

(37)

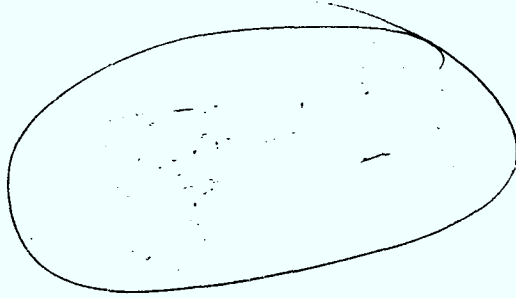
TL  
862  
E9  
C337  
1977

Re: 306-771079

Serial No DOC 2-77  
Série No MDC 2-77

Date: 15 June, 1977  
Date: le 15 juin, 1977

RESTRICTED  
DIFFUSION RESTREINTE



NOTE

Discussion Paper  
Document de travail

SECURITY CLASSIFICATION CHANGED	
FROM:	Restricted
TO:	Declassified
AUTH:	SUBJECT TO REMOVAL OF CABINET DECISION REFERENCES
SIG:	PW [Signature]
DATE:	13/9/85

TITLE: CANADA'S ASSOCIATION WITH THE EUROPEAN SPACE AGENCY  
~~TITRE:~~ L'ASSOCIATION DU CANADA AVEC L'AGENCE SPATIALE EUROPEENNE

Industry Canada  
Library Queen  
  
SEP 16 1998  
  
Industrie Canada  
Bibliothèque Queen

The Minister of Communications  
Le ministre des Communications



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

CANADA'S ASSOCIATION WITH THE EUROPEAN SPACE AGENCY

OBJECT

1. To report on the exploratory talks held with the European Space Agency (ESA), and to outline a number of specific alternatives for Canada's association with that Agency, namely to retain the present Observer status or to join ESA as an Associate Member at an agreed level.

BACKGROUND

2. Starting from its early upper atmospheric research programs in 1959, Canada's interests in space changed toward applications with the approval of the HERMES/CTS Program in 1970. [redacted] Telesat Canada was established in 1969 and the first ANIK satellite launched in 1972. In 1969 the Interdepartmental Committee on Space (ICS) was established [redacted]

section  
69(1)(g)

[redacted] The policy specifies a pragmatic approach: space activities should be aimed toward applications in support of national goals. As a key requisite, space systems should, as much as possible, be developed and manufactured by Canadian industry.

section 69

3. ESA was formed as the result of the merger of two former organizations: the European Space Research Organization (ESRO) and the European Launcher Development Organization (ELDO). At the start of ESA's operations in 1975, Canada was granted Observer status in the Council and has cooperated with the Agency in the CTS/HERMES and Aerosat Programs.

4. In reviewing Canada's international partnerships in space programs, the ICS analysed prospects for strengthening Canadian space programs through new directions in international cooperation. The analysis reaffirmed the value of continued association with Canada's principal partner in space programs, the USA, and suggested that there may be benefits to be gained from a closer association with ESA. This association with ESA could bring advantages to Canada's space industry which are not available in association with the USA.

5. [redacted]

section 69(1)

[redacted]

[redacted] In February, 1977 an announcement by the Minister of Communications at the ESA Council meeting held at ministerial level,

RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

that Canada intended to explore the possibility of a closer association with the Agency, was generally welcomed. Following this announcement an interdepartmental working group was established by the ICS and exploratory talks with ESA were held in April 1977. Several alternatives for a closer association between Canada and ESA were discussed. The following sections present these alternatives and discuss the associated benefits and costs.

## FACTORS

### Introduction

6. Canada requires partners for its space program as it cannot afford the costs of carrying out programs alone. Most space projects are very expensive, and generally involve costly capital facilities for research and development, manufacture, test and integration, the launch into orbit of spacecraft, and the reception, analysis and interpretation of data. Cooperation with other nations enables Canada to participate in, and benefit from, a diversity of space projects at an acceptable overall cost.

7. The USA has been Canada's principal space partner since the beginning of the space age, and is expected to remain so because of its geographic proximity, technological supremacy, and the common interests and problems of the two nations.

