

TELECOMMUNICATIONS SUBSIDY POLICY IN NORTHWEST CANADA AND ALASKA:  
A COMPARISON

by

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ABSTRACT

The thesis examines the role and impact of subsidies on telecommunications system development in Northwest Canada and Alaska. Different subsidy methods have been adopted in Canada and the United States to implement similar stated national telecommunication policy objectives. This study compares the different institutional arrangements through which subsidy policy has been implemented in each country. Basic telecommunication services available to residents in remote areas do not meet national standards when compared on criteria such as penetration ratios and levels of service. An explanation for the failure of subsidy policies to provide solutions to telecommunication problems in remote and rural areas is developed.

A review of the historical use of telecommunications subsidies by the Canadian and American governments provides a context for analysis of existing institutions and subsidy policies. Early links between subsidies for telecommunications development and American economic and political expansion (1850's-1900's), and national military policies (1900's-1950's), are examined. The relationships between telecommunication subsidies, northern industrial development policies and emerging social policy objectives are examined from 1950 to the present. Throughout these periods, residents of remote communities received little benefit from subsidies.

The incentives of government agencies and the telecommunication carriers that participate in decisions to implement telecommunication subsidies are critically analyzed. A range of types of subsidies used by regulatory agencies, government funding agencies and the telecommunication industries is

examined. Incentives underlying decisions to implement subsidy policy are linked to larger economic and political development priorities and to structural relationships between and within these institutions. The dominant interests represented in the decision-making process are discussed, demonstrating conflicts between stated national telecommunication objectives developed in the policy formulation process and the different objectives of government agencies and industry that take priority in the policy implementation process.

The analysis shows that subsidy implementation methods have not provided incentives for telecommunication development in remote and rural areas. Decisions to implement subsidies are based on criteria that reflect the dominant financial interests of the telecommunications carriers. Criteria used by government agencies have resulted in subsidies that have been successful in providing financing for telecommunication services to meet military objectives, national policies for industrial development in the north, and research and development priorities. Subsidies for telecommunication development to serve the residents in remote northern areas have been regarded as being of secondary importance.

The analysis indicates key factors that have prevented sufficient financial resources from being allocated for telecommunication development in remote areas. Incentives for profit making created by the structure of the telecommunication industries, the use of subsidy methods that are not modified to account for northern conditions, and the low priority government agencies have given to implementing telecommunication policy objectives in northern remote areas, are the major factors.

Suggestions for changes in institutional structure and subsidy methods are made. These are addressed to the need to assess the effectiveness of

existing subsidy programmes, to ascertain the type and extent of financing required, to establish full coordination among the several government agencies involved, and to provide incentives to implement subsidies that will meet clearly-defined objectives that reflect the telecommunication needs of residents in northern remote communities.

TABLE OF CONTENTS

	page
APPROVAL	ii
ABSTRACT	iii
LIST OF TABLES	xi
LIST OF ILLUSTRATIONS	xii
I. INTRODUCTION	1
A. Impact of Subsidies on the Telecommunications Development Process: The Research Problem	1
B. Understanding Telecommunications Policy Implementation: An Analytic Framework	5
1. The Historical Context	6
2. Structure and Relationships Within the Telecommunications Industry	8
3. Subsidies for Telecommunications Development: Methods of Government Intervention	9
4. The Impact of Subsidies on Telecommunications Development: An Analysis	10
Footnotes and References	11
II. 'COMMUNICATION AND DEVELOPMENT': THEORETICAL APPROACHES	12
A. A Contextual Analysis of Institutional Relationships	12
B. 'Communication and Development': Traditional Approaches	13
1. 'The Dominant Paradigm'	13
2. Evaluation Research	20
3. Cost Benefit Analysis	24
C. Summary and Conclusion	29
Footnotes and References	32

III.	HISTORICAL USE OF GOVERNMENT SUBSIDIES: PROMOTING TELECOMMUNICATIONS DEVELOPMENT IN NORTHWEST CANADA AND ALASKA	35
A.	Telecommunications Development and Subsidies: 1850-1900's	36
B.	Incentives for Telecommunications Expansion: 1900-1950's	42
1.	Telecommunications Development in Northwest Canada	43
2.	Telecommunications Development in Alaska	46
C.	Analysis	49
	Footnotes and References	54
IV.	THE RESTRUCTURING OF INSTITUTIONAL RELATIONSHIPS TO MEET CHANGING NATIONAL TELECOMMUNICATIONS POLICY OBJECTIVES: 1950's - 1970's	56
A.	Canadian Northern Development Policy in Relation to Northwest Telecommunications Development	57
1.	Northern Economic Development Priorities	57
2.	Restructuring Telecommunications in Northwest Canada	61
3.	Canadian National Telecommunications: Service Development	67
4.	Shifts in Canadian Northern Economic Development Priorities	75
B.	Federal and State Development Policy in Relation to Alaskan Telecommunications Development	78
1.	Alaska Economic Development Priorities	78
2.	Restructuring Telecommunications in Alaska	82
3.	RCA Alaska Communications Inc. and Local Exchange Companies: Service Development	87
C.	Analysis	93
	Footnotes and References	98
V.	TELECOMMUNICATIONS CARRIER STRUCTURE: IMPLICATIONS FOR DEVELOPMENT OF TELECOMMUNICATIONS IN NORTHWEST CANADA AND ALASKA	102
A.	The Telecommunications Industry in Northwest Canada	103
1.	The Canadian National Railways System	103
2.	Canadian National Telecommunications Ltd.	109
3.	Northwest Telecommunications Inc.	115
B.	The Telecommunications Industry in Alaska	121
1.	RCA Alaska Communications Inc.	121
2.	Local Exchange Companies in Alaska	128



C. Analysis	135
Footnotes and References	140
VI. IMPLEMENTING GOVERNMENT SUBSIDIES: ALTERNATIVE METHODS	143
A. The Regulatory Process and Internal Subsidies for Telecommunications Development	146
B. Government Ownership and Subsidies	148
C. Direct Subsidies and Their Impact on Telecommunications Development	150
D. Summary	151
Footnotes and References	153
VII. TELECOMMUNICATIONS POLICY IMPLEMENTATION IN NORTHWEST CANADA: THE ROLE OF SUBSIDIES	154
A. Changes in Northern Telecommunications Policy Objectives	154
1. Federal Departments Responsible for Telecommunica- tions Policy Implementation	155
2. Telecommunications Needs Assessment and Studies of Subsidy Issues	158
B. Telecommunications Regulatory Process and the Use of Internal Subsidies	163
1. The Limitations of Federal Regulation of Telecommuni- cations Carriers	164
2. The Impact of Regulation on CNT Internal Subsidy Policy	167
C. Government Ownership as a Form of Subsidy	170
1. Implications of CNT Corporate Structure for Subsidy Policy Implementation	172
2. Subsidy Policy and Government Ownership in Northern Power Development	175
D. Direct Subsidies Implemented by Government Departments	184
1. Direct Subsidies for CNT Network Development	184
2. Subsidies Allocated to Remote Areas	187
E. Northern Participation in the Policy Implementation	188
F. Analysis	191
Footnotes and References	195

VIII.	TELECOMMUNICATIONS POLICY IMPLEMENTATION IN ALASKA: THE ROLE OF SUBSIDIES	201
A.	National and State Telecommunications Policy Objectives	201
B.	The Use of Subsidies in Federal Telecommunications Policy Implementation	205
1.	Direct Subsidies for Telecommunications Development in Alaska: The Role of the Rural Electrification Administration	209
(a)	Background: Subsidies for Rural Electric Service Development: 1936-1949	209
(b)	REA Expansion and Rural Telecommunications Development: 1949 to Present	212
(c)	REA Borrowing Criteria	216
(d)	REA Lending History in Alaska	218
2.	Analysis	222
C.	The Use of Subsidies and State Government Agencies for Telecommunications Development: The Governor's Office of Telecommunications	225
1.	Regulation and Internal Subsidies for Telecommunica- tions Development	228
2.	The Use of Direct Subsidies to Promote Telecommuni- cations Development	232
3.	Analysis	236
	Footnotes and References	239
IX.	ANALYSIS AND CONCLUSION	243
A.	A Context for Institutional Analysis	243
B.	Subsidy Policy and Shifts in National Policy Objectives and Priorities	247
1.	Subsidy Policy in Northwest Canada: 1950's - 1970's	249
2.	Subsidy Policy in Alaska: 1950's - 1970's	252
3.	Summary	255
C.	The Impact of Subsidies on Telecommunications Develop- ment in Remote Areas	259
1.	Alternative Subsidy Methods in the Canadian Institutional Context	259
2.	Alternative Subsidy Methods in Alaska/U.S. Institutional Context	263
D.	Conclusion: Implications for Subsidy Policy Implementation	269
	Footnotes and References	281

SELECTED BIBLIOGRAPHY

LIST OF TABLES

Table		page
1	Telephone Density: CNT Operating Territory Compared to Canada Average, 1973-1978.	72
2	Telephone Density: Yukon Territory and Western Northwest Territories	73
3	Residence Mainstations Per 100 Households: Canada, Yukon and Northwest Territories, 1977	74
4	Alaska and U.S. Average Penetration of Residence Mainstations	90
5	Distribution of Type of Telecommunications Service: Rural Alaska Communities	91
6	Canadian National Railway System Divisions: Revenues, Expenses, Operating Income - 1974, 1977	108
7	Canadian National Telecommunications Operating Income, 1973-1977	111
8	Canadian National Telecommunications Statement of Revenues by Operating Division, 1973-1977	113
9	Canadian National Telecommunications, Northwest Division Services - Commercial Revenue, 1974-1978	119
10	Canadian National Telecommunications, Northwest Division - Local and Toll Telephone Revenues, 1973, 1978	120
11	Alaska Local Exchange Telecommunications Carriers, 1976	133
12	Canadian National Telecommunications, Northwest Division - Capital Investment in Plant, Grants and Donations, 1971, 1977	137
13	Rural Electrification Administration: Loans to Alaska Telephone Companies, Cumulative to 1978	220

LIST OF ILLUSTRATIONS

Map		page
1	Yukon Territory and District of MacKenzie, NWT: Local Exchanges and Microwave Systems	71
2	Alaska: Communities Served by Local Exchange Carriers - Location of Microwave Systems	92

## Chapter I

## INTRODUCTION

A. Impact of Subsidies on the Telecommunications Development Process:  
The Research Problem

Subsidies, initiated by government agencies and by the telecommunications industry, have had a profound effect on the telecommunications development process. This study compares the different methods of subsidy and different institutional systems through which telecommunications subsidy policy has been implemented in Canada and the United States. Subsidy methods are analysed with specific reference to their impact on the telecommunications development process in Northwest Canada and Alaska.

