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REVIEW OF RURAL COMMUNICATIONS PROGRAM

October, 14, 1977

K. Watson

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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Background Information	
I.    ORIGIN	1
- Steering Committee on Rural Communications	2
- Rural Communications Program Organization	2
II.   SCOPE	3
- Rural Communications Program Objectives	3
III.  PLANNED ACTIVITIES AND RESOURCE ALLOCATION	4
- Rural Communications Program Plan	4
- Rural Communications Program - Resource Allocations	9
Current Status	
IV.   RELEVANCE OF RURAL COMMUNICATIONS PROGRAM TO DEPARTMENTAL POLICY AND OBJECTIVES	10
V.   SOCIAL POLICY AND PROGRAM BRANCH SUPPORT OF THE RURAL COMMUNICATIONS PROGRAM	13
Future Plans	
VI.   CABINET DOCUMENTATION	15
- Cabinet Documentation	15
- Financial Constraints - Rural Communications Projects	20
Conclusions and Recommendations	
VII.  CONCLUSIONS AND RECOMMENDATIONS	22
- Conclusions	22
- Recommendations	23
APPENDIX	
- 1. Steering Committee on Rural Communications	25
- 2. Rural Communications Program Organization Chart	26
- 3. Rural Communications Program Areas	27
- 4. Rural Communications Program Relationships	28
- 5. Rural Communications Projects	29
- 6. RCP Flow Chart, December, 1975	29

## I. ORIGIN

In late 1975 the Senior Management Committee in the Department of Communications reviewed departmental plans and forecasts and decided that the Rural Communications Program should be given high priority status. This decision was influenced by the fact that efforts to extend or improve communications services had been directed primarily to urban and remote areas of Canada. At this time, knowledge of rural communications services was limited.

The need for an information base on rural communications services which would include telephony, broadcasting and CATV was acknowledged. With this information, the range, quality and economic viability of these services could be determined. It would then be possible to concentrate on defining levels of service and pinpointing weaknesses in the areas of communications equipment and/or system development and determining standards. With this information and knowledge, more meaningful discussions could be held with provincial governments and the communications industry. Consultations could be arranged to determine the ways and means that industry could respond to particular needs of upgrading or extending communications services to the rural population.

To launch this program, an inter-branch work group was organized within the department and a steering committee was formed to provide direction. The first task was to define the rural communications milieu. This resulted in the production of a report in July 1976. "Present Status of Rural Communications in Canada" provides information on the rural popula-

tion and indicates the level of service and coverage available for telephone radio broadcasting, television broadcasting and cable television.

Steering Committee on Rural Communications:

In December 1975, the Steering Committee on Rural Communications was established. It was viewed as a means to bring about close co-operation among DOC policy, research and service sectors for the purpose of (1) refining the objectives of the Rural Communications Program, (2) developing a program plan and (3) establishing a recognized departmental source for providing direction and guidance to the carriers and industry on matters of delivery of services and provision of appropriate communications equipment for the Canadian rural population.

At the outset, the Steering Committee on Rural Communications was chaired by Mr. J.C. Madden, Director General, Technology and Systems Research and Development. Since his departure from the department, Mr. L. Hatton has taken over the position of chairman on an acting basis. A list of members and advisors is included as Appendix 1 of this paper.

Rural Communications Program Organization:

In September 1976, Mr. R. Marchand was appointed the Director of the Rural Communications Program. He presently reports to Mr. L. Hatton who is Acting Director General, Technology and Systems Research and Development, on day-to-day matters and to the Steering Committee on Rural Communications on matters of general direction. The staff organization, areas of concern and relationship to other organizations are identified in Appendices 2, 3, and 4.

## II. SCOPE

As knowledge about the rural communications services and environment was limited, a major part of the program has to be focussed on (1) the identification of levels of service and (2) assessment of coverage, quality and accessibility for the rural population. Particular needs of users in the rural environment have to be explored as an assessment made of the capability of both government and industry to fulfill these needs within the existing institutional framework. Although the main thrust is technological assessment, policy aspects are an integral part of this program. The ways and means of upgrading and/or extending communications services to the rural population will have to be clearly indicated and policy guidelines formulated.

### Rural Communications Program Objectives:

#### General:

1. To provide the engineering/economic framework for the development of federal policies on rural communications.
2. To foster federal/provincial cooperation in improvement of rural services.
3. To stimulate Canadian product design for rural communications.
4. To provide the basis for a coherent domestic market for equipment used for improvement of rural services.

Specific:

1. To develop an information base in the field of communications services (telephony, broadcasting, CATV and data) in rural areas.
2. To identify ways in which the range, quality and economic viability of such services may be improved.
3. To determine the most cost-effective ways of improving telecommunications services in rural Canada.
4. To identify opportunities for government stimulation of industrial electronics development.
5. To determine the types of services which are considered to be a) necessary and b) desirable in various time-frames, the investments required and the level of customer charges would be reasonable.

III. PLANNED ACTIVITIES AND RESOURCE ALLOCATION

Rural Communications Program Plan:

In June 1976, a plan was drawn up to show how the objectives could be achieved. This is shown in the flow chart included as Appendix 6. Particular projects are identified and many of these have a parallel time-frame. Within each project there may be further breakdowns of tasks to facilitate completion of work. In order to coordinate the project work and provide an orientation framework, the projects are organized within four general areas.

These general areas of work are identified by memo of June 30, 1976 from the Director General of Technology and Systems Research and Development to the Assistant Deputy Minister (Research). Reference is made to this framework for coordination because the Social Policy and Programs Branch may be asked to provide support to different projects and this helps to provide an overview and more accurately reflect the kind of contribution to the program which might be requested. The four general areas of work and corresponding projects are identified below. For more specific detail on each project please note the page number and refer to Appendix 5.

Area No. 1. Assessment of the Current Situation:

This includes assessment of current levels of service and user demand; identifies current plans and assesses adequacy for user requirements.

Project No. 1. A Study of Available Products and Systems for Rural Telecommunications. (p. 29)

2. Surveys of CATV Hardware Suppliers and Systems Economic Feasibility for Extension to More Sparsely Populated Areas. (p. 30)
3. Levels of Broadcast Coverage. (p. 31)
4. Regional Study on Rural Population and Settlement. (B.C.) (p. 32)

Project No. 5. Service Aspects of Rural Mobile Radio. (p. 33)

6. Regional Study on Rural Population and Settlement. (Prairie Prov.). (p. 34)

7. Rural Mobile Radio, Technology Survey. (p. 35)

8. Regional Studies on Rural Population and Settlement. (Ontario/Quebec). (p. 36)

9. Regional Study on Rural Population and Settlement. (Maritimes). (p. 37)

10. Radiating Cable Characterization. (p. 38)

11. Low Cost Pole Line Microwave. (p. 39)

12. Rural Telephone Distribution System. (p. 40)

14. Use of Anik C in Rural Areas. (p. 42)

20. Demographic and Economic Benefit Studies. (p. 48)

Area No. 2. Demand Prediction:

This provides for an assessment of demand growth which incorporates information on population growth and/or movements and changes in the level of service demand.