### The European Space Agency (ESA)

8. ESA has evolved into a potential additional partner for future Canadian space projects, for example those for which a cooperative basis with the USA is not possible or is less attractive. It now is timely to decide on upgrading Canada's relationship with the Agency to facilitate such cooperative endeavours as ESA is currently engaged in planning its next five-year program cycle.

9. There is a substantial community of interest between Canada and ESA, particularly in communications and earth observation. In communications, there is a community of interest in direct broadcast systems and in systems to relay messages between small earth terminals, and in using satellites to meet the communication needs of transportation. Common interests in remote sensing include monitoring oceans for surveillance purposes and environmental conditions, monitoring snow and flood conditions, and obtaining information relating to the management of crops and forests and the control of pollution. Clearly a basis for cooperation exists in these areas.



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

10. There is substantially less overlap of interest in space science. Canadian scientists are particularly interested now in earth/space interactions and near-space phenomena. Their European counterparts are currently more concerned with outer space phenomena, but there are indications of increasing European interest in near space phenomena.

11. With regard to space transportation systems, Canada is not interested at the present time in participating in the development, by ESA, of the ARIANE satellite launcher. However, both Canada and ESA are contributing separately to the NASA SPACE SHUTTLE, with Canada developing the Remote Manipulator System and ESA developing Spacelab.

#### Industrial Benefits

12. New industrial benefits would result from a closer relationship between Canada and ESA. In particular, new working relationships between Canadian companies and their European counterparts would be necessitated by the fact that major ESA contracts are bid on a consortium basis. These relationships should prove fruitful for other space business prospects and for non-space business prospects. Canadian companies should benefit also from ESA's efforts to rationalize Europe's space industry through the promotion of a limited number of sources for the various specialized components, subsystems and skills. The major Canadian space company, SPAR Aerospace Products Limited, sees great benefits flowing from a closer Canadian association with ESA.

13. Although ESA's contracts are awarded primarily on a competitive basis, its Industrial Policy guarantees a minimum repatriation to each Member State in the form of contracts to national organizations (industry, universities, government R&D agencies, etc.) Specifically, each Member State is guaranteed that the cumulative net value of such contracts will be at least 80% of the portion of its contributions represented by the cumulative net value of all such contracts to Member States. This guarantee is exclusive of internal ESA costs, such as the operation and activities of ESA headquarters, ESA technical centres, etc. and of expenditures to non-Member States, for example to the USA for specialized components and subsystems and for launching services. Ideally, each Member State would enjoy a 100% repatriation. In practice, the more technologically-advanced Member States can expect to enjoy more than 100%, provided that they are also competitive.

14. Experience to date is that, of a Member State's contributions, 45-55% is returned in the form of contracts to national organizations, approximately 25% is consumed by the procurement of goods and services from non-Member States, and approximately 20% by internal ESA costs. The percentage expended on goods and services from non-Member States, three-quarters of which is accounted for by the purchase of launch services, should decrease as more goods and services



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2-77

become available in Member States. These data alternatively can be expressed in terms of the percentage ratio of expenditures outside Member States for goods and services to the net value of contracts in Member States (i.e. the face value of such contracts, less the flow-through for foreign goods and services). The value of this ratio for ESA programs to date is approximately 50%. The corresponding ratio for the HERMES/CTS project is approximately 23%. The percentage expenditure on internal costs also was less for the HERMES/CTS project than for ESA programs to date, being approximately 11% versus 20%. Furthermore, the internal costs for HERMES/CTS largely were expended in Canada, providing employment to Canadians and other direct benefits to the Canadian economy. These benefits would not prevail with respect to the internal costs of ESA, although the establishment of an ESA Program Centre in Canada would promote a balance in this regard. The above data clearly suggest that the funding of contracts to Canadian organizations via contributions to ESA may be a less effective mechanism for generating Canadian Value Added than would prevail for co-operative projects for which the program and funding are managed directly by the Government of Canada.

15. The minimum repatriation guarantee of ESA's Industrial Policy is particularly beneficial to Member States whose industry is less competitive. As in all cases where bidding is not strictly on a price/quality/delivery basis, some extra costs are incurred. To the extent that these costs are incurred in states belonging to the Agency, the overall result can be beneficial. Decisions to develop, and stipulate the use of, components and subsystems from ESA sources, which are available at lower cost from non-ESA sources, also will increase project costs. On the one hand, Canada would benefit from the promotion of such ESA sources in Canada. On the other hand, Canada would be subsidizing such sources in other states.