Although subsidies have wide-ranging effects on the telecommunications development process, little attention has been given to questions as to how or why subsidies have been ineffective in implementing fully national telecommunications policy objectives. The failure of many studies to contribute to a further understanding of the implications of subsidy policy can be attributed to the definition of the concept that is commonly used, and consequently the focus of analysis. There has been tendency to restrict the application of the subsidy concept to specific government programmes that transfer financial resources from the public to the private sector in order to meet narrowly defined policy objectives. Specific subsidy programmes, and their effects then are examined in isolation from the institutional context in which they originated and are implemented.

Decisions to provide subsidies for telecommunications development are dependent on a large number of political and economic factors in a changing

institutional environment. This study focuses on those which influence decisions as to methods of subsidy implementation. Therefore, subsidies are defined in this study as methods used by the government and/or the telecommunications industry to allocate financial resources to develop services that would not have been provided under an assumption of private market conditions, i.e., where the direct users of services would have been required to pay the full costs. Using this definition, subsidies include a myriad of practices that originate with government and industry. They may be implicit or explicit in the structure and organization of the telecommunications industry, they may pervade regulatory and industry practices, and they may also involve direct transfers of financial resources from the public sector to the telecommunications industry.

In this study an attempt is made to do more than compare the end result or "outcome" of subsidy policy implementation in Northwest Canada and Alaska. The reasons for differences in the quality and level of services available in these areas can be attributed to a large number of complex factors. Therefore it is important to recognize the purpose and focus of this comparison of the subsidy methods used in two institutional systems.

The traditional definition of the economic problem encountered in the telecommunications development process in remote areas is very similar as between northern areas of Canada and Alaska. Isolation, population size, geography, and resulting high costs are among the factors that have prevented communities from meeting criteria that are used to determine the viability of development projects. These criteria are based on the relationship between allocated costs and projected revenues. In areas where the demand for service is not found to generate sufficient revenues, in aggregate, to cover allocated costs, a decision is often made to postpone service development.

While this problem is not exclusive to the north, it is exacerbated by the extremes to which these conditions are present. A disparity between basic telecommunications services available in rural and urban areas has existed in rural areas of the Lower 48 States and rural areas of Canada south of the 60th parallel. However, subsidies have been successfully used to ensure that the disparity has been reduced, and in some cases practically eliminated.

This has not occurred to the same extent in northern areas of either country. When the telecommunications services in these areas are compared to national standards and stated national telecommunications objectives, it is often found that they are inadequate.<sup>1</sup> Historically, the process of telecommunications development in small isolated population centres in Northwest Canada and Alaska has lagged behind development in larger centres.

National telecommunications policies are also similar in that the essential nature of basic telecommunications services has been recognized. Telecommunications services have been regarded as essential in much the same way as other basic utility services. Statements of national telecommunications policy in Canada and the United States reflect the desire to assure equality in the availability of these services and the government's obligation to ensure that their policies are implemented.<sup>2</sup> The need for adequate basic telecommunications facilities is also reflected in the views of residents of northern communities in Northwest Canada and Alaska as expressed in submissions before regulatory commissions and other government agencies.<sup>3</sup> However, this study does not examine conflicts emerging within the north or between northern groups and southern policy makers as to appropriate telecommunications policy objectives.

However, stated national telecommunications policy objectives cannot



necessarily be equated with objectives that are given the highest priority in the policy implementation process. The priority given to any one aspect of policy is dependent on the institutional incentive system and its impact on decisions to allocate financial resources for service development. The history of telecommunications development in Northwest Canada and Alaska provides on-going examples of changes in the form and extent of subsidies that have been used to implement a variety of policy objectives.

This study is specifically directed to an examination of two aspects of the role of subsidies in the telecommunications development process. The first is the characteristics of the incentive structure within systems of institutional relationships. Although there are many alternative ways of financing and allocating the costs of telecommunications development, conflicting incentives and dominant economic interests prevent many telecommunications policy objectives from being implemented fully, or in some cases, at all.

The second examines changes in the use of different subsidy methods in the context of changes in the role of telecommunications services in the development process. Shifts in subsidy policy in the telecommunications sector are examined in relation to concurrent changes in evolving northern development objectives in Canada and the United States. Subsidies may be justified as a means of implementing broadly defined national telecommunications policy objectives. However, the benefits of subsidy policy may result in telecommunications development for a number of different purposes. These have included increasing telecommunications services to meet demands made at different times by the military, the resource industries, government agencies, and even on occasion, the demands of residents of isolated northern communities.

Thus, subsidies that provide incentives for investment in telecommunications services may be implemented in a way that does little to encourage the development of an accessible basic telecommunications system especially in remote high cost northern areas. As policies and programmes developed in the United States are often suggested as solutions to Canadian problems, it is useful to understand the differences and similarities in institutional arrangements and the policy implementation processes in order to evaluate alternative subsidy policies. An analysis of subsidy methods provides a basis for an understanding of a larger range of alternatives which could, given the appropriate context, be used to implement telecommunications development policy in Northwest Canada.

For this analysis, the basic national subsidy policies in Canada and the U.S. are accepted as given. This study focuses on the subsidy implementation process. Although the study recognizes and considers the effects of the larger political process upon subsidy implementation, it does not pursue a detailed investigation of the role and influence of the North in the larger political process generally.

B. Understanding Telecommunications Policy Implementation:  
An Analytic Framework

To analyze issues concerning subsidy policy, the institutional arrangements related to telecommunications development in Northwest Canada and Alaska must be examined. To answer questions about the effect of government intervention in the decision-making process, it is necessary to develop an understanding of how the institutional system is structured and how it interacts. By approaching the subsidy problem in this way, an analysis of the

incentive structure associated with each organization, together with the incentives engendered by the inter-relationships between organizations can be developed. The historical pattern of changes in institutional arrangements, changes in the incentive system, and changes in the form and extent of subsidies provides the basis for an analysis of some of the factors that have either hindered or enhanced the telecommunications development process in remote and rural areas of Northwest Canada and Alaska.

The methodological approach to the problem of communications and development, and specifically telecommunications development, which is followed in this study is outlined in Chapter II. A review and critique of the traditional models, conceptions and recent research into the changing role of telecommunications in the development process provides a point of reference for this study.

The analytic framework used in this study permits an examination of the incentives that affect the decision-making processes of the institutions that participate in the telecommunications development process. Several levels of analysis are used to develop models that reflect some of the more important characteristics and changes in institutional relationships that have affected subsidy policies. As it is impossible to fully encompass the complex system that affects these relationships within the scope of this study, boundaries are used to limit the number of institutions included in the analysis and the levels at which they are examined. The level and scope of the analysis is outlined below.

#### 1. The Historical Context

The first stage of analysis includes a survey of the historical context within which the existing institutions and telecommunications policies evolved.

priorities which influenced decisions that affected the structure of the telecommunications industries and their relationships to government agencies are examined. Examples of subsidies are examined in light of the rationale provided and their impact on the telecommunications development process.

Chapters III and IV provide the initial basis for the argument that the effect of subsidies on the telecommunications development process is constrained by changes in the importance of telecommunications to meet changing policy objectives. These are defined in relation to changing national economic and political objectives. Chapter III examines telecommunications development in its earliest form in Northwest Canada and Alaska between 1850 and the 1900's. The role of the telegraph as an important economic and political link between continents is viewed as providing an incentive for public and private investment. The national economic and military objectives that served as incentives for expansion of telecommunications systems in Northwest Canada and Alaska in the period between 1900 and the 1950's are also examined. Subsidy methods that were used to promote telecommunications development during both these periods are discussed.

The circumstances that resulted in a major re-organization of the telecommunications industry structure in Northwest Canada in the late 1950's, and in Alaska, in the late 1960's are reviewed in Chapter IV. The objectives and incentives that were implicit in a new set of institutions that had specific mandates to participate in the telecommunications policy formulation and implementation process are described.

Some aspects of the spectrum of economic and political priorities that provided the context for these changes also are discussed. The characteristics of the evolving institutional structure of the telecommunications industry are linked to economic and political development priorities in North-

west Canada and Alaska. This is used later to indicate differences in the Canadian and American use of subsidies which can be linked to differences ascribed to the role of telecommunications in the development process.

No attempt is made to provide a comprehensive discussion or analysis of the northern development process. The information concerning general trends is used to demonstrate the dependence of subsidy policies in the telecommunications sector on the changing importance of other larger policy objectives. The historical data contributes to the analysis by providing a context in which to view the institutions, their objectives, and the incentives governing the decision-making process. These chapters provide a background for analysis of the initiatives taken by the telecommunications carriers and government agencies to promote telecommunications policy implementation in the past decade.

## 2. Structure and Relationships within the Telecommunications Industry

The second stage of analysis involves a description and examination of the existing telecommunications industry structure in Northwest Canada and Alaska (Chapter V). In the Canadian Northwest, Canadian National Telecommunications Ltd. (CNT), which provides telecommunications services in the Yukon and the western Northwest Territories, is examined. CNT's northern telecommunications facilities and services were re-organized in 1979 as a subsidiary of the Canadian National Railways System. In Alaska, long distance telecommunications services are provided by RCA Alaska Communications Inc. (Alascom), a subsidiary of the RCA Corporation until 1979. In June 1979, approval of the sale of Alascom from the RCA Corporation to Pacific Power and Light Inc., a large public utilities holding company based in Portland, Oregon, was approved by the Alaska Public Utilities Commission. The facilit-

ies supplied by Alascom interconnect with twenty-one local exchange telephone companies owned by private, municipal, co-operative, and holding company interests.