Project No. 3. Levels of Broadcast Coverage. (p. 31)

4. Regional Study on Rural Population and Settlement. (B.C.) (p. 32)

5. Service Aspects of Rural Mobile Radio. (p. 33)

6. Regional Study on Rural Population and Settlement. (Prairie Prov.). (p. 34)

8. Regional Studies on Rural Population and Settlement. (Ontario/Quebec). (p. 35)

9. Regional Study on Rural Population and Settlement. (Maritimes). (p. 36)

20. Demographic and Economic Benefit Studies. (p. 48)

21. Demand for Rural Communications Services. (p. 49)

Area No. 3. Economics of Responding to Demand:

This provides for an assessment of the cost of meeting those demands (most likely expressed as a series of differing levels of service) in different time frames and using different technologies.

Projects: Not Identified.

Area No. 4.

An Assessment of DOC Options for Action:

(Action may or may not be needed. Options have been identified by the Chairman of the Steering Committee.)

- a) Declaration of more specific level of service objectives.
- b) Formulation of means to assist rural householders to obtain agreed to levels of service.
- c) Revision of regulations and standards to adjust to differences between the urban and non-urban environments.
- d) Recommendations related to possible institutional changes.
- e) Recommendations relating to promising opportunities.

Project No. 7. Rural Mobile Radio, Technology Survey. (p. 35)

10. Radiating Cable Characterization. (p. 38)

11. Low Cost Pole Line Microwave. (p. 39)

12. Rural Telephone Distribution System. (p. 40)

13. Systems Engineering Study of Fibre Optics. (p. 41)

Project No. 14. Use of Anik C in Rural Areas. (p. 42)

15. Small Subscriber Carrier System. (p. 43)

16. Rural Radio Pilot Project. (p. 44)

17. Identification of Broadband Options. (p. 45)

18. Cabinet Documentation Requesting Approval in Principle of Field Trials. (p. 46)

19. Remote Power Source. (p. 47)

22. Integration of Services in Rural Areas. (p. 50)

23. Telecommunications Development Financing. (p. 51)

Rural Communications Program-Resource Allocations:

The Rural Communications Program Objectives and Plan were approved by Mr. M. Yalden, Deputy Minister of the Department of Communications. As the program was considered to be within the mandate of the department, Cabinet approval was not required and the initial operating budget was \$65,000.00. In the next fiscal year (77-78) the operating budget was \$300,000.00. The proposed budget for the coming fiscal year (78-79) is \$1.3 M. This does not include the funding for proposed field trials for radio and fibre optics. A submission to Cabinet was prepared in September,

1977 to request approval in principle for these field trials. Preliminary cost estimates which have been made by the Manitoba Telephone System are \$6 million. More detailed information on the field trials is included in Section VI - Cabinet Documentation.

IV. RELEVANCE OF RURAL COMMUNICATIONS PROGRAM  
TO DEPARTMENTAL POLICY AND OBJECTIVES

Relevance of the Rural Communications Program to the Department of  
Communications Act:

According to the duties of the Minister as outlined in the Department of Communications Act, the above noted program is within the mandate of the Department of Communications. As stated:

The duties, powers and functions of the Minister of Communications extend to and include all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada, relating to

- (a) telecommunications; and
- (b) the development and utilization generally of communication undertakings, facilities, systems and services for Canada.

Relevance of Rural Communications Program to Departmental Objectives:

By memorandum of January 23, 1976, the Deputy Minister has indicated departmental objectives. The Rural Communications Program takes specific account of those departmental objectives which are identified as follows:

1. Service to the Public:
  - a) Continued provision of efficient, cost-effective and reliable departmental services to the public;
  - b) promotion of extension of telecommunication services to all Canadians.
2. Policy development and coordination of the continued development of Canadian telecommunication systems and facilities.
3. To undertake, promote and encourage scientific and industrial research in telecommunications.

Relevance of the Rural Communications to Bill C-43; an Act Respecting Telecommunications in Canada:

Telecommunication Policy for Canada as set out in Bill C-43 has a number of sections which specifically relate to the Rural Communications Program. These are listed below:

- (1) Efficient telecommunication systems are essential to the sovereignty and integrity of Canada, and telecommunication services and production resources should be developed and administered so as to safeguard, enrich and strengthen the cultural, political, social and economic fabric of Canada;
- (2) All Canadians are entitled, subject to technological and economic limitations, to reliable telecommunication services

making the best use of all available modes, resources and facilities, taking into account regional and provincial needs and priorities.

- (3) Telecommunication links within and among all parts of Canada should be strengthened, and Canadian facilities should be used to the greatest extent feasible for the carriage of telecommunications between Canada and other countries.
- (4) Innovation and research in all aspects of telecommunication should be promoted in order to improve Canadian telecommunication systems and to strengthen the Canadian industries engaged in the production of broadcast programming and the manufacture of telecommunication systems and equipment.
- (5) The regulation and supervision of all aspects of telecommunication in Canada should be flexible and readily adaptable to cultural and social change and to scientific and technological advances.
- (6) The rates charged by telecommunication carriers should be just and reasonable and without undue discrimination against any person or group.

V. SOCIAL POLICY AND PROGRAM BRANCH  
SUPPORT OF THE RURAL COMMUNICATIONS PROGRAM

As indicated in the 1976-77 Operational Plan, Social Policy and Program Branch allocated .25 man-year to the Rural Communications Program.

There has been a continuing representation of Social Policy and Program Branch on the Steering Committee for Rural Communications.

Mr. D. Rainboth is currently representing the branch. Through this activity, reviews and comments on several drafts of the Cabinet documentation have been made. The details of this discussion paper are included in Section VI of this report.

In addition to this involvement, advice was provided on a specific task related to the demographic studies conducted by the University of Sherbrooke. A research team at this university was asked to prepare a report indicating alternative means of structuring a model, that could be applied on a national basis, to indicate the characteristics of rural communications users.

The researchers did not present alternative approaches but selected a survey format and focussed on outlining an approach for the design and implementation of a user survey for rural telephone services. The interim report was reviewed by Social Policy and Program Branch and it was considered to be unacceptable for the following reasons:

- (1) the research approach was not clearly set out,
- (2) there was inadequate explanation of the methodology and reasons for selecting certain criteria,
- (3) the material was presented in a haphazard manner and this presented difficulty in interpreting some of the information and assessing how it was being used. To resolve this problem, Social Policy and Program Branch provided written comments on the shortcomings of the interim report and what should be included to improve the quality of the report.

