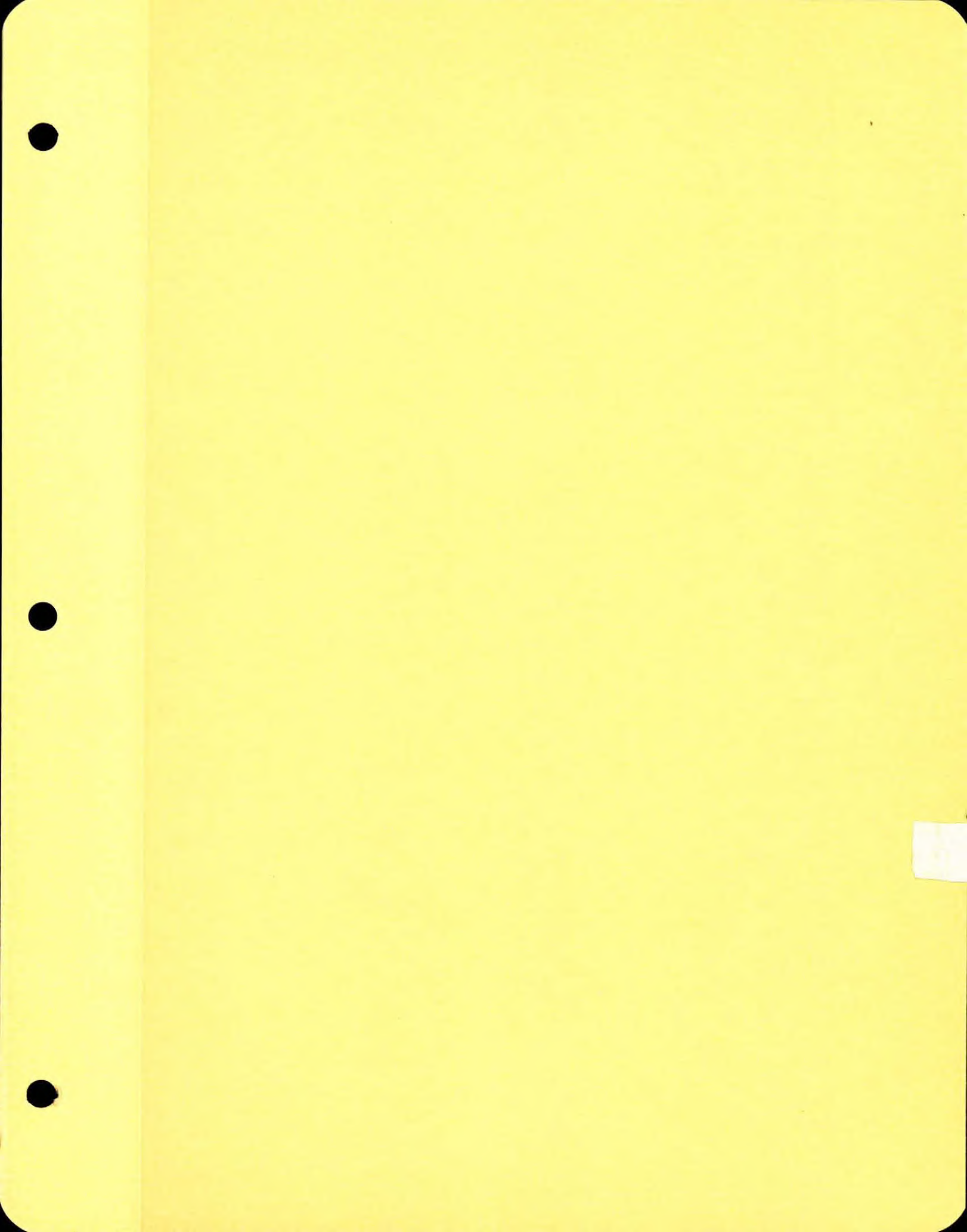
4. Participates in the definition of issues, policy options and consequences of various options, through the provision of expert analysis, development and evaluation services within a specialized field of operations.
5. Prepares segments of S&T policy working papers and participates in the development of overall papers through the provision of expert inputs and analyses within the incumbent's specialized fields, and concerning the inter-relationships and inter-dependencies of various specialized inputs.
6. Obtains, evaluates and consolidates feedback from interested and affected parties concerning the specialized project segments, which involves extensive liaison and consultation within the Ministry, federal government and external areas, with colleagues, associates and, on occasion, senior level officials.
7. Participates in the preparation of project final reports by evaluating inputs relating to the incumbent's area of specialization, in order to ensure that the final report accurately reflects these inputs.
8. Liaises with various policy implementation areas to develop information and data flows concerning the effectiveness and efficiency of policy implementations within the incumbent's specialized fields, evaluates the data and provides recommendations to Project Directors and Policy Advisers concerning performance parameters and requirements for policy changes to meet the original policy intent.
9. Maintains a knowledge of sector area policies, programs, issues, activities and developments, as well as an expert knowledge of specialist areas therein, in order to ensure the provision of effective study research, analysis, evaluation, support and development inputs to overall project operations.