16. Canada currently enjoys beneficial commercial arrangements for the sale of space-related products to the USA not enjoyed by other nations, including the Member States of ESA. These arrangements could be jeopardized by too close a level of Canadian association with the Agency.

#### Technology Transfer

17. Closer association with ESA will provide also new opportunities for technology transfer. In particular, technology whose development is funded under ESA's basic and support technology programs is available to all members. A matter of some concern to IT&C is that the new channels for technology transfer that would result from a closer association with ESA should not result in a substantial reduction of technology transfer from the USA. In this connection the US Congress is giving consideration to controlling the transfer, without payment, of US technology to other countries.



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

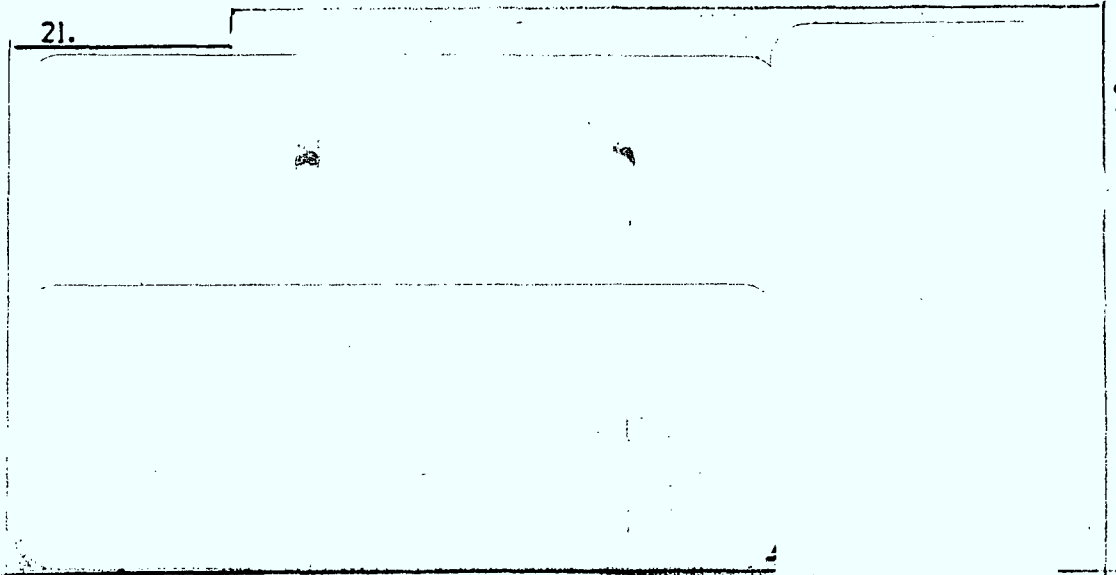
International Considerations

18. Upgrading Canada's relationship with ESA would be consistent with the Government's continuing strategy of diversifying Canada's political and economic relations. In particular, it would be a tangible contribution to efforts, such as the signature of the Framework Agreement with the European communities, to strengthen links with the countries of Western Europe. Moreover, a number of ESA Member States, at both the official and ministerial level, have indicated that they desire closer cooperation with Canada in space research and development. Given these expectations, a decision to continue at the present level of Observer status would, no doubt, be seen by ESA members as being inconsistent with Canada's expressed commitment to expand relations with Western Europe.

19. No requirement was established in the discussion with the ESA Executive for Canada to "internationalize" its program by making available for participation by ESA members any new project it intends to undertake alone or in collaboration with a Member State.

20. It was agreed in the exploratory talks that the question of Privileges and Immunities and related matters could be negotiated separately and would be subject to the normal practices of Canada and ESA.

21.



22. While ESA Member States welcomed Canada's intention to upgrade its association with ESA, and the ESA Executive has agreed to recommend, for Council approval, any of the levels of association described below, it would be desirable to reinforce any official approach to ESA by approaches in capitals of Member States.