Mr. K. Richardson of the Rural Communications Program is the officer in charge of the demographic studies which were contracted to the University of Sherbrooke. He was in agreement with this evaluation of the interim report and requested representation from Social Policy and Programs Branch at a review meeting with the researchers in June, 1977. This request to act in an advisory role was met and the research team agreed to rewrite the report.

The final draft of the report was reviewed and improvement in the text noted. However, a telephone survey format was added and a review of this additional material by Social Policy and Program Branch staff was made. This format was circulated for the intention of assessing the usefulness of the questions being asked. It is recognized that the survey format is not in accord with those designed by Statistics Canada and the wording of the questions require specific attention. As the "rule of 10" applies,



Statistics Canada will be consulted about proper format, type of questions and size of survey.

The Ontario government has indicated that funding is available for telephone survey work in Ontario and consideration is being given to scheduling a survey this fall. Mr. K. Richardson would like to have an input to this activity and informal discussions with provincial officials indicate that the results of the survey could be made available to the department. Social Policy and Program Branch has been asked to provide advice and assistance in designing a user survey for telephone service.

#### VI. CABINET DOCUMENTATION

A Cabinet document has been prepared to request approval in principle of a rural optical fibre and radio field trial. This activity is designed to:

- (a) develop ways of reducing the economic burden of providing improved telecommunications and broadcasting services to rural areas,
- (b) promote the development in Canada of optical fibre technology, and
- (c) assist Canadian industry in developing new products to meet both Canadian and foreign requirements for improved rural and urban communications systems.

Fibre Optics Field Trial:

The proposed site for the field trial of a glass fibre optic delivery system is rural Manitoba (probably near Elie). The system would be capable of delivering telephone, CATV, and other signals to approximately 150 households.

Preliminary cost estimates are \$6 M. Joint funding by the Canadian government, the Manitoba telephone system and the Canadian Telecommunications Carriers is proposed.

Radio Field Trials:

There is increasing evidence which suggests that the use of multiple rebroadcasting transmitters capable of transmitting up to six television channels from a single location (a technique referred to as "stacking"), combined with radio telephones, could greatly reduce the cost of providing telecommunications services in areas where a combination of low population density and difficult terrain makes the stringing of wires prohibitively expensive. Such multi-channel TV transmitters could also be useful in areas where existing telephone service is adequate, but where there is a demand for a better choice of TV and radio entertainment. While there are considerable economies of scale to be obtained from the stacking of slave repeaters, and the use of repeaters is, at the present time, by far the cheapest method per capita of providing broadcasting services in areas of low population density, they are not widely used in Canada (except by the CBC) because of the difficulty of recovering the cost of the system.

It would appear that radio telephones coupled with broadcasting repeaters would provide the most cost effective service complement for low density rural areas in difficult terrain, while higher density areas might be best served in the future by an integrated glass fibre delivery system.

Reasons for Proposing Field Trials:

- At the present time, the relative costs and advantages of the two delivery systems are poorly understood, primarily because there is no single entity in Canada (or the U.S.) with responsibility for a total communications delivery system. It seems reasonable though that both radio and optical fibre systems could improve cost-performance by a factor of three over today's systems - the radio systems by reducing total systems costs; optical fibre by tripling revenues for an investment of the same order as that required today for telephony alone.
  
- There is already a relatively high level of dissatisfaction on the part of rural dwellers with the level of telephone and broadcasting services available to them. Current population trends towards higher growth rates in non-metropolitan areas are likely to result in an increased level of dissatisfaction unless major service improvements are forthcoming.
  
- The cost of providing telecommunications services in rural areas is very high both in absolute terms and in relation to the probable revenues to be obtained.

- It seems unlikely that rural services can be significantly improved using current technology but new technologies offer the prospect of significant relief from current cost constraints.
  
- For a variety of reasons, including the small markets involved, the Canadian telecommunications industry is not investing significant R&D funds in the development of new products adapted to rural services.
  
- A development and field trial program could:
  - (a) Substantially accelerate the availability of improved communications services in rural areas;
  
  - (b) Provide needed stimulus to Canadian industry and reduce dependence on foreign suppliers and technology; and
  
  - (c) Provide important information concerning the implications of integrated delivery systems.

Resource Allocations:

It is estimated that approval of the proposed activity would entail expenditures of up to seven million dollars over a period of six years. An estimated four to five million dollars of the total would be devoted to the development of glass fibre systems, and the remainder to radio communications systems and other promising technological developments. No increase in government man years is involved. All new funds would be dispensed in the form of contracts to Canadian industry.

Alternatives:

The alternatives are essentially those of supporting the proposed field trial and demonstration activity or choosing not to support it at this time.

Discussion of the Alternatives:

Should the government decide that no further action should be taken at this time, then it is most probable that:

- (i) Rural broadcasting services will be largely limited to the CBC, and this service will be costly to provide since there will be no sharing of delivery (e.g. broadcast repeater) facilities. Rural telephone service will improve to a four party standard level of service but not much further. Dissatisfaction with telecommunications services on the part of the rural resident will increase.
- (ii) Canadian industry will become significantly less competitive in the new and rapidly expanding optical fibre market.
- (iii) Canadians will have to rely on American and Japanese experimental data and become increasingly dependent on technology developed in these countries, in areas vital to the future of telecommunications in Canada, in rural and remote regions of the country as well as in urban areas.

On the other hand, should the government decide to support the proposed field trial activity:

- (i) The installation of improved rural telecommunications services would be accelerated.
- (ii) Canadian industry would be provided with important contracts at a critical point in the development of an optical fibre industry whose North American value is projected to be a billion dollars a year by 1990.
- (iii) Governments and regulatory bodies would be provided with technical/economic data that is required for possible future regulatory and policy decisions.

An additional advantage of the proposed activity (which is consistent with the Make or Buy Guidelines for R&D approved by Cabinet in March 1977) is that it is likely to be well received both by the rural population at large, and by provincial governments and industry.

Financial Constraints - Rural Communications Projects:

Budget constraints will probably limit the number of projects which can be undertaken in the next fiscal year. Although the proposed budget (78/79) is \$1.3 M, it is likely that only \$300 K will be allocated. The following list indicates proposed projects for financing and does not include University Research Project Funds.