#### RELATIONSHIPS AND DISTINGUISHING FEATURES

The Policy Analyst reports to a Project Director or Policy Adviser as is appropriate to the size and structure of a project (AS-5 to SX-2 and equivalents). The work requires undertaking studies, research, analysis, evaluation, development, liaison, consultation, information development, and related recommendation roles within a specialized field as part of a project team. The work also requires determining S&T policy problem and opportunity areas and the making of recommendations for projects relating to such identified areas.

The contacts required in the work are extensive and involve the Ministry, other departments and agencies, and areas external to the government, primarily to develop information and data flows, feedback channels, discussion groups and advisory areas, but, on occasion, will require such activities as negotiating for information and providing expert, specialized inputs for Project Directors and/or Policy Advisers at various meetings and committees. The work performed will affect the overall project results, the inter-relationships among various specialized inputs and the co-ordination capabilities of various project areas, and accordingly, can have a significant effect on the ultimate policy outputs of Branch projects.





THE BRANCHES' OBJECTIVES, SUB-OBJECTIVES  
AND OTHER ORGANIZATIONAL PAPERS

The managerial concept of MOSST as a vehicle for providing a universal approach to science in government through an all-encompassing, rigid, hierarchical organization structure is considered to be neither feasible nor desirable.

MOSST should become part of the central policy making apparatus working in conjunction with P.C.O., T.B.S. and major science departments in the preparation of proposals to Cabinet.

MOSST would complement and coordinate rather than duplicate the scientific or policy analysis expertise in departments or central agencies.

The major modus operandi of MOSST would be the selection of high priority projects, primarily of a cross-departmental, cross-discipline nature, for study and report.

To achieve these basic aims MOSST is seen as a matrix organization whose experienced, well-trained and mature policy analysts, supported by science-oriented analysts would be assigned across the organization to meet changing priorities.

Accepting that a true matrix organization militates against any sub-division of the Ministry's objectives and sub-objectives a Branch structure has been recommended within MOSST but only:

- (a) To provide to departments, agencies, institutions, organizations and the scientific and technological communities outside the Ministry an apparent focus in the separate Branches of Government, Universities and Industry.
- (b) To provide organizational distinction in the Policy and Program Assessment Branch for:
  - (i) as many continuing responsibilities as possible to enable the Sector Branch Deputy Secretaries to concentrate on the analysis of pertinent information and the development of policy through the management of project teams drawn from the Ministry's matrix organization.

- (ii) those responsibilities which are deemed not to come within the ambit of any particular Sector Branch.
- (iii) those services, supportive to the Ministry as a whole, which are best managed in a specialized Branch.
- (c) To provide an organizational rationale for the location of those continuing responsibilities which are seen as the domain of the Sector Branches.
- (d) To provide an acceptable "home-base" affiliation to project directors and analysts for professional assessment and managerial appraisal.