Both CNT and Alascom are operating telecommunications companies that are part of much larger corporate structures. An investigation of these structures provides an understanding of some of the incentives and priorities that underly the decision processes that affect decisions to invest in expanded telecommunications facilities and services and the use of subsidies.

### 3. Subsidies for Telecommunications Development:

#### Methods of Government Intervention

The third stage of analysis concentrates on the role of government departments, agencies, and commissions with jurisdiction over telecommunications development. Their objectives, stated and implicit, together with incentives to implement policy are examined as they are reflected in subsidies.

Chapter VI outlines a range of subsidy alternatives. A brief description of the assumptions underlying different subsidy methods is provided. Chapter VII examines the role of Canadian federal regulatory agencies, the CRTC and its predecessors, in light of the impact of the regulatory process on the availability of subsidies for telecommunications development in the Northwest. Attention is also given to the structure and effect of subsidies initiated by federal departments, particularly the Department of Communications, which have mandates for telecommunications planning and policy implementation.

In the United States (Chapter VIII), the effectiveness of subsidies initiated through the regulatory process at the State and federal level is examined. Subsidies initiated through the participation of a federal agency, the Rural Electrification Administration, and a State agency, the Alaska

Governor's Office of Telecommunications, are also reviewed.

In both chapters, the analysis focuses on the range of approaches and types of subsidy programmes that have been used. Factors inherent in the structural arrangements of these institutions that prevent effective policy implementation are examined. The impact and effect of government subsidy policies is also linked to some of the constraints that exist at other levels in the institutional system of relationships in Northwest Canada and Alaska.

4. The Impact of Subsidies on Telecommunications Development:  
An Analysis

The final stage of analysis (Chapter IX) summarizes differences and similarities in subsidy methods and their role in the northern telecommunications development process in each country. An explanation as to why government subsidies have been relatively ineffective as a means of fully implementing national telecommunications policy objectives is suggested. This draws on factors inherent in the relationships between and within the government agencies and the telecommunications industries for an explanation.

The analysis is applied as a basis for suggesting changes in institutional arrangements and subsidy methods that would facilitate a more effective telecommunications policy implementation process. These suggestions are made in recognition of constraints that have not been examined in this study that exist at other levels within the institutional systems.

## Footnotes and References

1. Disparities in basic telecommunications services in rural and remote areas of Northwest Canada and Alaska as compared to southern areas are documented in Chapter IV.
2. See: U.S. 'Communications Act of 1934,' 47 U.S.C. Section 1, 1934. "To make available, so far as possible, to all the people of the United States a rapid, efficient nationwide and world-wide wire and radio communications service with adequate facilities at reasonable charges." In Canada telecommunications policy was stated most clearly in proposed revisions to legislation. See: Canada. 'An Act Respecting Telecommunications in Canada.' Bill C-16, 31 Parl., 78-79, Sec. 3(a), 3(b). "All Canadians are entitled, subject to technological and economic limitations, to reliable telecommunications services..." Explicit policy statements are also found in Department of Communications policy guidelines that have received Cabinet approval. See: 'A Communications Policy for the Northwest Territories and the Yukon.' DOC: Ottawa, 1976 [typewritten]. "A minimum level of communications services should be established as a priority at all communities throughout both territories, comparable to similar communities in the South..."
3. See for example: Letters to APUC Concerning Rural Service, Appendix 'A'. Comments of the State of Alaska, Before the Federal State Joint Board, Docket 21263, February 6, 1979; and, Evidence submitted to the CRTC, May 1978; and Final Argument submitted by the Inuit Tapirisat of Canada to the CRTC, June 20, 1977.



## Chapter II

## 'COMMUNICATION AND DEVELOPMENT': THEORETICAL APPROACHES

A. A Contextual Analysis of Institutional Relationships

The approach to the problem outlined in Chapter I allows one to analyze some aspects of the characteristics of the incentive structure that operates within a system of interacting institutions. Thus, it provides a way of understanding aspects of the decision processes that affect the process of communication development. Institutional relationships are examined within their context in terms of their impact on the policy formulation and implementation process.

This approach attempts to overcome some of the limitations of other methodologies that have been developed to understand the process of communications development. It raises questions that normally fall outside the boundaries of the analytical perspectives that dominate in the increasingly large body of research concerned with this area. A methodology which examines an on-going process of decision-making within a system of inter-dependent and hierarchically structured institutions permits one to ask how that structure facilitates and deters change. The approach that has been adopted is concerned with the ways in which political and economic relationships between and within institutions constrain the outcome of decision-making processes. It attempts to examine the nature of some of the economic, political, and social criteria that form the basis for decisions - how and by whom these criteria are defined, and their relative importance in the decision process.

This review outlines some of the limitations of research carried out within the tradition of the 'dominant paradigm'. In restricting attention to

research that falls within these boundaries, the intent is to provide a general critique of traditional models and conceptions. It points out that although these models are changing, they retain many assumptions that tend to restrict the latitude of research questions that can be raised. They limit the examination of many factors that are integral to understanding the process of communications development. It is recognized that this literature does not fully represent the work that has been done in the field. However, it is the research tradition that is reviewed in this chapter that provides the basis for recommendations which continue to significantly influence decision-making related to planning and policy implementation.

B. 'Communication and Development':

Traditional Approaches

The problems addressed in this study transgress on well-established research areas that both methodologically and theoretically have become highly circumscribed. There are three major trends or sub-areas apparent in this work which has, for the most part, not been concerned with constraints within a system of institutional structural relationships that affect the process of communications development. This oversight is largely a function of the way that research problems have been defined.

1. 'The Dominant Paradigm'

The first broad sub-area includes studies that focus on the impact of communications technology on social structure, cultural patterns, information flow and direction, and on individual attitudes and behaviour. The works of Lerner<sup>1</sup>, Rogers<sup>2</sup>, and Schramm<sup>3</sup>, are representative of this tradition that has dominated studies of communication and development in the United States and

Canada for several decades. The major conclusions of this research are expressed in the following quotation:

Free and adequate information is not only a goal, it is also a means of bringing about social change. Without adequate and effective communication, economic and social development will inevitably be retarded, and may be counter-productive. 4

Questions immediately come to mind as to who decides what is "effective" communication, and "counter-productive" to whom?

Social science research traditions that emerged in the United States in the 1940's and 1950's have been criticized for their lack of conceptual clarity, over-simplification, and their tendency to generalize inappropriately to contexts where they were never intended to apply. For example, with regard to economics, Myrdal has said that:

Economic theorists, more than other social scientists have long been disposed to arrive at general propositions and then postulate them as valid for every time, place and culture...The very concepts used in their construction aspire to a universal applicability that they do not in fact possess. 5

Those communications theorists who have come to represent the dominant tradition in the literature concerning communications and development can be seen to have been no more discriminating in their application of concepts to both their own indigenous minority groups and Third World Countries.

The ideological perspective that provided the assumptions on which the early work of Schramm and others were based was bound to their belief in the benefits of industrialization in a capitalist economic system. The technology or products of the industrial system were assumed to carry

solutions to the political and economic problems experienced in 'under-developed' regions or countries. The problem for research was the extent to which beneficial economic, political, and social changes coincided with industrial development and technological change. If the changes were not as expected, the problem tended to be attributed to the failure of technological innovation rather than to characteristics of a system of institutional relations. The meaning of 'communication' and 'development' implicit in much of the literature in this area provides a key to understanding the inability of the 'dominant paradigm' to contribute to an analysis of institutional relations affecting the communications development process.

The 'dominant paradigm' made an assumption that exposure to 'one-way' communications systems - the mass media - was a necessary and sufficient tool required to implement large scale planned social change and economic development. Mass communication technology was seen as an exogenous factor sufficient to cause or at least to provide a stimulus for the kind of development that was considered acceptable. The assumptions underlying empirical correlational field research techniques went unquestioned. Strong correlations between the introduction of communications hardware and economic, political, social and cultural change indicators were interpreted as evidence of probable causation. Where correlations were low or negative, it was suggested that this was because of the limitations of the research tools. The possibility that a complex system of relationships was a contributing factor in the results was overlooked insofar as the appropriate approach to research required that these relationships, i.e., the context, should be held constant so that they would not influence the clarity of, or interpretation of empirical data.

Another trend in the research of this period was the attribution of the

causes of 'underdevelopment' to common cultural and psychological characteristics of individuals.<sup>6</sup> An implicit notion was that attitude and behaviour changes, i.e., adoption of dominant North American belief systems, values, modes of social, economic and political organization, were to be accomplished by exposure to communications technology. The technology was to be used as a channel for transmission of messages containing 'modern' information. This was expected to change the traditional personality of the masses and, subsequently, their social and political organization. Traditional peoples' lifestyles would then become compatible with modern industrial society and economic growth would occur. The objective was to persuade people to adopt the behaviours and attitudes necessary to establish the "preconditions" for economic "take-off." These included:

The building of a new generation of men and women trained appropriately and motivated to operate a modern society;...a productivity revolution in agriculture,...a massive build-up of transport facilities and sources of energy; and...the development of a capacity to earn more foreign exchange. 7

Systemic constraints that would prevent economic growth and development were largely overlooked.