Items	78/79		Status
	Proposed	Restricted	
<u>Socio-Economic Topics:</u>			
Demand for services	200K	20K	Cannot be deferred. University funds suggested.
Economic benefits	15K	1K	2nd order priority for program itself.
Financial considerations	50K	0	Either done in-house or deferred.
<u>Technological Topics:</u>			
Pole-line microwave	42K	45K	Payments in 77/78 increased to 200K
Application study, digital	180K	160K	Accelerated effort planned for 77/78
Remote powering	30K	0	Deferred or CTCA.
System study, integrated serv.	150K	21K	Deferred
Application study, digital distributed matching	50K	0	Deferred
Evaluation, electronic telephones	40K	0	Deferred
Rural Interface Device	80K	0	Deferred
Feasibility study of radio- telephony in sparsely populated areas	100K	0	Deferred. Will begin in-house
SHF Cellular broadcast systems	100K*	1K	Deferred
ANIK-B field trial	60K	0	
Devices for integration	40K*	0	Deferred
<u>Others:</u>			
Technological impacts on broadcasting in rural areas	20K	5K	Deferred

Items	78/79		Status
	Proposed	Restricted	
Professional services	50K	47K*	
Market identification and development of Canadian capability	60K	0	Deferred
International opportunities	79K	0	Deferred
	1,337K	300K	

VII. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- A cursory review of the projects undertaken in the Rural Communications Program indicates that there have been delays and occasionally lack of quality in research results at various stages. The flowchart indicates that the Policy Sector has been identified for input to the overall plan at different phases of development. However, it would be preferable to have the opportunity to comment on projects at the time proposals are being assessed for funding. At this time, Social Policy and Programs Branch could help to clarify sub-objectives and verify appropriate social research approaches. As most of the project work is given to external sources on a contract basis, it is also very important to assess the consultant's capabilities to deal with socio-economic criteria. This assessment should be made by departmental staff who have experience and training in the particular research area.



- Not only in this program, but in other cases where the Policy Sector involvement is mainly to perform a review and evaluate interim reports and final results, it becomes a matter of trying to build-in the social and economic aspects or trying to reinforce these areas when they are obviously weak. This type of salvage operation requires considerable effort and time. In some cases, modifications and changes are not enough to upgrade the output of the project from a socio-economic perspective.
  
- The experience in satellite programs such as CTS indicate the difficulties involved and the extensive work and degree of commitment that is needed to build in social aspects after programs are approved on mainly technical considerations. Frequently, this branch is called in late in the development stage to deal with social aspects that were not given adequate consideration at the outset.
  
- Substantial funding is being spent on these projects and the proposed field trial budget is \$7 M. To achieve qualitative results in these undertakings, adequate social support is needed.

Recommendations:

The DGSP should attend one or two meetings of the Steering Committee on Rural Communications in order to assess this program in relation to the priorities of the Social Policy and Programs Branch.

Pending the Director General's assessment, it is recommended that the branch maintain an on-going involvement in the Rural Communications Program because of social and policy implications of this activity and the substantial funds currently allocated to this program and proposed for future years.

Since there are likely to be field trials in some areas of applied technology such as fibre optics and rural radio, it would appear essential to have DGSP input at the proposal stage. This would provide a means to ensure that potential users are adequately consulted when planning new systems so that such systems meet users' social and cultural needs. This is particularly important in situations where new communication systems are to be used for delivery of social services (e.g. telehealth and tele-education applications).

A request should be made to the Rural Communications Program to put on a slide presentation and give a general briefing to the Director General, Social Policy and Programs Branch. At this time further questions could be posed to elicit further information.

APPENDICES

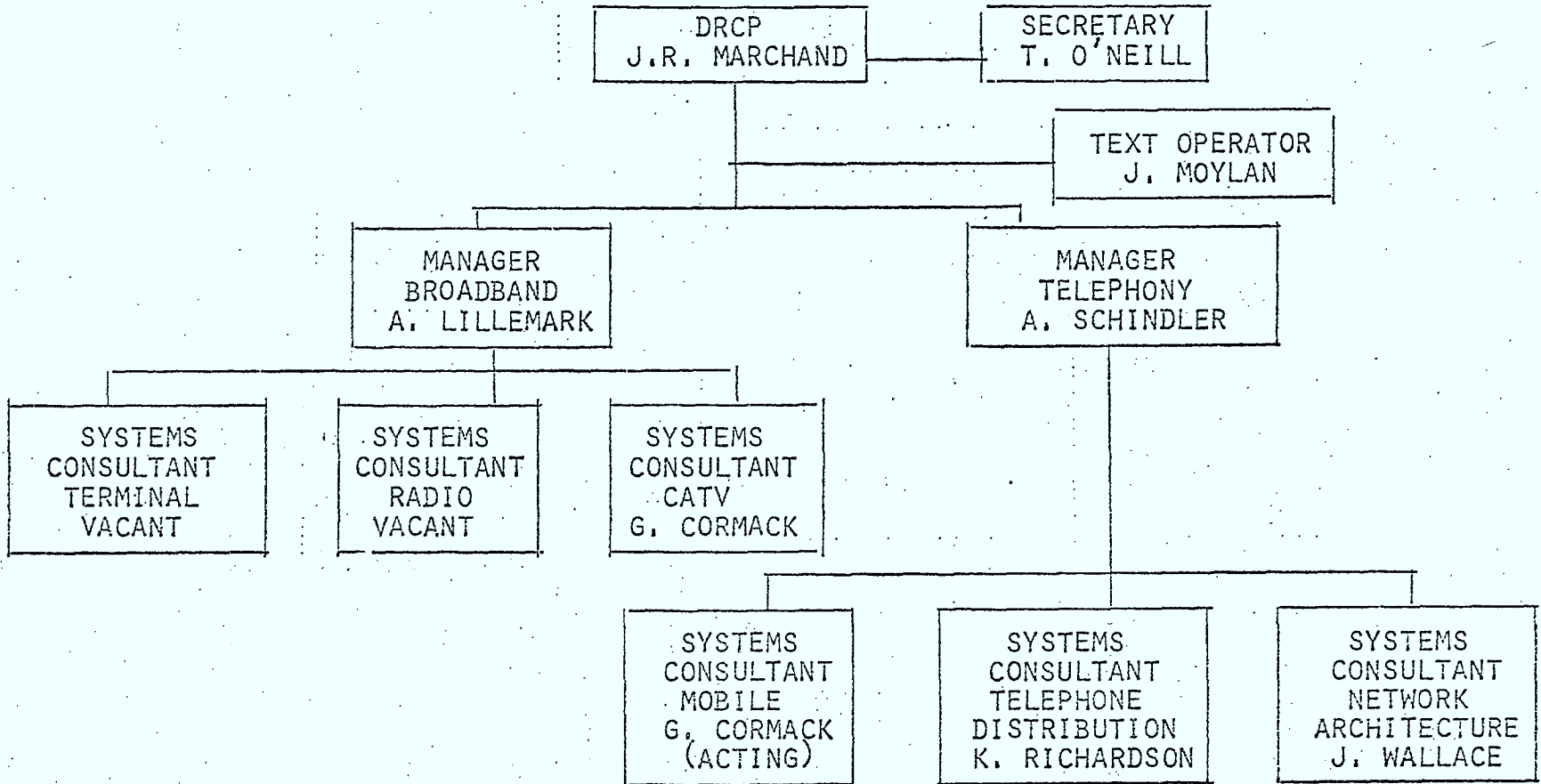
STEERING COMMITTEE ON  
RURAL COMMUNICATIONS