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2 -77

## ALTERNATIVES

23. The possible relationships between Canada and ESA have been reduced to four Alternatives which were examined by the team conducting the exploratory talks. These Alternatives, ranging from maintenance of the present Observer status to virtual full membership, are described in this section (and are summarized in Table I).

### ESA's Financial Structure

24. The activities of ESA are either mandatory or optional. The mandatory activities are covered by a General Budget and a Scientific Budget, with a Member State's contribution being based on its Gross National Product (GNP) in relation to the total GNP of ESA Member States. The optional activities are funded, on a negotiated basis, by those Member States deciding to take part in the activity.

25. The General Budget covers what might be regarded as the "overheads". But the ESA Executive would recommend to Council that, under some Alternatives, Canada should not be asked to contribute to certain items in the General Budget on the grounds that, since these are existing items of expenditure for Member States, it would not be just to expect Canada to contribute.

26. While the Scientific Budget is mandatory for Member States, the ESA Executive would recommend that it be optional for Canada at all levels of upgraded association except at the high level of Associate Membership which would be provided by Alternative 4 below. For that Alternative, the Executive suggests that Canada should increase its contribution as new projects are initiated in whose definition Canada has had the opportunity to participate.

### Maintenance of Present Observer Status (Alternative 1)

27. The present status permits Canada to attend meetings of the ESA Council as an Observer, to receive the agenda and other Council documents, and to attend, as an Observer, meetings of the Science Program Committee and of the International Relations Advisory Group. It also facilitates the development of specialized links as the recently concluded arrangements for cooperation in remote sensing, Memoranda of Understanding for cooperative projects, etc. Canada can neither intervene in the deliberations of Council nor attend meetings of policy-forming bodies such as the Bureau, which is effectively an executive committee of the Council, or the Industrial Policy Committee. Observer



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

status does not permit Canada to influence the overall program or long-term plans of the Agency and cannot be counted on to create an awareness of changes in European space programs before they otherwise become apparent. It does not provide Canada with the right to participate in General Studies leading to the definition of new projects, but it does provide a basis for discussion of possible cooperative projects.

Low Level of Associate Membership (Alternative 2)

28. This Alternative is the minimum level of Associate Membership which the ESA Executive considers would be acceptable to the ESA Council. It consists of participation in the General Studies and Fixed Common Costs, elements of ESA's General Budget, both of which are mandatory for Member States. The Canadian contributions would be in proportion to GNP (9.38% on the basis of 1972/1974 data). Since Canada would be an Associate Member for only a portion of the year, the contribution for 1977/78 would be reduced by 50%. ESA's fiscal year is the calendar year and the budget is expressed in Accounting Units (AU). For the convenience of the reader, all budget figures have been converted to Canadian dollars and expressed in terms of the Canadian fiscal year. In terms of ESA's 1977 Budget, these contributions would be approximately as follows:

	<u>1977/78</u>	<u>1978/79 and successive years</u>
General Studies	\$0.3M	\$0.6M
Fixed Common Costs	<u>\$0.3M</u>	<u>\$0.6M</u>
TOTAL	\$0.6M	\$1.2M

Approximately 80% of the above totals would be expended on internal costs of the organization, leaving 20% (i.e. approximately \$240K in 1978 and successive years) to be spent on contracts. To the extent that Canadian bids were competitive, at least this amount likely would be spent on contracts in Canadian industry and other national organizations.

29. The benefits to Canada for this level of Associate Membership would be:

- (1) Canada would be able, because of its participation in the General Studies, to interact at an early stage with plans for proposed future projects, thus increasing the likely relevance to Canadian needs and benefits to Canada of those projects in which Canada participates with the Agency;

.../16



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

- (2) Canada would have the right to participate in the Optional Programs and the Scientific Program of the Agency as though it were a Member State, but on an à la carte basis;
- (3) Canada would have voting rights in the Council and appropriate subordinate bodies, but only for those programs and activities in which it participates;
- (4) Canada would have a right to be heard in other subordinate bodies on questions which affect its interests and could request attendance as an observer in other subordinate bodies;
- (5) Canada would be treated as a Member State with respect to information and data and the application of ESA's Industrial Policy, for those activities and programs of the Agency in which it participates.