The orientation of communications research discussed above was embodied by diffusion theory developed largely by Rogers.<sup>8</sup> He sought to understand the contribution of communications technology, hardware and software, to the process of economic growth through industrialization. Introduction of technology was the key determining factor in the development process. The operating premise was to "introduce the technology to less developed countries and they would become relatively more developed too."<sup>9</sup>

Mass communication systems were expected to convey information from

government planning agencies to the public in a downward hierarchy. The implicit suggestion was that this research contributed to an understanding of the process whereby traditional societies could 'catch up' to western monopoly capitalism. Studies traced the diffusion of ideas through a system, incorporating and accepting notions as to the benefits of a 'one-way' flow of information from government planning agencies to opinion leaders and thence to the masses. Development was conceived of as:

A type of social change in which new ideas are introduced into a social system in order to produce higher per capita incomes and levels of living through more modern production methods and improved social organizations. 10

An assumption implicit in diffusion theory was that communication plus information plus technology would generate development by bringing about changes in existing economic, social, cultural and political conditions. Increased production and consumption of goods and services was assumed to be the essence of development, and the key to increased productivity was technological innovation. Golding has summarized the state of theoretical approaches to the role of communication in the development process:

[They are] both ahistorical and ethnocentric, they extrapolate findings about the media in advanced countries to circumstances elsewhere which they perceive as mere embryonic microcosms of western capitalism. 11

The 'dominant paradigm' in which communications technology was envisioned as the key to the entry of underdeveloped regions into full participation in the largely American-dominated industrial economic order, is now said to have

"passed."<sup>12</sup> A change in orientation was initiated by increasing evidence of the inability of older models to explain the failure of communication technology to bring about prosperity and rapid economic growth. The older approach has been replaced by a focus on the development of telecommunications technology which facilitates 'two-way' communication. The assumption being that if 'one-way' communications technology promoted cultural, political and economic imperialism, then a different technological configuration would promote a re-defined development process such as that described below.

A widely participatory process of social change in a society intended to bring about both social and material advancement...for the majority of the people through their gaining greater control over their environment. 13

Thus, the emphasis in this literature changed from the "development of things" to the "development of man"<sup>14</sup>, but there was no further conceptual clarity or insight into the systemic factors of an institutional nature that constrain the development process. This change in orientation which has been heralded by some as being of major importance, simply marks the replacement of one type of hardware with another, couched within a more liberal definition of social and economic development. Generally, this research remains concerned with the impact of newly available communications technology on numerous social, economic, political and cultural variables devised to serve as indicators of the development process. This continuation of a linear causal approach to 'communication and development' research is evident at the international level in a report suggesting perspectives for further research. The starting point remains the effects of technology which continue to be anthropomorphized:

Unwisely applied, technology may create the worst of messes; correctly assessed in terms of its benefits, costs and consequences and adapted to suit the needs of those involved, it can make a major contribution to the solution of many problems. 15  
[my emphasis]

If this type of research, concerned mainly with technological impact and effects, receives funding at the international level it can be expected that national funding agencies will follow suit. Institutional analyses of the context in which technology is introduced will be foregone for continued research that seeks to quantify the covariance between technological innovation and economic, political and social change using the empirical research techniques that find current respectability as analytic tools.

The premises underlying much of this work have been accurately and simply characterized by Smythe:

It [technology] is said to offer us all kinds of "good" things. And when "bad" things come to pass, more "technology" in turn will cure them, if we use it to produce more "good" things... 16

When technology is viewed as the source of the problem, it is unnecessary to broaden the focus of research to encompass systemic relationships that result in the production of communications technology, governing its use and consequences. The dominant theoretical tradition conceives of technology as a necessary, but not sufficient cause of development. However, it fails to address important questions concerning the institutional framework within which decisions are made to provide communications facilities and services. The assumption has been that once the benefits derived from the availability



of communications technology are empirically demonstrated, the allocation of financial resources needed to construct and maintain communications systems will be forthcoming.

## 2. Evaluation Research

The research tradition described above provides the theoretical justification for a second sub-area that can be called 'project evaluation' research. The purpose of evaluation research is to assess the impact of communications technology and to recommend modifications in technological aspects of system design and administrative organization. Often the task of this research is to provide a catalogue of benefits that can be traced to the technological innovation. The results are then intended to serve as a justification for continued financial support for the project.

Financial arrangements for short-term experimental projects are typically provided through some form of industry/government cooperation. Projects are promoted and justified as a means of broadening the availability of communications facilities and services in regions that have limited or restricted access to the quality of service that is consistent with national standards and objectives. Invariably, less attention is given to institutional constraints that preclude long-term provision of the services that have been offered on an experimental basis. In the case of experiments in telecommunications service delivery, it is often assumed that a project will be expanded and integrated as part of the services provided by an existing telecommunications carrier providing commercial services.

The relative inattention to the practical implementation of experimental services that become feasible through research and development projects can be explained in part by the fact that continued research and development is

frequently a desirable end in itself. The on-going introduction of services remains dependent on what is regarded as a separate decision process related to industry and government estimates as to commercial or economic viability.

Experimental evaluation research provides information as to the viability of innovative telecommunications technology and services. However, this research also is assumed to perform more than a research and development function. These projects are expected to foster a transition to improved operational services. Government participation is regarded as catalytic in that it encourages future telecommunications system development often in the commercial telecommunications industry sector. The validity of this assumption is rarely questioned in practical terms.

The Canadian federal government's position regarding its participation in telecommunications development projects has been that:

The...program will test a market that may be developing in the public services sector and we hope the carriers will investigate the kinds of options open for future systems development. 17 [my emphasis]

If the support of the Canadian Government in...development can be considered as planting the seeds, then it is up to industry to nurture their growth through aggressive development. 18

In Canada, the government, through the federal Department of Communications, has sponsored numerous experimental research projects designed to increase the telecommunications services available in remote and rural areas. The objective has invariably been:

To bring a variety of promising new social uses of satellite communications (or other technology) out of their current experimental stage and closer to everyday reality. 19

In 1972, the Northern Pilot Project was sponsored by the Department of Communications. It provided a range of communications services in northern Native Communities. A study was done to evaluate the telecommunications system according to criteria designed to establish whether the system promoted "intra- and inter-community communication" rather than facilitating the "flow of information to and from the south."<sup>20</sup> The findings were positive. However, the project failed to address crucial institutional constraints that reduced the incentive for commercial carriers to provide services on a long-term basis. Access to the newly established services on a continuing basis remained dependent on the availability of sporadic financial assistance from a variety of government funding sources.

The Department of Communications has funded research for the experimental introduction of services using satellite technology. These research projects provide another example of the failure to address questions as to the appropriate institutional arrangements that would be required to implement long-term services. For example, the Communications Technology Satellite (CTS) was launched in 1976 under a five-year experimental programme. Twenty groups in Canada ranging from Native Associations to provincial governments undertook experiments in broadcasting, tele-medicine, community interaction, government administration, radio wave propagation, and testing of small earth station terminals.<sup>21</sup> According to the Department of Communications, the \$60 million venture made Canada a "world pioneer in such uses of advanced technology satellites as testing methods of improving health care and medical education in remote areas, tele-teaching by satellite, putting native people in better touch with each other."<sup>22</sup> However, being a pioneer in "testing" has brought on-going service delivery no closer for general public use in most of these cases.

In 1978, a new six-month experimental phase was announced complete with a new round of research directed toward evaluating the success of numerous projects. The Department of Communications also announced a further \$34 million for satellite capacity for public services and other pilot projects using channel capacity on Anik B, Canada's latest advanced technology satellite launched in 1979. These projects are to be evaluated in terms of many factors including "the degree of innovation in the proposals, and the probability that the pilot projects would foster transition to new or improved operational services."<sup>23</sup> However, the focus of the evaluations is on technology and its suitability for integration with existing systems, rather than on the problem of providing incentives to industry that would result in service implementation in the long-term. The Department's statement that:

The coming of new technologies - such as fibre optics, satellite communications...offers hope that reductions in the required investment, coupled with a broader revenue base, may bring about significant improvements for Canada's rural telecommunications users, <sup>24</sup>

illuminates the restricted perspective from which telecommunications development problems are viewed. Innovative technology tends to become imbued with special qualities that seem to allow it to solve economic and political problems that prevent expansion and development, especially in isolated, remote areas.

In the United States, evaluation research has suffered from the same limitations. The National Aeronautics and Space Administration's (NASA) Applications Technology Satellites (ATS-1, ATS-3, ATS-6) were used in Alaska (1974) for a series of experiments, testing the use of satellites to provide

interactive services with a social orientation. Evaluations of these projects provided valuable information. A summary of research concluded that, "...using telecommunications in remote regions can have economic and cultural gains."<sup>25</sup> But it was also found that yet another cycle of experimentation and evaluation was necessary.

Studies often make recommendations as to institutional arrangements that would be conducive to service implementation on a long-term basis. Unfortunately these are frequently impractical because of a failure to take the range of constraints that hinder development of telecommunications service wherever they are judged uneconomical by industry and government criteria into consideration. While funds are made available to study the viability of social applications of technology, research is not addressed to the problem of how these services might be integrated into the existing telecommunications industry structure. For example, evaluation research usually does not examine available alternatives for allocating the responsibility for costs. Possibilities such as the use of subsidies for making investment in expanded telecommunications capabilities more attractive to established commercial carriers are not examined. This same rationale applies within the context of basic telecommunications service development.

### 3. Cost Benefit Analysis

A third sub-area in the field of 'communication and development' research is represented by studies that examine economic cost benefit relationships that are created by the introduction of communications systems. As the costs of providing telecommunications service in remote or rural areas often outweigh the immediate benefit of revenues, the justification for investment is sought in long-term social, economic, political and cultural benefits that can be

associated with the increased availability of communications services.

As a technique, cost benefit analysis has a long history as an out-growth of the theoretical premises of welfare economics. As early as the mid-nineteenth century attempts were made to quantify the social utility of public goods. Maximum benefit was arbitrarily associated with social welfare. In the United States, the technique was applied in the 1930's to aid in water resource management. The Flood Control Act of 1936 established "the principle of comparing benefits to whomsoever they may accrue with the estimated costs."<sup>26</sup> Gradually, cost benefit analysis gained acceptance and became increasingly formalized in a series of academic and government reports. It has come to stand as an accepted basis for policy decision-making and planning, wherever decision makers decide there are grounds for believing that social benefits and costs diverge from investment costs.