Members:	L. Hatton	A/DGTS	(Chairman)
	K. Hepburn	DGTN	
	M. Prentis	DGTE	
	M. Dolgin	DGFP	
	D. Brodhead	DGSP	(Rep. D. Rainboth)
	J. de Mercado	DGTR	(Rep. N. Ahmed)
	J. Halina	DGRP	

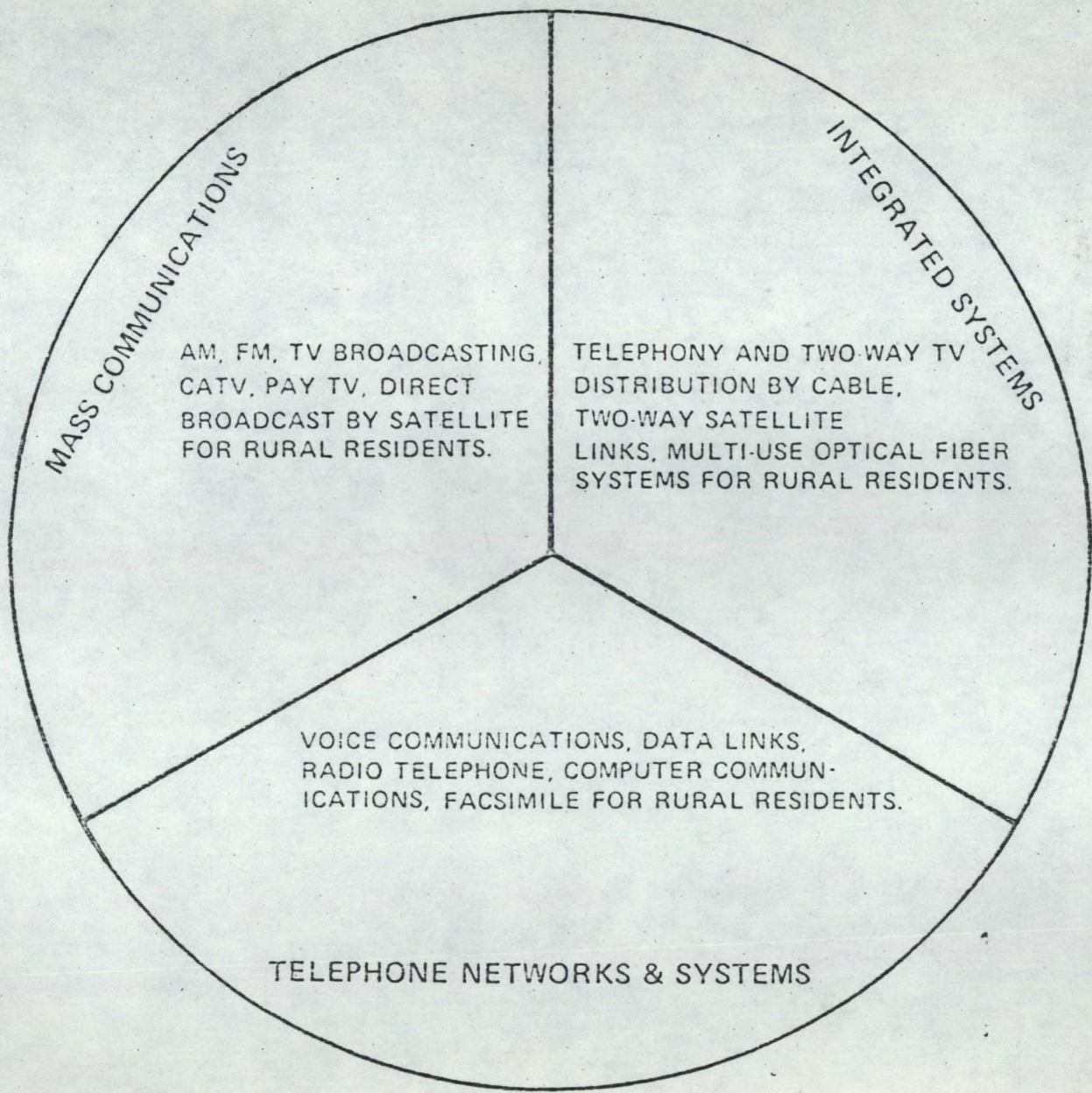
Advisors:	S. Serafini
	A. Schindler
	G. Cormack
	J. Wallace
	K. Richardson
	E. Lillemark
	N. Ahmed