Medium Level of Associate Membership (Alternative 3)

30. This Alternative would provide for increased Canadian participation in the activities of ESA which are mandatory for Member States, in particular the Basic Technological Research Program, which is aimed at developing in industry the competence required for the scientific and application programs, and increased participation in ESA's infrastructure and support activities. The ESA Executive would recommend that Canada not be asked to contribute to the Kourou launch site, the headquarters building and the earth resources data network in Europe. The Executive would recommend also that Canada be required to contribute to all other costs on an increasing scale, determined by its GNP, to a maximum of 85% of that which otherwise would prevail. The 15% reduction compensates for the limited usefulness of some programs to Canada because of its geographical separation. In terms of ESA's 1977 Budget, these contributions would be approximately as follows:

<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82 and successive years</u>
\$0.5M	\$1.0M	\$1.6M	\$2.1M	\$2.2M

Of the eventual total of \$2.2M, some \$250K would be spent on outside contracts in General Studies and some \$470K on outside contracts in the Basic Technological Research Program; the remainder would be expended on internal costs of the Agency.

31. Additionally, at this level of Associate Membership:

- (1) Canada would have all the rights and privileges of a Member State except that Canada would have the right to vote only on those activities and programs in which Canada is participating. Canada



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

would not vote in Council on the adoption of the level of resources for the coming five-year period, because such a decision has to be unanimous. Canada would make a statement on the level of resources it would be prepared to make available but Canada would vote, as though a Member State, on the adoption of the annual budget;

- (2) Canada would have access to ESA facilities, assistance from ESA, and supply of ESA-developed products on the same basis as though it were a Member State;
- (3) ESA would make use of Canadian facilities as though Canada were a Member State.

32. It is more likely under this Alternative and Alternative 4, than under Alternatives 1 and 2, that consideration would be given by ESA to the establishment of an ESA Program Centre in Canada. The establishment of such a centre, which has been discussed informally with the Director General of the Agency, should be a major aim because it could balance the contributions spent in ESA Member States. The exploratory team did not discuss with the ESA officials the possible establishment of such a centre in Canada.

33. Canada would have the right to participate in the Optional Programs and the Scientific Program of the Agency as though it were a Member State, but on an à la carte basis.

#### High Level of Associate Membership (Alternative 4)

34. Under this Alternative, Canada would have virtually all the rights, privileges, and obligations of a Member State. Canada would participate in ESA's Scientific Program on the same mandatory basis as Member States, except that the ESA Executive would recommend that Canada be required to participate only in new programs in whose definition Canada has the opportunity to participate. Two major projects (Space Telescope and Out-of-Ecliptic Spacecraft) are joint ESA/NASA projects, which have been approved by ESA and await NASA approval. If this is forthcoming, there is virtually no money for "new projects" until 1981/82. As a result the cost to Canada for the Scientific Program would be \$0.1M in 1978/79 and 1979/80, \$0.2M in 1980/81, \$2.9M in 1981/82 and thereafter growing rapidly to about \$7.5M. Should the US Congress not approve either of the two joint projects, money for "new projects" would become available much earlier and Canada could face a cost of \$1.1M in 1978/79 rising to \$1.9M in 1979/80, \$3.1M in 1980/81 and thereafter to \$7.5M. In addition, the NRC estimates that costs to be borne in Canada as a result of participation in the ESA Scientific Program would be approximately equal to those of such participation. This is due to the fact that almost all research in the natural sciences is supported by the Federal Government through the granting operations of the Research Councils or through the operations of the Government Laboratories. Similar considerations would, of course, apply to any Scientific Satellite Program undertaken by Canada alone, or in cooperation with a partner other than ESA. For this reason it would be desirable that, in any negotiations with ESA toward this Alternative, a ceiling be placed on Canada's contributions before 1981.



RESTRICTED

Serial No DOC 2-77  
Série No MDC 2-77

35. Canada's contribution to the General Budget would be the same as that for Alternative 3. The costs incurred directly in ESA, assuming that NASA carries out the Large Space Telescope and Out-of-Ecliptic projects, would be approximately:

	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>
General Budget	\$0.5M	\$1.0M	\$1.6M	\$2.1M	\$2.2M
Scientific Budget	-	\$0.1M	\$0.1M	\$0.2M	\$2.7M

36. IT&C is of the opinion that the reorientation of the Canadian space program away from cooperation with the USA inherent in the ultimate total cost exposure of Alternative 4, including the cost of necessary support activities in Canada, might jeopardize the USA relationship and the various technological and industrial benefits flowing from it.