Cost benefit analysis has received widespread application in evaluating investment alternatives for hydro-electric, agriculture, transportation and industrial development projects, particularly in countries that have been recipients of international financial assistance. The World Bank, established in 1946, has developed the technique to a 'fine art'. It is used to assess the feasibility and economic importance of applications competing for funds drawn on the Bank's 'limited' resources.<sup>27</sup>

Theoretically, cost benefit analysis considers all costs and benefits from the point of view of all individuals in society, but in its practical application it must be restricted to those considered important by the policy planner. Consequently, the results tend to coincide with the dominant interpretation that is currently popular in the funding agency as to what is of benefit to society. In the context of World Bank policy, the American political and economic presence in the organization since its inception seems

to have resulted in the use of a methodology reflecting an American-based corporate and political view of the relative value of development projects.

As a method, cost benefit analysis has, like other empirical techniques, tended to have been regarded as value-free in that the results are argued to reflect "society's" assessment of cost benefit relationships rather than those of a professional group within society. In order to place numerical values on social benefits and costs, a limited number of variables are evaluated in terms of a limited group of individual preferences for various outcomes. The process of determining whose preferences, and what variables should be included, will obviously bias the results of the analysis.

In recent years, research in the field of telecommunication and development has become pre-occupied with the quantification and measurement of 'external' benefits. This research is premised on the belief that:

If significant external benefits can be documented, they would justify investment by national governments ...in rural telecommunications capacity beyond that which can be justified on the basis of internal rate of return. 28

As a sophisticated means of measuring the 'effects' of telecommunications technology, cost benefit analysis permits descriptive findings of social, economic and political impact to be elevated to the scientific respectability currently accorded to economic analysis. The desirability of investment in telecommunications facilities is supposedly augmented by demonstrating benefits to secondary manufacturing and tertiary (government, finance, and service) sectors, and in terms of transportation and energy savings, decentralization of business and industry, and increased efficiency and geographic coverage for government administration and delivery of services.

This kind of 'well-documented' evidence is expected to influence decisions to allocate available financial resources for investment in telecommunications facilities. Studies undertaken to define the role of telecommunications in the development process are specifically designed:

To analyze the direct and especially the indirect benefits of national investments in telecommunications and to show the way in which a telecommunications system can contribute to economic development. 29

If the external benefits of telecommunications are extensive, then it is assumed that the evidence will provide support for investment decisions that make funds available for development in remote areas that would otherwise be economically unjustifiable. It is implicitly assumed that if industry does not enter the market, government programmes will be devised to provide the required financial assistance in order to meet communications policy objectives.

Research is intended to establish solid evidence of a direct cause and effect relationship between the availability of technology and changes in other areas. The notion that many of the analytic techniques used in economic research provide more definitive measures of these relationships explains the growing pre-eminence of research techniques drawn from this discipline. However, critics of econometric techniques that quantify social benefits and costs have alluded to the circularity which is inevitably engendered by attempts to refine technique. For example, a review of cost benefit analysis as applied to evaluation of telephone projects in Third World countries states that:



Unfortunately, it was found that, even concentrating efforts on one small group of rural villages, the assumptions which had to be made were so arbitrary that there could be little confidence in the results of the analysis. Given data limitations, no adequate means was found to control for the different employment, income and social characteristics of those living within and outside the villages: almost by definition there is a systematic bias built into the analysis. 30 [my emphasis]

Cost benefit analysis does not encourage an examination of the dynamics of the economic and political context in which the decision process affecting policy implementation occurs. But rather than recognize the inapplicability of the analytic technique, efforts have been made to incorporate temporal change within the existing methodology. Costly, statistical time-series analyses of multiple variables, that permit hypothesis testing beyond the strength of correlation, have been suggested in order to establish causal relationships between telecommunications services and external benefits.

The state of research in this field is epitomized by continuing attempts to validate hypotheses. For example:

Telecommunications permits improved cost-effectiveness of rural social service delivery,...improved cost-benefits for rural economic activities,...a more equitable distribution of economic benefits. 31

The expectation has been that the incentive for investment in expanded services in rural areas will be improved by the results of these studies. Unfortunately, it is doubtful, even using the most sophisticated methodology for quasi-experimental field studies, that institutional constraints to telecommunications policy implementation will be altered. These techniques are intended to assess the effects of telecommunications services on

efficiency and on the profitability of other service sectors. Although the data resulting from this research may be useful, it fails to address the crucial question as to whose responsibility it is to ensure that services are available. This is especially important in areas where a cost/revenue imbalance acts as a disincentive for investment. Research in this tradition tends to be inattentive to incentives inherent in the institutional structure that place limitations on the pace and direction of the telecommunications development process.

### C. Summary and Conclusion

The argument presented here is that none of the three sub-areas that have been reviewed take into account the institutional environment in which decisions concerning telecommunications development must be made and implemented. The dominant trend seems to be to examine technology, its growth, expansion and impact without reference to context or changes in institutional relationships. The result has been a proliferation of studies that tend to ignore crucial dimensions related to the structure of the institutional system in which policy decisions are made.

This reoccurring and pervasive tendency in 'communication and development' research has been criticized by many scholars, notably Schiller, who has said:

Preoccupation with technology permits the continuation of the illusion, especially powerful in the United States, that most, if not all social and economic problems either arise from or can be overcome by improved technique and instrumentation, regardless of such institutional questions as ownership, control and social structure. 32 [my emphasis]

Critiques such as this do not provide a prescription as to the appropriate focus required in order to understand problems associated with telecommunications development in any specific instance. It is perhaps time that research into the role of communications in the development process took heed of a warning directed toward other branches of the social sciences (sociology and psychology):

As I see it the division of labour in intellectual work has taken a pathological turn and the personal and material benefits of specialization now cost too much in terms of neglected areas and misconceived issues. 33

The narrow focus that has been described and the retention of methodological approaches, primarily because of the inability of existing experimental methodologies to provide sufficient evidence of contradiction, has resulted in a lack of studies of research problems defined in a way that addresses fundamental questions concerning the original problem.

There are two major points of significance that arise from this critique. The first concerns the focus of the research and the definition of the research problem. Attention has been given to studies of specific communications technologies, their impact and effect, on a large number of isolated variables representing economic growth, social interaction patterns and organization, and psychological indicators of attitude and behaviour change. Secondly, there has been a general tendency to overlook the fact that the development of all aspects of communications systems is dependent on complex processes of decision-making that concern the allocation of financial resources required to implement communications development policies within a changing institutional context.

Ideally, a methodological approach is required that:

Focuses on pattern and form rather than on discrete elements, component parts, pieces and events...We do our understanding of behaviour no favour by artificially separating and simplifying into elements that complexity (in the relations between and among those elements) which is integral to their effects. 34 [my emphasis]

This quotation stresses the importance of research which focuses on the relationships between elements that are relevant to understanding a problem. To understand problems related to communications and development a methodological approach is required that is concerned with the characteristics of the relationships between and among institutions that participate in the decision processes that affect the planning and policy implementation process. The policy implementation process must be studied as an on-going dynamic process, in which historical factors provide a context for an analysis of institutional relationships.

This study develops a framework for analysis that begins to allow one to examine the incentive structure that affects decisions to allocate financial resources for telecommunications development through the use of a variety of types of subsidies. The focus of the research is placed on understanding some of the factors inherent in the institutional arrangements of the telecommunications industry and government planning and policy implementation agencies, that promote, prolong, restrict or redirect policy implementation.

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## Chapter III

## HISTORICAL USE OF GOVERNMENT SUBSIDIES:

## PROMOTING TELECOMMUNICATIONS DEVELOPMENT IN NORTHWEST CANADA AND ALASKA

Plans to extend telecommunications facilities into the northwest area of the North American continent were initiated by private American interests in the 1850's and 1860's. The incentives underlying government subsidies which encouraged private investor-owned telegraph companies to undertake expansion were both economic and political. Profits expected to accrue from a telegraph link between the major trade centres of Western Europe and the eastern coast of North America provided an economic incentive for investment. International competition between Great Britain and the United States for dominance and control over international telecommunications facilities provided additional incentives for the American government's interest in the project.

The role of telecommunications during this period was clearly viewed in terms of its ability to facilitate national economic and political objectives which required inter-continental communications links. Short-term financial considerations were secondary to benefits assessed in terms of access to, and control of, the trading markets of Western Europe.

Subsidy methods used during the initial stages of telecommunications development in the north reflected the prevailing trend in the United States toward the use of government incentives to encourage private investor interest in the development of services classed as public utilities. This chapter traces the nature of the American and British governments' early participation in the extension of telecommunications from the American



west coast to Alaska. It demonstrates that government involvement in the telecommunications development process, through several forms of subsidy, reflected objectives that took precedence over local or regional needs in Northwest Canada and Alaska.

A. Telecommunications Development and Subsidies:

1850 - 1900's

The extension of telecommunications facilities from the west coast of the United States, northward through British Columbia, the Yukon Territory, and Alaska, occurred in the 1860's. Proposals were promoted by private investors for commercial purposes with the cooperation of the American and British governments which stood to benefit from the availability of communications links between European centres.

By 1860, there was an increasingly strong demand for an extension of communication capability across the Pacific to facilitate trade and commerce. The British and American governments encouraged telecommunications development over a costly northern route by enacting enabling legislation that provided financial incentives to private investors.

The proposal to construct an inter-continental telegraph link between the Pacific coast of the United States and Europe over a northern route gained political acceptance after the failure of the attempt by the American Telegraph Company to construct an under-sea trans-Atlantic cable in 1856. It appeared that a route requiring minimal miles of undersea cable, a possibility presented by the Bering Sea crossing between Russia and Alaska, would provide the American and British governments with communications links that could potentially protect and promote their respective supremacy in world trade.

A route through Northwest Canada, Alaska, and Russia was first proposed in 1859 by Collins, an American entrepreneur. It was to originate in Montreal, crossing Hudson's Bay Company territory to Alaska.<sup>1</sup> This route was rejected when it became clear that the British government would not provide direct cash subsidies for the trans-continental portion of the line. These events suggest that settlement of British North America had failed to extend westward or to become of sufficient importance to convince the British government of a need for trans-continental communications links beyond those already maintained by the fur traders and the Hudson's Bay Company. British use of the Canadian west coast as a terminus for a trans-Pacific undersea cable was also not feasible because of the technical limitations of submarine cables at this time.