September, 1977

DRCP  
ORGANIZATION CHART









behind major services to upgrade

straight surveys not adequate

(2) → say two ~ 7 - access

cup-grade -

(expeditions of quickly upgrade  
to go on 1 step basis

Ratio

Broadcast

Need to involve  
prog goals,

criteria to select right

Will be more complex →

Prospectus

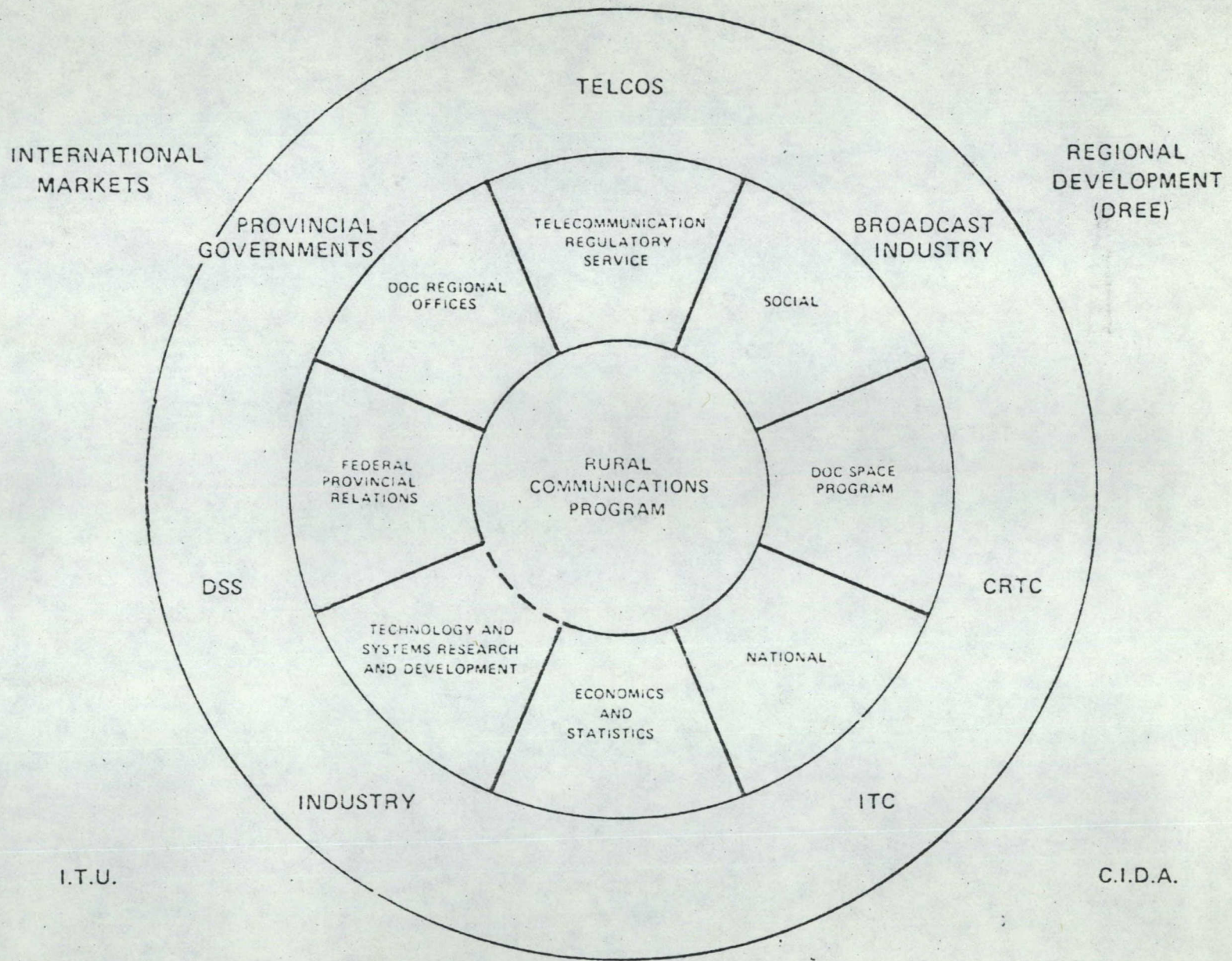
Fibre Optics

Man Agreement

1 Tel Company

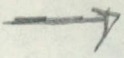
Therefore no fed-prov discussion





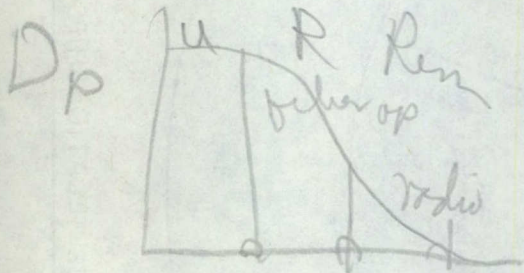
RCP RELATIONSHIPS





Upgrade -  
 electronic solutions  
 on cable plant

Need demonstration to show that  
 this can apply to high density low density



→ 6 M<sub>1</sub> - project  
 130-

1 - fibre optics  
 evolution CATV  
 to sparse areas

2 - radio - no single  
 solution  
 Rural remote



Project  
No. 1

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1	Telephony	A Study of Available Products & Systems for Rural Telephone Communications	K. Logan & Assoc. (A. Schindler)	56,733.56	-	Mar. 76 to Sept. 77	<p>a) Objectives:</p> <p>To report on available products and systems for rural telephone communications.</p> <ul style="list-style-type: none"> <li>- cable systems</li> <li>- voice frequency electronics</li> <li>- carrier systems</li> <li>- switching systems</li> <li>- digital switching systems</li> <li>- subscriber radio systems</li> <li>- integrated radio/electronic system</li> </ul> <p>b) Expected Results:</p> <p>Presently being evaluated.</p> <p>Includes products &amp; systems in North America. Cost &amp; preference of line transmission. Cost &amp; preference of radio transmission systems.</p> <p>c) SPPB Action:</p> <p>None to date</p>
				NO SPPB FUNDING			COMPLETED.*

Project  
No. 2

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1	CATV	Surveys of CATV hardware suppliers and systems economic feasibility for extension to more sparsely populated areas.	J. Coyne & Assoc. (A Schindler)	6,335.00	-	Mar. 76 to Sept. 77	<p>a) Objectives:</p> <p>Conduct survey of North American CATV hardware suppliers</p> <ul style="list-style-type: none"> <li>- CATV electronics ( amplifiers, translators, etc.)</li> <li>- Cable Hardware ( wire, connectors, taps)</li> </ul> <p>b) Expected Results:</p> <p>Cost Analysis &amp; system planning for 35 Channel, 12 channel sub-low band and 5 channel sub-low band.</p> <p>Report being evaluated currently.</p> <p>c) SPPB Action:</p> <p>None to date</p>
				No SPPB Funding		COMPLETED*	

Project  
No. 3

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Broadcasting	Levels of Broadcast Coverage	Bureau of Management Consultants DSS  (C. Billowes)	6,000.00	-	Mar. 77 to Sept. 77	<p>a) Objectives:</p> <p>a) Objectives:</p> <p>Cost Analysis</p> <p>Final Report Received.</p> <p>Report being evaluated</p> <p>COMPLETED*</p> <p>COMPLETED</p> <p>c) SPPB Action:</p> <p>None to date</p>

Project  
No. 4

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Demographic Study	Regional Study on Rural Population and Settlement.	Simon Fraser University, B.C.  (K. Richardson)	16,804.00  No SPPB funding	-	Jan. 77 to Sept. 77	<p>a) Objectives: To determine how well the rural population is served with communications &amp; what their future needs are. To provide cost estimates for improving services in rural areas.</p> <p>b) Expected Results:  Currently being evaluated.</p> <p>c) SPPB Action: None to date</p>

COMPLETED\*



Project  
No. 5

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	User Needs	Service Aspects of Rural Mobile Radio	U. of Saskatchewan I.N.S. (G. Cormack)	23,755.00	-	Oct. 76 to Sept. 77  Minor Changes Requested	<p>a) Objectives:</p> <p>To report on technical, cost and service aspects of rural mobile radio.</p> <ul style="list-style-type: none"> <li>-usage trends.</li> <li>-hardware supply situation</li> <li>-integrate socio-eco., geo. surveys into the study</li> <li>- form &amp; analyze conceptual system models on rural mobile radio.</li> </ul> <p>b) Expected Results:</p> <p>Minor Corrections being made.</p> <p>Summary will be issued shortly This report will be major input to S.E.D. Study which is listed as Project No. 7 on page</p> <p>c) SPPB Action: None to date</p>