It must be recognized that acceptance of a matrix organization and a project approach to policy formulation and review implies that the following statements of Branch objectives and sub-objectives can neither be read nor organizationally interpreted as mutually exclusive, individual areas of responsibility. Projects will emanate from many areas within and outside the Ministry even in relation to those areas designated as continuing responsibilities for the Sector Branches and those assigned to the Policy and Program Assessment Branch. Again, while project staffs have a "home-base" in a particular branch they will be assigned to projects on the basis of their specialist skills irrespective of which Deputy Secretary has managerial responsibility for any particular project. Equally, projects will be assigned to any of the Deputy Secretaries by the Project Management Committee even though the subject of the project may seem to be in a particular branch sector.

## SECTOR BRANCHES

### Government, Universities, Industry

#### Continuing Objectives

- formulate policies for the development and maintenance of a science and technology capability in the sector, and a favourable environment for its use in support of national goals.
- advise on the application of S & T resources within the sector to national issues.
- foster the use of scientific and technological knowledge and methodology in the development of public policies impacting on the sector.

#### Sub-Objectives (Sector Focus)

With respect to a sector

- recommend objectives and priorities for S & T
- develop and formulate policies for achieving such objectives in consultation with concerned departments and agencies.
- recommend such policies to the Minister for Cabinet approval, including necessary guidelines for their implementation, coordinating mechanisms, and effectiveness criteria
- advise the P.C.O. and the T.B.S. on machinery of government implications of policy recommendations, developed by the Ministry and by other government departments and agencies
- advise P.C.O. and T.B.S. concerning the impact on the sector of S & T policy initiatives developed by the Ministry and by other governmental departments and agencies
- ensure that federal government departments and agencies coordinate the development of S & T policies and implementation guidelines impacting on the sector
- encourage the inclusion by federal government departments and agencies of measures of effectiveness in S & T policy initiatives affecting the sector
- ensure the periodic review of federal government S & T policies and associated implementation guidelines which affect the sector

- conduct or sponsor research to support the development of S & T policies related to the sector
- ensure the effective integration of S & T policies developed for the sector with policies for S & T generally, and with other government policies affecting the sector.

#### Sub-Objectives (Continuing Responsibilities)

##### Government Branch

- propose policy initiatives for the Ministry related to international and federal/provincial S & T activities and participate in their development as appropriate
- provide advice on the international and federal/provincial S & T implications of policies, programs, and initiatives proposed to the government
- formulate and develop recommendations for Canadian participation in international S & T activities with other countries and pertinent multilateral organizations
- maintain an overview of Canadian international S & T policies and activities in priority policy areas and promote their effective coordination with related domestic activities to obtain optimum use of resources
- ensure that the needs of the Ministry and other departments and agencies for information and data on scientific and technological policies, programs and activities in other countries and international organizations are efficiently fulfilled in conjunction with the Policy and Program Assessment Branch, Information Resources Division.
- co-ordinate the establishment of agreed and consistent Canadian positions on international scientific and technological activities and issues
- advise External Affairs on the development of an effective science counsellor network and provide functional direction relating to science policy matters
- represent Canada or arrange for official Canadian Representation at international science and technology meetings and conferences in which there is a national interest.

### Universities Branch

- prepare and make available forecasts of the HQM supply and demand situation in Canada and recommend how the development and utilization of HQM could be improved by Ministry initiatives, by federal policies and programs, by the efforts of non-federal organizations, or by decisions of individuals.

### Industry Branch

- undertake medium and long-term forecasting of advances and trends in S & T
- assess the impact of S & T on Canadian society and on the achievement of government objectives and identify approaching problems and opportunities for S & T policy development advice
- provide advice on the long-term S & T implications of proposals being advanced to the government
- ensure that relevant forecasts and assessments are properly interpreted in the formulation of S & T policies within the Ministry

## POLICY AND PROGRAM ASSESSMENT BRANCH

### Objectives

To promote an increase in the cohesiveness and effectiveness of federal government activities in S & T through the provision of advice and support to departments, agencies, and policy development groups in the Ministry on matters pertaining to the relevance, priority, and potential of present or proposed policies or programs with a significant content of science and technology.

To identify, develop and maintain the optimum means of meeting the Ministry's requirements for continuing information on S & T policies, activities, and resources, and make recommendations for improved science and technology information and transfer systems in Canada.

To provide required management information systems and extensive administrative services in support of the Ministry's matrix organization.