However, by the 1860's, settlement of the 'frontier' of the west coast of the United States had reached a point where communications traffic and revenues between the east and west coasts were sufficient to encourage the Western Union Telegraph Company to extend its lines. Congressional approval for a trans-continental line was granted in 1860.<sup>2</sup>

By 1864, an "Act to Encourage and Facilitate Telegraphic Communication Between the Eastern and Western Hemisphere" was also signed.<sup>3</sup> The Western Union "Russian Extension" was to be constructed by a subsidiary, the Collins Overland Telegraph Company, an arrangement that would eventually protect Western Union from financial loss when interest in the project faded. The parent company's interest in the line was evident. A telegraph connection between Western Europe and the United States represented a possibility for Western Union to achieve monopoly control over trans-continental and inter-continental communications. The American government's interest was also related to finance. This is reflected by a statement by a member of Congress

several years before a franchise was granted to the Collins Telegraph Company.

There are now in Europe some one hundred and fifty thousand miles of telegraph, and in America some fifty or sixty thousand miles, producing revenue of probably ten millions of dollars annually. Unite all these lines and make them a subsidiary to the great world encrusting telegraph and it must become one of the most lucrative investments possible. 4

The charter which permitted construction of the line required Western Union to give government traffic preferential access to its services. This arrangement enabled the American government to extend its ability to communicate and its political and economic influence both within its territory and beyond. Other nations requiring communications services to support trade would also be placed at a competitive disadvantage should American corporate interests control communications facilities.

The legislation for a right-of-way through British Columbia and the Yukon Territory was granted by the British Columbia Colonial Legislature and the British Government in 1864.<sup>5</sup> Although no exclusive privileges were granted, Western Union did obtain subsidies in the form of import advantages under the condition that British Government traffic received equal priority with that of the United States government. While the British government retained the option of constructing an all-British or colonial east-west communications link in the future, it gained preferential access to a trans-continental telecommunications system with no outlay of the government's financial resources.

The British government had refused to invest in an all-Canadian proposal by the Grand Trunk Railway for a east-west telegraph link in the previous

year. The need for telecommunications facilities to fulfill national policy objectives, i.e., solidification of a Canadian political and economic east-west union, or international British policy objectives, would appear to have been only indirectly recognized at this time.

The need for an all-Canadian east-west communications link was recognized later as an outgrowth of domestic transportation policy. The Canadian Pacific Railway received a charter to provide telegraph services in 1889. The Canadian National and Grand Trunk Pacific Railways received federal charters in 1902 and 1903. Before this, the British, and later the Canadian government, appears to have placed a higher priority on cost savings from the use of American telecommunications facilities, than on policy implementation to meet the prevailing interpretation of the 'national interest', i.e., provision of transportation and telecommunications facilities to promote exports from the west. As Innis has argued, Confederation (1867) and the National Policy of 1878 were necessary before any westward expansion of transportation (communications) links could be undertaken because of the scarcity of capital for investment in large-scale projects.<sup>7</sup>

The interest of the British government in establishing telecommunications links should not be minimized. The history of the British government's involvement in the telecommunications industry demonstrates that it aggressively sought to protect its access to British-owned and operated intercontinental communications links between the 1850's and the 1920's.<sup>8</sup> Canada's role in providing a "safe" territory for British international telecommunications expansion was not evident until 1902. At this time, an all-British or British/Colonial submarine cable was laid across the Pacific between Canada and Australia in an effort to forestall American influence in the Far East.<sup>9</sup> The telegraph systems operated by the Canadian railways and subsidized by the

Canadian government provided an important link for the British international system of telegraphic communications and helped to assure British continuing supremacy in this field in the face of growing American interest.

Construction of the Collins Overland Telegraph line was short-lived. Between 1864 and 1867, the route was extensively surveyed and portions were completed. The entire project was halted when the Atlantic undersea cable project was successfully completed in 1866. Traffic and intercontinental revenues could no longer be expected to sustain a costly overland route. Competition from less costly undersea Atlantic cables detracted from the economic feasibility (profits) of the costly northern project. No effort was made to continue commercial telegraph development in Alaska and Northwest Canada. This suggests that the northern regions had yet to achieve sufficient economic or political significance in terms of economic policy of the United States or Canada to justify extensive financial expenditures. However, the strategic military significance of Alaska and Northwest Canada provided justification for government subsidies for the continued development of telecommunications facilities to meet these objectives.

The subsidy methods used in this early developmental stage of telecommunications followed a pattern similar to those which characterized the initial development phase of public utilities in the United States. Glaeser has documented the use of government incentives for private capital to promote all sectors of public utility development until the 1850's. This period in American economic history has been described as a "promotional era."<sup>10</sup>

This method of subsidy was adopted after the failure of outright State government ownership of public utilities in the 1830's. State governments had invested heavily in railway and other transportation construction. How-

ever, corruption, debts due to foreign capital borrowing, and overbuilding resulted in the sale of most of the State-owned utilities by the 1850's. Glaeser argues that these events set the stage for a continuing reliance on private initiative aided by government grants to supply public utility services in all sectors.<sup>11</sup>

Inducements to private investors took the form of charters and franchises. These were granted at the State and later the federal level for interstate activities. Typically the power of "eminent domain" and financial rewards in terms of money and land were granted under the assumption that inducements must be held out to private investors to ensure provision of adequate facilities. These charters were regulatory insofar as they restricted competition but they contained no provisions to ensure that private investors carried out development plans. They should properly be considered as a form of government subsidy because of the advantages that were available to companies holding these charters. Thus, the charter legislation for the Collins Overland Telegraph Co. contained exclusive rights that would in turn confer financial benefits on the company and its parent, Western Union.

As a subsidy method, the American use of State and federal charters can be compared with one of the forms of incentives used by the Canadian government to encourage economic activity, although the objectives were somewhat different. In the United States, the emergence of this method of subsidy was closely connected to the need to provide a variety of public utility services, i.e., transport, communications, water utilities, irrigation, gas utilities and electricity; in support of all forms of State and interstate commerce.<sup>12</sup> In the Canadian context, subsidies during this period took a wider variety of forms, i.e., ranging from provincial bond notes, tariff protection, Confederation to support a wider debt base, and direct ownership

of utilities. They were primarily directed toward expanding capital markets to promote the development of transportation services. Innis has argued that these subsidies tended to be successful during this period because each tapped a fresh natural resource, or involved reductions in the cost of transportation which placed export goods in an advantageous competitive position.<sup>13</sup>

The financial arrangements used by the Canadian government that eventually promoted the building of the Canadian Pacific Railway (CPR) in 1885 provide an example of this subsidy method. The government relied on subsidies in the form of money, land and a monopoly clause in the CPR Charter which protected east-west traffic from competition. The American method of subsidizing private interests can be said to have provided a model for some aspects of the Canadian government's policy. As Innis says, the CPR drew heavily on the American experience in its early stage of development. However, the demand for expanded transportation services to support staples production and export, and problems of finance which involved heavy expenditures eventually led to a greater use of government subsidies to private investors and direct subsidies through government ownership.<sup>14</sup> Where transportation and communications services were associated with national economic or political objectives the Canadian government demonstrated a greater tendency to provide those services itself, if the interest of the private sector could not be attracted.

B. Incentives for Telecommunications Expansion:  
1900 - 1950's

The early stages of telecommunications development in the Canadian Northwest and Alaska were linked to the need for expanded commercial communications between the economic centres of Europe and North America. The next

stage, beginning in the 1900's, was linked primarily to American defense objectives. Development of telecommunications for commercial use in Alaska and Northwest Canada was incidental to the priorities placed on telecommunications systems required to implement strategic defense policies. Implementation of American national defense policy objectives was a legitimate area for government investment. Cost factors for communications development in Alaska became irrelevant when compared to expenditures in overall military budgets which swelled in the war years.

The Canadian government's support for telecommunications development in the Northwest during the period between 1900 and the 1950's appears to have been dictated in large part by American defense policy that required communications overland links between Alaska and the Lower 48 States. The Canadian northwest region became an area of strategic importance for the security of the American national communications defense system. This was similar to the way that the east-west telegraphic link in colonial territory played an important role in securing British international communications routes with the construction of the all-British submarine cable across the Pacific in 1902.<sup>15</sup>

#### 1. Telecommunications Development in Northwest Canada

Throughout the history of telecommunications development in the Canadian Northwest responsibility and jurisdiction has rested with the federal government. There have been no formalized institutions located in, or allowed to emerge from, the north with a specific concern for telecommunications. Subsidy policies were implemented by the federal government in response to its changing interpretation of the need for and role of telecommunications in the north.



Prior to the justification for government financial involvement in the telecommunications development process provided by World War I, the Canadian government responded to demands of a commercial nature. A need for a communication link between the Canadian Northwest and the rest of Canada arose with the influx of population to the Yukon Territory in the 1880's. The population reached 28,000 by 1889 following the discovery of placer gold mines. A Territorial government, directed by the federal government, was established in the same year to carry out administrative duties.

A telegraph system was constructed and directly financed by the federal Department of Public Works.<sup>16</sup> The link between the economic significance of the region and the federal government's willingness to subsidize telecommunications facilities is indicated by the fact that with the decline of gold rush activity the system fell into disuse. In 1917, the population of the Yukon dwindled to 9,000 and the government appeared to change its attitude toward all public expenditures in the area.<sup>17</sup> Restrictions were placed on all aspects of federal spending in the Northwest and the federal government's policy seemed to become essentially laissez-faire.

It is also likely that the declining significance of the Canadian Northwest for American telecommunications needs precipitated the temporary decline in Canadian financial support for telecommunications development. In 1903, the American Army Signal Corps laid a submarine cable between Skagway, Alaska and Seattle, alleviating American dependence on "foreign" communication links. With the loss of traffic and revenues, the Canadian sections of the telegraph line were temporarily discontinued.