#### OPTIONAL PROGRAMS

37. The Optional Programs of ESA consume currently about three-quarters of the total budget. Since the "overhead" costs of the Agency tend to be concentrated in the Mandatory Program, it is apparent that a closer association with ESA would be advantageous only if Canada foresees participation in some of the Optional Programs of the Agency. Interest lies in the Telecommunications and the Earth Observation Programs, as discussed in the following paragraphs.

#### Telecommunications Programs

38. Interest in the Telecommunications Program is high because Canada is seeking, for a number of reasons, to broaden its base of international cooperation in the development of new telecommunications satellite systems and applications. Canada's cooperation with NASA has been fruitful to date, and is forecast to continue if NASA resumes, as now seems likely, the initiation of programs in this area. However, no mechanism currently exists through which Canadian industry could develop a role vis-a-vis the US industry which would permit the planned development and exploitation of areas of specialization within the Canadian space industry. The scale and state of development of European industry and of the ESA organization provide Canadian industry with an opportunity to develop relationships which would permit the necessary specialization while allowing Canada to develop the capability to act as prime contractor for its domestic satellite system.



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2 -77

39. The ESA program in which participation promises the greatest benefit to Canada is the Large Communications Satellite program which, among other things, is designed to explore direct-to-the-home and community broadcasting applications. This satellite, to be launched in 1980, would be in view of the Eastern part of Canada and it appears technically feasible to modify the present ESA designs to permit operation in at least this part of Canada. In addition to the possible use of the satellite, Canada, by participating in the program through, for example, the manufacture of one of the satellite subsystems, could obtain access to valuable information on all aspects of the program. More importantly, it could assist Canadian industry in establishing a role vis-à-vis European industry that would permit greater specialization on both sides. There is a high probability that SPAR Aerospace Products would be successful in bidding for the main communications payload, which would take maximum advantage of its experience acquired on the HERMES/CTS project. The estimated contribution that Canada would be required to make to support this participation over a four-year program, is approximately \$10M. A lower level of participation would be possible, but would be less than proportionately effective in establishing a clear-cut role for Canadian industry.

40. A second area of the Telecommunications Program where Canada could participate to its advantage is in a proposed new program of support technology directed specifically toward communications. Assuming that all participants contributed according to GNP, Canada's contribution would be approximately \$700,000 per annum. Since ESA would manage this development program in such a way as to promote, still within a competitive framework, preferred suppliers for various subsystems and components, participation would assist in the consolidation of Canadian industry's role as a supplier to ESA programs.

41. A third area of the ESA Telecommunications Program which is of some interest to Canada, and in which some Canadian participation might become desirable, is the MAROTS Maritime Satellite Program. Canada might choose to participate in the ESA program in order to have Canadian industry involved early as potential suppliers of parts to an operational International Maritime Satellite System (INMARSAT) to which Canada is proposing to subscribe, and also to influence the system design in Canada's interest.

#### Remote Sensing

42.

[REDACTED] The Canada Centre for Remote Sensing (EMR) has been directed to lead an interdepartmental project to study the requirements for, and the feasibility of, a surveillance satellite and to report its findings in 1979. Most of the activity centres around the reception of Synthetic Aperture Radar (SAR) data from the US SEASAT-A satellite, with additional complementary underflights and research data obtained with an experimental airborne SAR.

Section 10  
6911



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2 -77

43. ESA's optional Remote Sensing Satellite Program and the associated technological support activity will study some of the problems associated with just such a surveillance satellite; in particular the feasibility, performance and cost of a two-frequency satellite SAR system. Participation in the study phase of the ESA program would increase the options available to Canada, and could facilitate the development of a global partnership arrangement for a satellite SAR system.

44. At this point it is not possible to recommend whether Canada should participate in the ESA Remote Sensing Optional Program. Canada has not been involved in the preliminary consideration of this program, but proposes to participate in the Phase A/B studies. Participation in both the General Studies Program and the remote sensing aspects of the Basic Technological Research Program would be beneficial, and would provide the background necessary for further recommendations.