### Sub-Objectives

To provide advice to federal government departments and agencies concerning S & T related programs in regards to contents, organization, and allocation of resources.

To develop, promote and apply methods of evaluating and improving the effectiveness of S & T policies, programs and projects.

To assist federal government departments and agencies in the identification, formulation, and presentation to TBS, PCO, or Cabinet, of new or improved policies and programs pertaining to S & T.

To support decision making in the Treasury Board Secretariat on the relevance, priority and potential effectiveness of budgetary matters submitted by departments and agencies having a significant S & T content.

To participate in the identification of policy issues which should be studied by the Ministry's policy development branches.

To assist when required in the implementation of S & T related policies within the federal government.

To improve the overall management effectiveness and efficiency of the Ministry by providing personnel, finance, administrative and information services, and by providing policies, programs and procedures and guidance and advice to all levels of management, for the use of such services.

To provide a permanent Secretariat for the project management committee. :

To develop and operate a manpower planning and project reporting system supportive of the Ministry's matrix organization.



Policy and Program Review and Evaluation Division

In addition to responsibility for two groups (Policy and Program Effectiveness Evaluation and Program Review) the Director General has the following functions:

- To participate, as a full member, in the Management Committee and the Project Management Committee.
- To represent the Branch and/or the Ministry and act for the Secretary as required in providing counsel to such senior bodies as Cabinet Committees, Treasury Board Interdepartmental Committees, and to the Minister in his capacity as a member of the Board, regarding departmental proposals containing a significant S & T content.

## Policy and Program Effectiveness Evaluation

- Develops, refines and improves analytical techniques and procedures for evaluating the effectiveness of S & T policies, programs and projects in terms of their approved objectives.
- Recommends to the Ministry and other central agencies on the adoption of evaluation concepts and methodologies for S & T activities and promotes their utilization by departments and agencies.
- Advises the Treasury Board Secretariat on the organization and effectiveness of federal government S & T activities.
- Undertakes on request from Treasury Board Secretariat, departments or the Ministry, in depth evaluations of the effectiveness of specific existing or proposed S & T policies or programs.
- Provides specialist advice and participates in Ministry policy development projects.
- Participates in the implementation within the federal government of new S & T policies.
- Participates in the identification of potential areas for policy development and formulation by the Ministry.

## Program Review

- Advises the Ministry and Treasury Board Secretariat on the adequacy with which the performance and potential of S & T activities are included in strategic planning and resource allocation processes.
- Supports decision making in the Treasury Board Secretariat on the relevance, priority and potential effectiveness of budgetary matters submitted by departments and agencies having a significant S & T content.
- Develops, maintains and operates a science and technology expenditure reporting system in conjunction with the Program Forecasts and Estimates activities of TBS.
- Analyses the composition and pattern of government expenditures in S & T and makes recommendations for improved utilization and development of S & T.
- Develops and employs in collaboration with the Treasury Board Secretariat effective means for identification, assembly and analysis of the federal government's science expenditures.
- Provides information on the impact of Ministry policies as reflected in the budgetary process for the benefit of the Ministry, the Government and departments concerned.
- Counsels departments and agencies on the conduct of S & T activities in relation to government objectives, priorities and policies, and allocation of resources.
- Participates in the identification of potential areas of policy development and formulation by the Ministry.
- Participates in the implementation within the federal government of new S & T policies.
- Participates in or monitors interdepartmental machinery to ensure the co-ordination of S & T activities.

## Information Support Division

- Identifies, reviews and analyzes the scope of existing information pertaining to S & T policies, programs, activities and resources.
- Promotes the coordination of design, development and implementation of new banks of S & T information of a continuing interest to the Ministry or S & T community.
- Plans, organizes and directs the creation of computerized linkage systems to facilitate the retrieval of existing S & T information from existing and planned data banks.
- Provides assistance to the policy development branches of the Ministry and to the S & T community in the gathering or retrieval of specific S & T information.
- Acts as the focus for the Ministry in taking the lead in or participating in the formulation and development of S & T information policies and technology transfer systems for Canada.