After this brief phase when the Canadian government provided subsidies for telecommunications service in response to both commercial and American military communications requirements, the history of federal involvement

became more directly responsive to defense requirements generated by the American strategic programme for military defense.<sup>18</sup> The telecommunications facilities constructed in the Canadian northwest after World War I were to provide a system capable of interconnecting military bases in the north. In 1922, the federal government engaged the Royal Signal Corps to construct the Northwest Territories and Yukon Radio System. No arrangement was made to interconnect the system with public commercial telecommunications facilities in the south.<sup>19</sup>

Commercial communications services were provided as an adjunct to the military system. The Department of National Defense was instructed to ensure that the design of the radio system would be capable of assisting mining districts in the Yukon, the Governments of the Northwest and Yukon Territories and the Hudson's Bay Company in meeting their communications needs.<sup>20</sup> In this sense it is quite possible that the commercial users of the telecommunications facilities received a subsidy in that the federal government bore the major portion of construction and operation costs.

The role of the military was gradually phased out in the 1950's. The development of a commercial public network came to be regarded as a necessary prerequisite for meeting a policy objective that had assumed national priority, i.e., resource development. An Order-in-Council transferred the radio system to the Department of Transport which had become the heaviest user by 1959. The Canadian National Telegraph Company (CNT) was instructed to replace the Northwest and Yukon Radio System with its own facilities as part of its franchise to operate in the Western Northwest Territories in 1959.<sup>21</sup> The reasons for the transfer were mainly financial. From 1923 to 1939, the operating expenses of the system had been paid by the Departments of the Interior and Mines and Resources. During World War II, expenses were

covered by revenues generated by American and Canadian military use. However, by the 1950's defense messages had dropped to 3% while the Department of Transport traffic generated the largest percentage of revenues.<sup>22</sup>

Another telecommunications system was constructed in the Canadian Northwest during World War II, again to meet American military requirements. The 'backbone' of the Northwest Telecommunications System was built in 1943 by the American Army. An open wire pole line followed the Alaska Highway route providing communications services to staging bases and airfields. It was interconnected with the Alaska Communications System and the Canadian national telecommunications network in Edmonton. The Canadian government purchased the Northwest Communications System from the United States military in 1945, placing it under Royal Canadian Air Force jurisdiction for operational purposes until 1947. It was then placed under the jurisdiction of the Department of Transport.

CNT received a contract to operate and manage the system in 1947 and continued to provide service for government users on a contract basis until 1958. CNT was instructed to operate the telecommunications system on a joint military-commercial basis. Again, although provisions were made to carry commercial traffic, little effort was made to establish a regional commercial telecommunications system at this time.

## 2. Telecommunications Development in Alaska

Use of telecommunications facilities for commercial traffic originated with the American government's decision to authorize a telecommunications system to provide service for military establishments in Alaska. In 1900, an act was passed that authorized the American army to use the military communications system for commercial purposes.<sup>23</sup> The Department of Defense

was given the responsibility for decisions as to when and where commercial facilities should be made available.

Commercial business may be done over these military lines under such conditions as may be deemed by the Secretary of War, equitable and in the public interest. 24

The long distance telecommunications facilities in Alaska were developed by the Army Signal Corps and later by the Air Force. The system, which became known as the Alaska Communications System (ASC), played an important role in American communications networks that supported defense objectives. The rate of expansion of the system was responsive to military demands and the government left its operation to the Department of Defense.

Alaska had been placed under American federal jurisdiction in 1876 after the transfer of ownership of Russian America. It became a Territory of the United States and was administered by the federal government and the Alaska Commercial Company.<sup>25</sup> Between 1867 and the end of the Second World War, the economy was primarily based on trapping, sealing, mining and fishing industries and the pace of economic growth was relatively slow (as measured by traditional economic indicators). Larger communities in Alaska that did experience growth established privately-owned local telecommunications systems that were interconnected with the military network. However, the long distance telecommunications system's capacity was limited to that required to carry military traffic. It subsequently became overloaded when increasing commercial demands were made on the limited excess capacity.

The costs of operating the ACS were included in the military budget and revenues were returned to the Treasury General fund.<sup>26</sup> The development of long distance service in Alaska was carried out in isolation from federal

government planning concerning the economic or political development of the area. This continued until the decline of the military's interest in directly controlling communications facilities. The independence of the system's development from any form of government oversight or intervention (other than military) is indicated by the fact that the system was not subject to regulation. The Federal Communications Commission described the ACS as follows: "...an agency of the federal government whose facilities are constructed and maintained with public funds and which serves commercial interests as an incident to performing its government function."<sup>27</sup>

The ACS remained both unregulated and under military control until 1970. Recognition that the existing arrangements for providing commercial telecommunications services were inadequate had been attributed to a change in American military policy. In the late 1950's, the military began to adopt a general policy of leasing facilities from domestic private common carriers.<sup>28</sup> Planning began for the transfer of the ACS to private interests at this time. The decade between, ending in 1969, when the sale was completed was marked by the reluctance of the military to upgrade the system in response to increasing demand for commercial traffic capacity. Prolonged proceedings that were intended to ensure that the ACS would continue to operate and expand to meet Alaskan requirements for services were initiated by the federal government. In the interim, it is possible to suggest that subsidies were inherent in the arrangements that permitted commercial use of the ACS. The capital costs of system development were covered and obscured within Department of Defense budgets.

The State of Alaska's requirement for commercial intra- and inter-state long distance telecommunications services was not formally recognized as exceeding the capacity provided by the military system until the late 1950's.

Recognition of an increasing demand for a viable commercial telecommunications system can also be attributed to the ability of the Alaska State government to draw attention to the inadequacies of the existing system. Statehood had been granted in 1959, and decisions affecting the development of a commercial telecommunications system in Alaska became subject to government intervention at both the federal and State level.

The separation of jurisdiction over telecommunications in Alaska between levels of government appears to have had important consequences. Planning and development objectives for telecommunications have reflected regional requirements and needs from a perspective that has often appeared to be in opposition to the federal government's assessment of telecommunications needs and priorities. Opposition has succeeded in drawing attention to issues such as disparities and cost responsibilities in a formal public setting.

Negotiations for the transfer of the ACS from military control were initiated, in part, because of the increased expression of interest in the future development of telecommunications by the State government. The State's role as an advocate of its own interests was possible because of its legitimate authority and, although isolated, organized political voice. While it did not represent all Alaskans equally, it did provide an alternative perspective to that held by the federal government.

### C. Analysis

The relationship between events described in the preceding sections provide initial support for viewing subsidy policies affecting the process of telecommunications development in the north in the context of changes in policy objectives concerning the economic and political importance of the two areas under consideration. These objectives influenced the form of government

intervention and tended to constrain the institutional arrangements for providing telecommunications services that evolved.

During the period between the 1850's and 1900, subsidies were associated with the need to extend the government's ability to communicate for political and economic reasons. Telecommunications services were regarded as a tool for promoting national economic and political objectives. The loss of projected revenues from intercontinental traffic left private investors disinterested in the feasibility of establishing a north-south telecommunications link despite the possibilities of monopoly control.

However subsidies for telecommunications development continued as long as they could be justified as part of a national defense effort until the 1950's. From approximately 1900, the responsibility for the costs of telecommunications development rested with the government. The structure of the telecommunications industry and the extent of subsidies from government sources was contingent on the importance of military objectives. These objectives continued to determine the extent of government intervention in the development of telecommunications facilities in Alaska and Northwest Canada until the late 1950's when the political and economic significance of the two areas began to change.

At this point the roles of the American and Canadian governments in subsidizing telecommunications development seem to have diverged. In the United States, the military policy objectives remained a sufficiently high priority until the 1970's to justify continued financial support for the telecommunications system in Alaska. Despite the efforts of the State government, a full commercial telecommunications network was not operational until 1970. It required that traffic carried by the Statewide system generate sufficient revenues to attract a private investor-owned carrier. Private investor

development of telecommunications on a commercial basis in Alaska was also made possible by expansion of existing revenue sharing through internal subsidies with the telecommunications carriers operating in the Lower 48 States.

The Department of Defense retained control over telecommunications facilities in Alaska until 1969. Thus, it maintained access to low cost services in the area which continued to have a declining strategic military significance. The facilities of the Alaska Communications System were outmoded, but they met the military's ongoing requirements for communications services. A change in ownership and subsequent investment in new facilities for an expanded statewide commercial telecommunications system could be expected to increase the costs to the Department of Defense for continued use of telecommunications facilities in Alaska. In spite of a general policy of military withdrawal from the direct ownership of domestic telecommunications facilities, Alaska may well have represented a case where the Department of Defense resisted this change.

Until the 1950's, the development of long distance telecommunications services in Northwest Canada was closely associated with the geographic importance of southern parts of the Territories as a means of interconnection between Alaska and the Lower 48 States, rather than its importance in the context of economic or political policies regarding the north developed by the Canadian federal government in response to internal national objectives. The major transportation and communications routes established in the southern Yukon and Northwest Territories before 1950 were financed to a large extent by the American government through Department of Defense budgets.<sup>29</sup> Subsidies in Canada, from the Canadian federal government, were linked both to the commercial importance of a connection between the north



and the south to support trade and government administration, and to aid the joint American and Canadian military defense effort. Costs were camouflaged within military expenditures and required very little justification.

The settlement pattern and location of resource industries close to the major transportation and communications routes benefited territorial residents by reducing the costs of upgrading telecommunications services for public use.<sup>30</sup> After initial military installations had been made costs were minimized and in this sense a subsidy for development of a commercial telecommunications system was involved.

In the 1950's, the Canadian federal government began to define its interest in Northwest Canada in terms of economic development objectives related to natural resource development. These objectives provided a sufficient justification for continued subsidies for development of a commercial telecommunications system in the Northwest. CNT provided a vehicle through which the government's policies could be implemented in lieu of an interest in the area expressed by private commercial telecommunications common carriers operating elsewhere in Canada, i.e., Bell Canada and the Trans Canada Telephone System.