Project  
No. 6

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Demographic Studies	Regional Study on Rural Population and Settlement.	U. of Manitoba  (K. Richardson)	17,485.00	-	Jan. 77 to Sept. 77	<p>a) Objectives:  To determine how well rural population is served, their future needs and cost of improving services.</p> <p>b) Expected Results:  Report to be completed by Oct. 77</p> <p>c) SPPB Action:  None to date</p>



Project  
No. 7

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 4	Technology Stimulation	Rural Mobile Radio, Technical Survey	SED SYSTEMS LTD. (G. Cormack)	44,590.00 No SPPB Funding	-	Oct. 76- Nov. 77	<p>a) Objectives:</p> <p>Technical survey of North American mobile radio equipment</p> <p>b) Expected Results:</p> <p>Work on systems concepts will aid in determining usefulness of mobile radio for rural population.</p> <p>Final report by mid- Nov. 77.</p> <p>c) SPPB Action:</p> <p>None to date</p>

Project  
No. 8

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Demographic	Regional Studies on Rural Population & Settlement.	University of Sherbrooke	24,496.00	.5	Jan. 77 to June 77  Extended to Dec. 77 for analysis of data & final report writing.	<p>a) Objectives: Subject area: Ontario &amp; Quebec Survey Design For Rural Population Telephone Users Compilation of data on existing services and future needs of rural population. Cost estimates for improving services.</p> <p>b) Expected Results:  Design of rural model which could be applied on a national scale.**  Data on rural population  Analysis of data and report on user needs and costs for improving services.</p> <p>c) SPPB Action:  ** The format of report and details on model were not acceptable. In June the Scientific Authority requested more description and explanation of the approach taken and a more professional approach to presentation of the report.</p>

Project  
No. 9

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Demographic	Regional Study on Rural Population and Settlement	Dalhousie U. (K. Richardson)	16,000.00	-	Jan. 77 to June. 77  Rewrite request	<p>a) Objectives: To determine how well rural population is served, their future needs and cost of improving services.</p> <p>b) Expected Results: Data on rural population and analytic report. Submission not accepted. Scientific Authority requested rewrite.</p> <p>c) SPPB Action: None to date</p>

Project  
No. 10

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 4	Technology Stimulation	Radiating Cable Characterization	U. of Manitoba  (G. Cormack)	10,000.00	No. SPPB Funding	77 to 77 Oct. 76 to Mar. 77  Revisions required (Revisions)	<p>a) Objectives: Not known</p> <p>b) Expected Results: Characterisation of cables completed. This resulted in 2 patent applications Revisions of final report requested Provision of radiating cable not likely of interest to rural people.</p> <p>c) SPPB Action: None to date</p>

39.

Project  
No. 11

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 4	Technology Stimulation	Low Cost Pole Line Microwave	Bell-Northern Research Ltd. (A. Schindler)	243,112.68 No SPPB Funding	-	Sept. 77 to Mar. 78.	<p>a) Objectives:</p> <p>Not Known</p> <p>b) Expected Results:</p> <p>Delay in signing contract. Team will not be as good as originally proposed. Spectrum band to be investigated will be 10-20 GHZ.</p> <p>c) SPPB Action:</p> <p>None to date</p>

40

Project  
No. 12

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 4	Technology Stimulation	Rural Telephone Distribution System	J. Coyne & Assoc. (K. Richardson)	29,565.00	-	Oct. 76 to June 77.	a) Objectives:  Not Known.
				No SPPB Funding		Request for cancellation Sept. 77	b) Expected Results:  Letter sent to DSS requesting contract cancellation for end of Sept. 77. Contractor did not complete work on time. * Alternative means to complete Study being sought.
						INCOMPLETE*	c) SPPB Action:  None to date.

Project  
No. 13

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Fibre Optics	System Engineering Study of Fibre Optics	Bell Northern Research Ltd.  (K. Hill)	324,000.00  No SPPB funding	-	-	<p>a) Objectives:</p> <p>Bell Northern Research has been funded at (\$100K) to define a research program for fibre optics. The report is expected in April, 1977.</p> <hr/> <p>c) SPPB Action:</p> <p>None to date.</p>



H2.

Project  
No. 14

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 4	(Satellite)	Use of Anik C in Rural Areas	Miller Communicat- ions ( - )	49,000.00	?	Proposal Stage*	<p>a) Objectives: Examine use of Anik C for carrying telephone traffic and examine the practicality of ground antenna systems should the satellite be used for direct broadcasting</p> <p>b) Expected Results:  Not Known</p> <p>c) SPPB Action:  None to Date</p>

43

Project No. 15

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Applied Technology	Small Subscriber Carrier System	Bell Northern Research				<p>a) Objectives:</p> <p>Fund initial stages of the development of an economical subscriber carrier system for use in rural parts of Canada</p> <p>Draft proposal prepared and discussed with Bell Northern Research and Lenkurt.</p> <p>c) SPPB Action: None to date</p>

Request for Proposal expected by late 1977

44.  
Project  
No. 16

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Applied Technology	Rural Radio Pilot Project	L. Lee ( - )	-	-	Contract Pending  Deferred in RCP 78/79 budget review of Sept. 1977.	a) Objectives:  N/A  b) Expected Results:  N/A  c) SPPB Action: None to date.

4/5,

Project  
No. 17.

## RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Applied Technology	Identification of Broadband Options	Inhouse	DOC			<p>a) Objectives:</p> <p>General study to examine the role that direct broadcasting satellites, UHF/VHR radio, coax-cable and video cassettes can have in the future development of rural services.</p> <p>b) Expected Results:</p> <p>N/A</p> <p>c) SPPB Action:</p> <p>Both advisory and monitoring role from initial discussion stage needed</p>

(Deferred  
at RCP  
budget  
review)

146.