### Personnel Services Division

- Within the specific requirements and demands of the Ministry's matrix organization, advises and counsels the Secretary and other senior management on matters affecting human resources, and provides essential services through such programs as the following: personnel policies and procedures, organization planning, compensation, staff relations, staffing, manpower planning, staff development and training, and bilingualism.

### Financial Services Division

- Develops and coordinates systems and procedures necessary for the preparation of short and long-range program forecasts, budgets and estimates, and accounts for the budget through the development of an accounting and reporting system and regular analysis of financial trends.

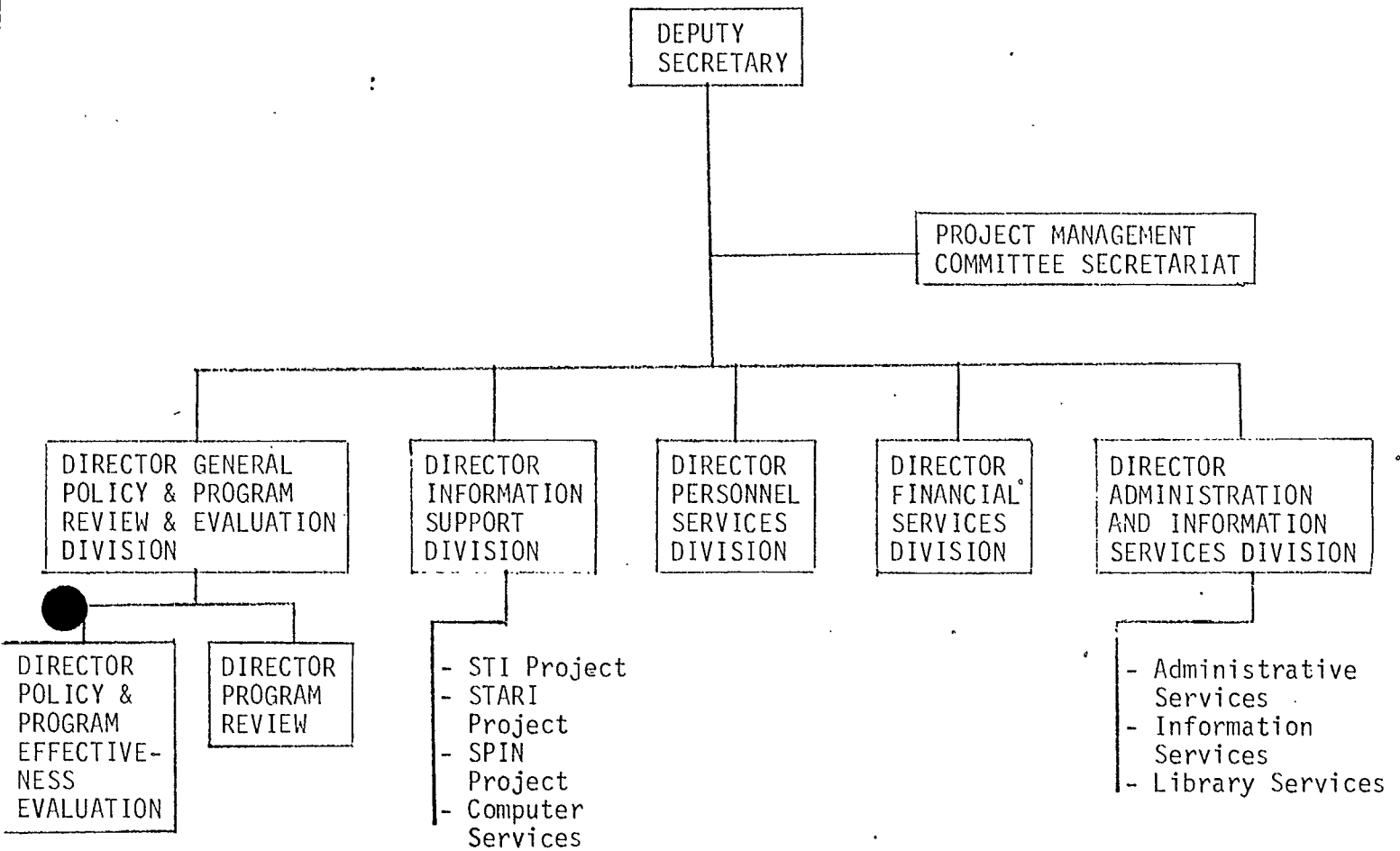
### Administration Services Division

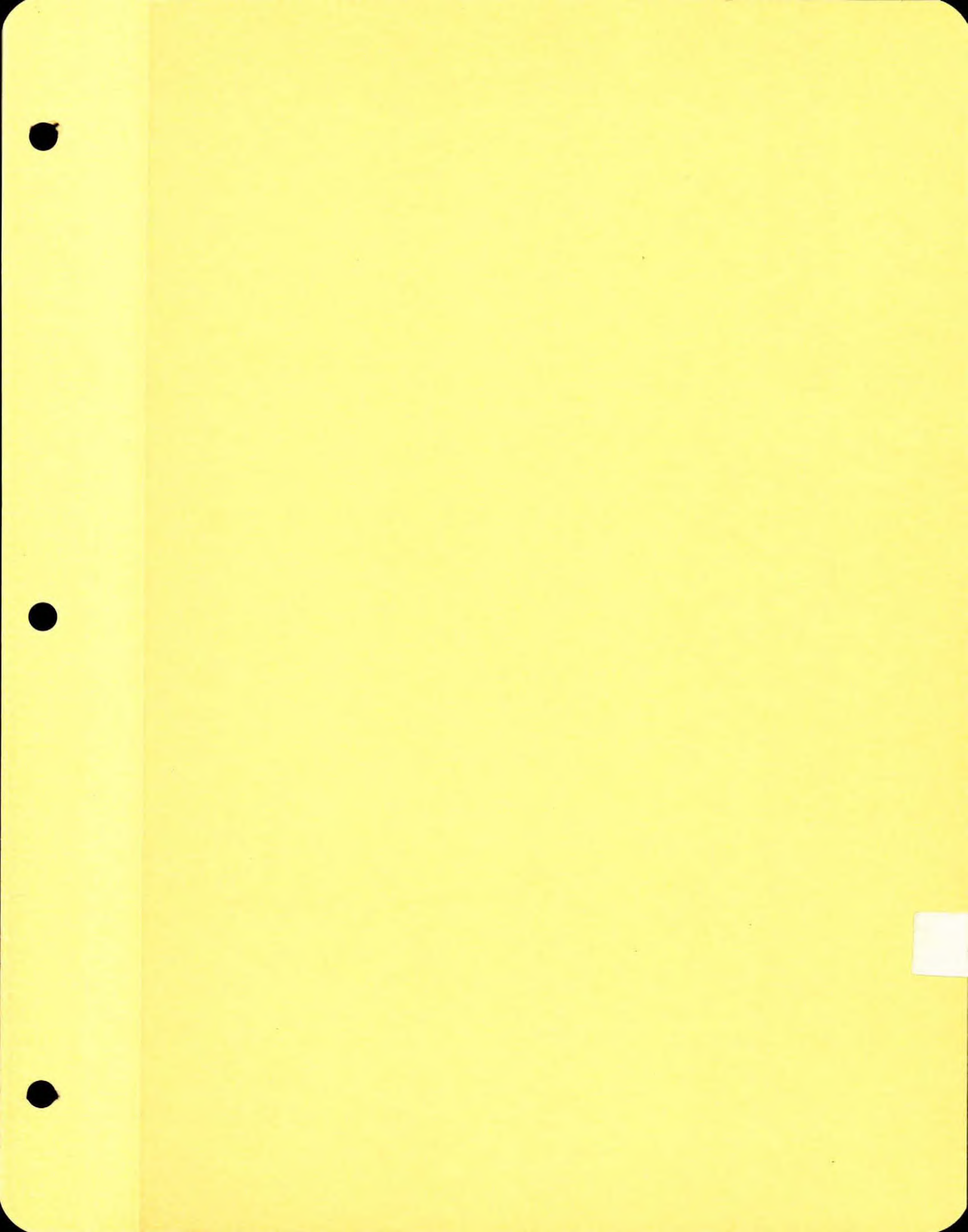
- Develops, recommends and implements administrative plans and procedures and provides administrative services such as records management, material management and office services.
- Plans, organizes, coordinates and directs the information services, and media relations and public relations programs and activities of the Ministry. Plans and directs the Ministry's publications activities. Acts as Parliamentary Returns Officer for the Ministry.
- Organizes and administers a scientific library to serve the needs of the Ministry.