#### FINANCIAL CONSIDERATIONS

45. Estimates of the mandatory costs for the various levels of association with ESA discussed in the preceding section, based on ESA's 1977 Budget, are summarized in Table 2. This table also includes the estimated representational costs and estimated support costs in Canada for participation in ESA's Scientific Program. The representational costs are negligible for Alternative 1, the present status, as representation at ESA Council meetings normally is provided by the Paris Embassy.

46. Estimates of the costs for possible Canadian participation in ESA's Optional Programs are much less precise, because they depend on decisions to be made after the formulation of ESA programs, a formulation in which Canada would participate if Canada's membership were upgraded. The financial obligations arising from participation in Optional Programs are subject to negotiations between the participants and are not determined by GNP of Member States. It should be noted that the Scientific Program is mandatory for Member States and, therefore, in those cases where Canada would have the choice of participating in the Scientific Program or parts of it, the cost to Canada would be determined on the basis of Canada's GNP.

47. The direct cost of participation in those Optional Programs in which Canada might participate is estimated to be as follows:

	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>
<u>TELECOMMUNICATIONS</u>				
a) Large Communication Satellite Program	\$1.1M	\$3.7M	\$3.7M	\$2.1M
b) Technological Support Program	<u>\$0.3M</u>	<u>\$0.7M</u>	<u>\$0.7M</u>	<u>\$0.7M</u>
TOTAL FOR TELECOMMUNICATIONS	\$1.4M	\$4.4M	\$4.4M	\$2.8M



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2 -77

A lower level of participation is possible but would not be as effective in establishing a clear-cut role for Canadian industry.

Moreover, it should be noted that the present ESA estimate of the total program cost assumes that one satellite will be launched at no cost to the program on the last scheduled qualification launch of the ARIANE system.

1977/78   1978/79   1979/80   1980/81

REMOTE SENSING

(TOTAL, including participation in the Technological Support Program)	\$0	\$0.5M	\$2.0M	\$4.0M
---	-----	--------	--------	--------

These estimates are based upon a GNP share of the proposed program costs. Actual costs would depend upon the program fraction, if any, "bought" by Canada. Canada's large land area and greater use of remotely sensed satellite data might produce pressures to raise Canada's proposed contribution above the simple GNP proportion.

48. The responsibility for the payment of the "Membership" costs and the "Optional" costs would have to be assigned. "Membership" costs could be borne by a central agency on the ground that it is a payment on behalf of many departments and agencies. Since the Interdepartmental Committee on Space, which has no separate budget, reports to the Minister of Communications, it might be appropriate for the "Membership" costs to appear in the DOC budget. This seems appropriate also because it appears likely that, at least in the short term, DOC would have the greatest participation in optional programs. To maintain financial accountability, "Optional" costs should be borne by the agency or department participating in an optional program or activity.

49. The funds required this year for the Canadian payment to the General Budget of ESA and the foreseen participation in the Optional Telecommunications Program could be obtained through reallocation of resources or internal offsets in the Department of Communications. Resources for future years would be obtained through standard budgetary procedures.



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2-77

#### FEDERAL/PROVINCIAL RELATIONS CONSIDERATIONS

50. Since the question of association with ESA would not directly affect provincial interests, no consultation with the provinces is contemplated.

#### OTHER CONSIDERATIONS

51. This proposal has important implications for International Relations; these are considered in paragraphs 18 to 22 above.

#### INTERDEPARTMENTAL CONSULTATION

52. This discussion paper was reviewed by the ICS and represents the views of the member departments. The Treasury Board and the Department of Finance have been consulted.

#### PUBLIC INFORMATION CONSIDERATIONS

53. As the media were informed of the exploratory discussions with ESA and are expected to become aware of any opening of negotiations, it will be important to explain, as soon as a decision is taken on the form of association to be negotiated with ESA, the general elements of the Canadian position, including its consistency with foreign policy objectives and the commercial, scientific and technological benefits expected.