Project  
No. 18

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	CABINET DOCUMENTATION	Policy paper prepared for submission to Cabinet on Rural Communications	Inhouse  (RCP)	\$6M			<p>a) Objectives:</p> <p>Cabinet approval in principle of radio and fibre optics field trials.</p> <p>b) Expected Results:</p> <p>Final version was submitted in September 1977 to SADM for discussions with the Minister.</p> <p>c) SPPB Action:</p> <p>Review of Cabinet documentation.</p>

Project  
No. 19

RURAL COMMUNICATIONS PROGRAM - PROJECT STATUS REPORT

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Technological Stimulation	Remote Power Sources	Call for Request for Pro- posal from external sources.	Deferred in RCP review Sept. 77.			<p>a) Objectives:</p> <p>Possible CTCA involvement</p> <p>Deferred due to budget constraints</p> <p>b) Expected Results:</p>  <p>c) SPPB Action:</p> <p>None to date.</p> <p>No action recommended</p>

34

Project  
No. 20

RURAL COMMUNICATIONS PROGRAM - PROJECT PROPOSED 78/79

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
1 & 2	Demographic/ Economic Benefit	Demographic and Economic Benefit Studies	(K. Richardson)	15,000.00	.5	78/79	a) Objectives:  Data base on current level of rural communications services and investigate economic benefits expected from up- graded services  b) Expected Results:  Report to aid in development of rural communications models  Obtain more convincing evidence that telecommunications is an important contributor to socio-economic development.  c) SPPB Action:  None to date.



49.  
Project  
No. 21

RURAL COMMUNICATIONS PROGRAM - PROJECT PROPOSED 78/79

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
2	User Needs	Demand For Rural Communications Service	DGTE (proposed)  Also recommend provincial government involvement	78/79 20,000.00	.5	78/79	<p>a) Objectives:</p> <p>To survey needs of rural domestic and business subscribers for existing and proposed communications services.</p> <p>Produce demand forecasts.</p> <p>b) Expected Results:</p> <p>Subscriber opinion pole survey in selected areas of 10 provinces</p> <ul style="list-style-type: none"> <li>- Identify demand for upgrading services.</li> <li>- Indicate possible generated revenue from upgrading services.</li> </ul> <p>c) SPPB Action:</p> <p>None to date</p>

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Integration of Services	Integration of Services in Rural Areas	--  (A. Lillimark)	21,000.00	.5	78/79	<p>a) Objectives:</p> <ul style="list-style-type: none"> <li>Policy orientation</li> <li>-foster fed/prov. cooperation for implementing integration policies</li> <li>- stimulate Canadian products</li> </ul> <p>b) Expected Results:</p> <ul style="list-style-type: none"> <li>Report on systems trade-off studies.</li> <li>Policy Recommendation</li> <li>Evaluation of potential technical, operational, economic benefits of integrated delivery</li> </ul> <p>c) SPPB Action:</p> <ul style="list-style-type: none"> <li>None to date</li> </ul>
				Deferred*		Due to limited budget, deferred at RCP review Sept. 77	

61.

Project  
No. 23

RURAL COMMUNICATIONS PROGRAM - PROJECT PROPOSED 78/79

SPPB 6/10/77 KW

AREA	DESCRIPTION	TITLE	CONTRACTOR (PROJECT OFFICER)	RESOURCES		DURATION	COMMENTS
				\$	MY		
4	Financial Models for Telecommu- nications	Telecommunications Development Financing	DGTE	-		78/79	<p>a) Objectives:</p> <p>Examine and evaluate various financing schemes which could be used to assist telecommunications entities in improving rural services.</p> <p>b) Expected Results:</p> <p>Financial models for:</p> <ul style="list-style-type: none"> <li>-federally regulated carriers</li> <li>- provincially regulated carriers</li> <li>- small independent telephone companies</li> </ul> <p>Assess socio-political impacts of various actions which could be taken</p> <p>c) SPPB Action:</p> <p>None to date</p>

REPORTS OF THE  
RURAL COMMUNICATIONS PROGRAM

Title	Source (author)	Date Available
1. "Present Status of Rural Communications in Canada"*	Interbranch Working Group, DOC	July 1976
2. "Database on CATV Hardware Manufacturers"	J. Coyne & Associates	July 1976
3. "Study to Conduct an In-Depth Survey and to Complete the Development of a Database on CATV Hardware Suppliers"	J. Coyne & Associates	March 1977
4. "Analysis and Modelling of Existing Paired Cable Distribution Systems - Working Paper No. 1"	J. Coyne & Associates	October 1977
5. "A Study of the Available Products and Systems for Rural Telephone Communications"	K. Logan Associates	April 1976
6. "Regional Demographic Studies - B.C. Region"	Simon Fraser University	June 1977
7. "Regional Demographic Studies - Prairie Provinces"	U. of Manitoba	July 1977
8. "Regional Demographic Studies - Ontario and Quebec" *	Sherbrooke University	December 1977
9. "Regional Demographic Studies - Atlantic Provinces"	Dalhousie University	December 1977
10. "Rural Broadcasting"	C.A. Billowes et al. DRCP	May 1977
11. "Levels of Choice in Canadian Off-Air Television Viewing"	Bureau of Management Consultants	May 1977
12. "Areas and Communities in Canada with Off-Air Television Reception - A Survey"	Bureau of Management Consultants	May 1977
13. "A Study of Rural Mobile Radio in the Prairie Provinces - A Technical Survey"	SED Systems	April 1978
14. "Man on the Move - A User's Survey of Mobile Radio Services in Rural Areas of the Prairie Provinces"	University of Saskatchewan (INS)	August 1977

\* Available in both official languages.

Title	Source (Author)	Date Available
15. Feasibility Study of Using Leaky Coaxial Cables (LCX) for Rural Communications"	University of Manitoba	September 1977
16. "System Engineering Study and Fabrication of an Experimental Transmit and Receive Unit for a Microwave Transmission System for Rural Applications"	Bell-Northern Research	November 1978
17. "Use of Anik-C for Rural Areas; A Preliminary Study"	A. Lillemark, DRCP	September 1977
18. "A Study of Low Cost Earth Terminals for Telephony Applications in Rural Canada"	Miller Communications	June 1978
19. "The Extent of Television Network Coverage in Rural Canada",	Simon Fraser University	April 1978
20. "Rural Household Distribution - B.C."	University of British Columbia	April 1978
21. "Rural Household Distribution - Prairies"	University of Alberta	April 1978
22. "Rural Household Distribution - Quebec and Ontario"	University of Sherbrooke	April 1978
23. Rural Household Distribution - Maritimes"	Dalhousie University	April 1978
24. "The Extent of Television Network Coverage in Rural Canada"	Telecommunications Research Group Simon Fraser University	August 1978
25. "The Availability of Television in the Census Metropolitan Areas"	G. Cormack & L. Mougeot	August 1978
26. "Television Network Coverage in Rural Canada Compared with that in the Census Metropolitan Areas"	G. Cormack	August 1978
27. "The Economic Benefits of Improved Telephone Services in Rural Areas"	Gov't Studies Programme Dalhousie University	June 1977
28. "Methodologie d'Evaluation des Besoins en Communications"	Université de Sherbrooke	Juin 1977

7 Sept. 1978