Project Management Committee Secretariat

- Under the direction of the Project Management Committee, develops and operates a manpower planning and project information and control system supportive of the Ministry's matrix organization.
- Provides support to the smooth operation of the Project Management Committee by screening, scheduling and distributing all material to be reviewed by the Committee.
- Provides secretarial services to the Committee by scheduling and arranging meetings, by taking and distributing the minutes, by directing the control and distribution of draft Cabinet documents, policy proposals, and other classified information, and by performing other duties requested by the Committee.

POLICY AND PROGRAM ASSESSMENT BRANCH







# THE MINISTRY'S POLICY MAKING PROCESS IN A MATRIX ORGANIZATION

## THE PROJECT MANAGEMENT COMMITTEE

Role: To serve as the ministerial discussion and decision centre for S & T policy development and policy evaluation projects.

Composition: Chairman: The Secretary

Members: Deputy Secretary, Government Branch  
Deputy Secretary, Universities Branch  
Deputy Secretary, Industry Branch  
Deputy Secretary, Policy and Program Assessment Branch  
Director General, Policy and Program Review and Evaluation Division

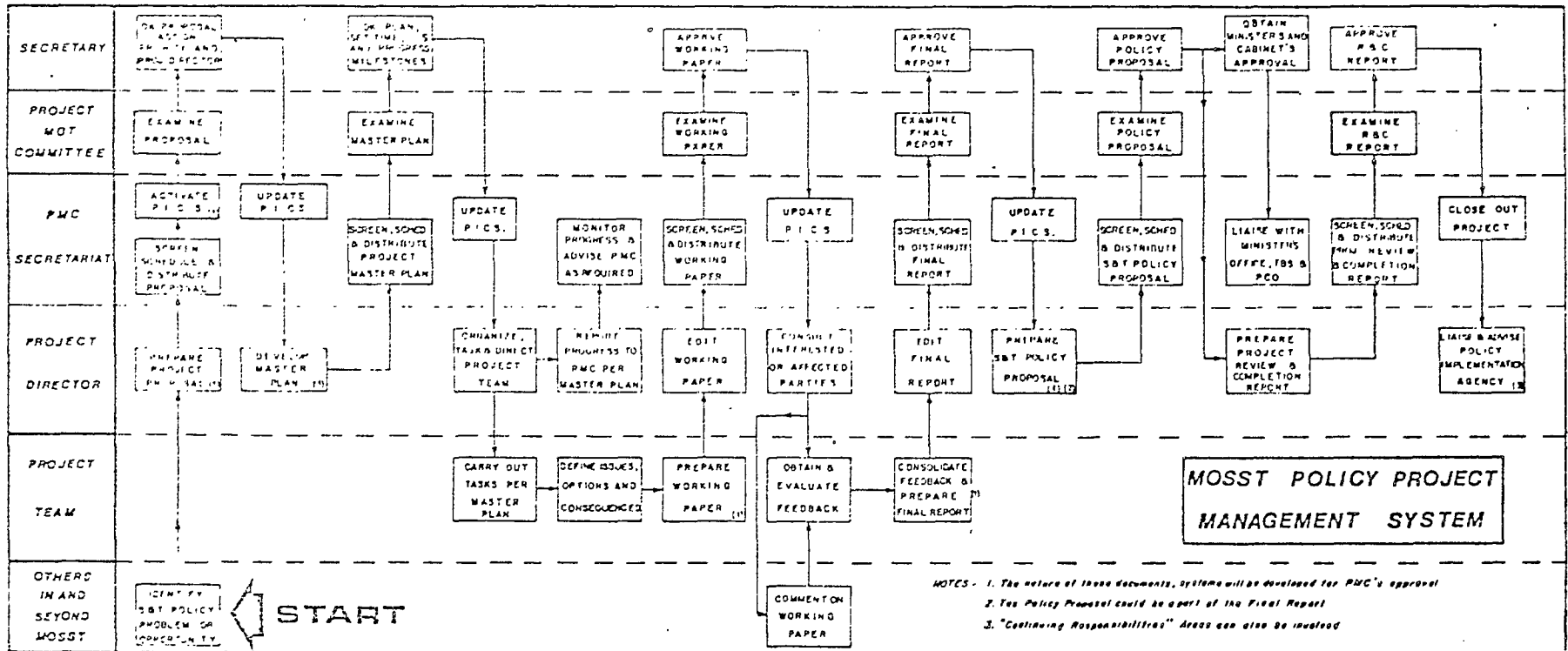
Secretary: Director, PMC Secretariat

On occasion, the Minister or very senior executives of other federal government departments and agencies may attend PMC meetings. The PMC will usually meet once each week.

### Responsibilities:

1. To review and discuss all S & T policy matters which ultimately will require the Minister's or Cabinet's approval.
2. To recommend priorities, criteria, guidelines, procedures, processes, etc., for the handling and approval of policy development and policy evaluation projects.
3. To review and recommend on the key documents generated by policy projects including: Policy Project Proposal, Policy Project Master Plan, Project Working Papers, Project Progress Reports, Project Final Reports, and Memoranda to Cabinet.
4. To relate Policy Project cost estimates to the Ministry budget.
5. To ensure each proposed or authorized Policy Project will and continues to contribute to the attainment of the Ministry's objectives and that definite milestones, time targets and cost limits are established for these Projects.