54. At the appropriate time, a communiqué announcing the decision taken on the form of association should be released. The release should emphasize specific programs arising as a result of an association with ESA and the benefits to be derived. The release will be coordinated with the Department of External Affairs.

55. A follow-on information program is also recommended, which would serve, through news releases or ministerial speeches as appropriate, to highlight the inception, development and results of specific programs resulting from the agreement.

#### CONCLUSION

56. The discussion paper has examined alternative levels of Canadian association with the European Space Agency in the light of exploratory talks with the Executive of the Agency. Three alternatives, other than the present Observer status, have been identified and the costs and benefits of each analysed.



RESTRICTED

Serial No DOC 2 -77  
Série No MDC 2-77

57. A closer relationship with ESA would provide additional flexibility for Canada's space program. In particular, it would enhance ESA as an additional potential partner for programs for which cooperation with the USA is less attractive or even not possible. Such a relationship would be the first where Canada would be able to influence the advanced planning of future programs.

58. A closer relationship with ESA would provide new opportunities for Canadian industry: through new working relationships between Canadian companies and their European counterparts; through the inclusion of Canada in ESA's rationalization of its sources for specialized components, subsystems and skills; and through new opportunities for technology transfer. Such opportunities would, in practice, depend on the degree of association with ESA and the level of Canadian participation in ESA's Optional Programs.

It is also to be noted that contributions to ESA are likely to be less effective in generating Canadian Value Added than has prevailed under cooperative projects with the USA.

59. Participation in the Scientific Program of ESA is not appropriate at this time because of the current dissimilarity of interests of European and Canadian scientists.

60. Upgrading Canada's relationship with ESA would be a tangible contribution to efforts to strengthen links with the countries of Western Europe and would be welcomed by Member States. A continuing dialogue with US agencies is desirable to ensure that Canada's closer association with ESA is seen as complementary to the close association of Canada with the USA in the area of space cooperation.

61. Decisions are now required on whether negotiations are to be undertaken with the Agency and, if so, on the level of association which is to be sought and the latitude to be accorded to the Canadian negotiators.

*Jeanne Laroche*  
MINISTER OF COMMUNICATIONS



Table 1

CANADA'S PARTNERSHIP WITH THE EUROPEAN SPACE AGENCY

## Alternative Forms of Associate Membership

Alternatives	Voting Rights	Mandatory Activities & Programs Involvement	Optional Program Involvement	Participation in Subordinate Bodies	Participation in Program Review & Decision Processes	Employment of Canadians in the Agency	Mandatory Costs (See Annex 2 for amounts)
Alternative 1 - Present Observer Status	Limited to Programs in which Canada participates	NIL	Subject to Negotiation in respect of co-operative projects.	Appropriate to any program in which Canada may participate.	Essentially Nil	Nil	Nil
Alternative 2 - Participation in studies of future projects and contribution to the fixed common costs.	Limited to programs, projects & activities in which Canada participates.	Studies of future projects, fixed common costs.	As feasible and desired by Canada.	As appropriate to programs, projects & activities in which Canada participates	Probably limited to studies of future projects	Very limited opportunities but subject to negotiation.	Full GNP share of the costs of studies of future projects & the fixed common costs.
Alternative 3 - Participation via the basic activities on a gradually increasing basis up to a max. of 85%	Limited to programs, projects & activities in which Canada participates.	Basic activities excl. Space Science Dept., Space Doc. Centre, Education Prog., Kourou, Earth Resources, H.Q. Building	As feasible and desired by Canada	Science Prog. Committee, Industrial Policy Committee, Bureau, etc.	As for full member except on questions affecting Scientific Budget	Subject to negotiation	Increasing over the next 5 years to 85% of the full GNP share of the basic activities.
Alternative 4 - Participation via the basic activities and scientific program on a gradually increasing basis.  -virtual Full Member	As for a Member State except on the admission of new members	Scientific Program & basic activities excl. Space Science Dept., Space Doc. Centre, Education Prog., Kourou, Earth Resources, H.Q. Building	As feasible and desired by Canada.	Science Prog. Committee, Industrial Policy Committee, Bureau, etc.	As for a Full Member.	Subject to negotiation but should be as for a Full Member.	Increasing over the next 5 years to a full GNP share of the Scientific Prog. & 85% of the basic activities.