INITIATION STAGE      EXECUTION STAGE      DECISION STAGE



## MOST POLICY PROJECT MANAGEMENT PROCESS

### INITIATION STAGE

1. Identify S&T Policy Problem or Opportunity - Anyone
2. Prepare Policy Project Proposal - A Project Director.
3. Screen, Schedule & Distribute Proposal - PMC Secretariat
4. Activate Project Information & Control System - PMC Secretariat
5. Examine Proposals as to Suitability, Priority - PMC
6. Approve Proposal, Assign Priority & Project Director - Secretary
7. Update Project Information & Control System - PMC Secretariat
8. Develop Project Master Plan - The Project Director
9. Screen, Schedule & Distribute Master Plan - PMC Secretariat
10. Examine Master Plan as to Logic, Resource Availability, Budget Impact - PMC
11. Approve Master Plan & Designate Time, Cost & Progress Milestones - Secretary
12. Update Project Information and Control System - PMC Secretariat

### EXECUTION STAGE

1. Organize, Task & Direct Project Team - The Project Director
2. Carry out Research & Analysis Tasks Per Master Plan - Project Team
3. Report Progress to PMC Secretariat Per Master Plan - The Project Director
4. Define Issues, Policy Options & Consequences - Project Team
5. Prepare & Edit S&T Policy Working Paper - Project Team, Project Director
6. Screen, Schedule & Distribute Working Paper - PMC Secretariat
7. Examine and Approve Working Paper - PMC Secretary
8. Update Project Information & Control System - PMC Secretariat
9. Consult Interested & Affected Parties on Working Paper - The Project Director
10. Obtain & Evaluate Feedback From Interested & Affected Parties - Project Team
11. Consolidate Feedback; Prepare & Edit Project Final Report - Project Team - Project Director
12. Screen, Schedule & Distribute Final Report - PMC Secretariat
13. Examine and Approve Final Report - PMC Secretary
14. Update Project Information & Control System - PMC Secretariat

### DECISION STAGE

1. Prepare Policy Proposal For Ministerial or Cabinet Approval - The Project Director
2. Screen, Schedule & Distribute Policy Proposal - PMC Secretariat
3. Examine & Approve Policy Proposal, - PMC Secretary
4. Obtain Ministerial or Cabinet Approval of Policy Proposal - Secretariat PMC - Secretary
5. Prepare Project Review & Completion Report - The Project Director
6. Liaise With Policy Implementation Agency - The Project Director