CNT was able to extend drop lines for commercial telecommunications services and exchange telephone service from its major trunk networks but was unable to justify construction of costly microwave or wire systems to service isolated communities. This policy has been expressed by CNT as follows:

But surely it would be an unrealistic mixing of priorities to supply immediately or in the near future relatively expensive telecommunications systems to communities so small most of them apparently do not warrant electric power, a suitable airstrip, or a semblance of local roads. However,

as new industries and communities develop, these small settlements will eventually come within the sphere of economic telephone service. 31

Thus, the history of telecommunications development in areas of the Canadian Northwest that were not strategically located along transportation routes was very different to those which were. Subsidies for providing telecommunications services in the Canadian Northwest were not designed to meet the range of conditions, geographic and demographic, that existed.

The foregoing discussion illustrates the use of subsidies in the Canadian and American context to promote the development of telecommunications services in Northwest Canada and Alaska. The form of these subsidies and the telecommunications facilities that were constructed during the periods that have been examined, reflected changing national political and economic objectives. The next chapter examines in more detail the nature of these objectives and their impact on the telecommunications industry structure that evolved in the period between 1950 and 1970.

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## Chapter IV

THE RESTRUCTURING OF INSTITUTIONAL RELATIONSHIPS  
TO MEET CHANGING NATIONAL TELECOMMUNICATIONS POLICY OBJECTIVES:  
1950's - 1970's

The decision to turn the operation and ownership of telecommunications facilities and services in Northwest Canada over to a commercial carrier was made by the Canadian government in 1958. The decision to use a separate non-military entity to provide public commercial telecommunications services in Alaska was not made until 1969. This chapter reviews the policy considerations that affected the decisions that resulted in the evolution of the existing telecommunications institutional arrangements.

In Canada, a federal crown corporation, Canadian National Telecommunications (CNT) was granted a monopoly over all telecommunications services in the western Territories. In Alaska, the separation between long distance and local telecommunications was retained under a predominately private ownership structure. The policy context that affected telecommunications development in Northwest Canada and Alaska is reviewed to indicate the relationship between subsidies for telecommunications policy implementation and the incentives underlying the industry and government decision-making process.

The decision-making processes that resulted in the existing institutional arrangement of the telecommunications industry in Northwest Canada and Alaska are examined as a reflection of the priority placed on telecommunications services as integral to the economic development process. Decisions that led to the restructuring of the telecommunications industry are examined in the context of some of the policies and priorities that emerged at a different constraining level. The priorities established for national economic develop-

ment policy shed some light on the role ascribed to telecommunications, the institutional structural arrangements that were designed to promote these objectives, and the nature and extent of subsidies used to implement telecommunications policy. A description of some of the more important changes in the political and economic significance of Northwest Canada and Alaska is used as a basis for an analysis of changes in subsidy policy in the two regions.

A comparison of the policy context and the resulting priorities placed on telecommunications development is used to suggest an explanation as to why the structural re-arrangement of the telecommunications industry occurred earlier in Northwest Canada than in Alaska. This method of examining levels in the decision-making process will be used in later chapters to suggest tentative explanations for the differences in the use of subsidies to promote telecommunications development in the two northern regions.

A. Canadian Northern Development Policy in Relation to  
Northwest Telecommunications Development

1. Northern Economic Development Priorities

In 1958 the responsibility for providing telecommunications in the Northwest was delegated to Canadian National Telecommunications (CNT). This decision reflected the federal government's conviction that a public corporation would be responsive to national economic development priorities that required development of a commercial telecommunications network in the north as part of a policy of providing the appropriate infrastructure to encourage accelerated resource development in the north.

Steeves has described the Canadian government's commitment to provide infrastructure as follows:

With an unwavering faith in the value of private investment the government's role in the economic development of the North was first of all defining the parameters of the issues in terms of the national interest, and then setting about to provide the appropriate incentives and structures on which private industry...could develop economies. 1 [my emphasis]

Until the 1950's, the interest of the private sector in exploiting northern resources was tempered by the costs of transportation, power, communications etc., that the industry would be required to bear in order to develop and exploit these resources. The federal government's policy in the late 1950's and 1960's was intended to create additional incentives for resource developers by bearing the cost responsibility for these services. Transportation and hydro developments during this period have provided the most conspicuous examples of the use of federal subsidies to promote national economic policy implementation. Steeves has elaborated further on the government's role in the northern economic and political development process.

Patterns of external capital (usually American) promoting staple resource projects to benefit foreign interests and supply foreign markets has come to characterize virtually all of the major economic projects in the Yukon. Since 1959 the federal government has been an indispensable actor in this process by accepting the responsibility for the creation of an elaborate and extremely costly infrastructure of access roads, highways and hydro in order to facilitate the exploitation and exportation of the territory's resources. 2

In his review of the role of the private and public sectors in the development process in the north, Rea has argued that during the post-Second World War period and throughout the sixties, the federal government abandoned a commercial feasibility criterion as a guide to resource develop-

ment. A higher priority was given to the benefits of infrastructure services in terms of stimulating resource development activity than to the immediate costs to the government of providing these services. The "Northern Vision" of the Deifenbaker era embraced an objective of rapid increases in economic development in the north. But this development activity was to rely on the private sector supported by extensive government subsidies in the service sector. Public institutions and investment were convenient vehicles through which to implement this policy. 'Public enterprise' could be used to accelerate development because it could be encouraged to undertake projects that would less likely to be undertaken by private enterprise. Service development, through the use of a variety of federal subsidies, would be theoretically less costly than through the private sector operating under the constraints of 'economic feasibility' defined in terms of the costs of development financed through the private capital market. Rea describes the government's policy as one of:

Increasing the rate of northern development by using publically sponsored investments in infrastructure capital to lead private resource exploiting operations. 4

Hydro electric power services, transportation, and communications services were developed rapidly as a consequence of public investment. Federal subsidies for transportation, rail and road construction, were channeled through the Department of Indian Affairs. Subsidies for power development were introduced through a gradual relaxation of investment criteria guiding the activities of the crown-owned Northern Canada Power Commission. In the communications sector, the government's acceptance of a portion of the financial responsibility for promoting service develop-



ment was also evident in its choice of a crown corporation.

The selection of a crown corporation to provide telecommunications services in the late 1950's fits within the prevailing orientation toward development policy in the north. A private investor-owned telecommunications carrier would have had the development of profitable services as its primary objective. The pace and direction of investment in facilities to provide a commercial telecommunications system in the north would have reflected this constraint. The financial subsidies available through a public ownership structure could be expected to result in the development of services that met industry requirements with less attention to immediate economic costs. The institutional structure provided the government with a corporation that could be used potentially to directly implement policy. It also ensured that the rate of telecommunications expansion in the north would proceed at a pace and in a direction which met prevailing federal policy objectives.

Until the 1950's, telecommunications development in the Canadian Northwest had been linked to American and Canadian military policy. This led to the construction of the DEW line, the Northwest Communications System, the Yukon and Northwest Territories Radio System and other telecommunications facilities.<sup>5</sup> The next decade saw a shift in Canadian federal policy priorities to resource development. Subsidies for commercial telecommunications development in the Canadian Northwest could be justified because of the role of these services in providing infrastructure. Having established these services and others in the transportation and power sectors, the government's expectation was that private investors would become increasingly interested in resource exploitation and extraction in the Canadian Northwest. Thus, the costs of subsidies for telecommunications development could be balanced against the benefits in the 'national interest' or at least the

federal government's interpretation of an appropriate northern development policy.

## 2. Restructuring Telecommunications in Northwest Canada

CNT began operating a commercial telecommunications system in Northwest Canada within this policy context. Its entry into northern telecommunications began in 1948 with acceptance of government contracts for the management and operation of the Northwest Communications System. The Canadian government had purchased the facilities of the Northwest Communication System from the U.S. Army Signal Corps in 1945. This system had been constructed between Alaska and Edmonton in 1943 by the U.S. Army to carry military traffic during World War II. At the end of the war agreements terminating some aspects of the American military presence in northern areas considered sovereign to Canada resulted in the transfer of assets of the Northwest Communications System to the Canadian government. The Canadian Air Force operated the system as an exclusively military service until 1947. The increased importance of a commercial telecommunications service in the north, led to a transfer of operation and control to the Department of Transport which contracted the system's operation to CNT.

Between 1947 and 1958, when the federal government's interest in telecommunications facilities in the northwest was transferred completely to CNT, the company received parliamentary appropriations to maintain and operate the system. Published statistics for CNT's operation during this period do not provide a breakdown of the profitability of CNT's operations but there is no evidence of a decline in the company's overall earnings subsequent to its take-over of northern services.<sup>6</sup>

CNT's interest in participating in the expansion and development of the

territorial telecommunications system was probably linked to the continuing availability of federal money for system expansion. Federal support was provided through contracts for construction of major improvements to the existing facilities. CNT was in a position to reap the benefits of revenues from traffic carried over its major trunk lines, while the federal government carried a major proportion of the costs of construction. The incentives guiding CNT's policy and interest in northern telecommunications development are discussed more thoroughly in Chapter V.

The ten-year contract required the federal government to consider the appropriate structure for the future development of a northern telecommunications system in 1958. As part of its mandate to study all aspects of communications in the north, a subcommittee of the Northern Development Committee considered submissions from concerned groups and made recommendations to Cabinet as to the structure which would best facilitate telecommunications development.<sup>7</sup> With the exception of the organized business community in the Yukon Territories there was no effective intervention in the decision process representing the concerns of northern residents. The Territorial governments' positions were reflected in the Commissioner's statements and the Territorial Councils were dominated by the positions taken by the federal Department of Northern Affairs.

The Whitehorse Board of Trade favoured a crown corporation that would "integrate and develop all phases of communication in the North."<sup>8</sup> The Board's concern over the disadvantages inherent in providing a monopoly franchise to a carrier with the majority of its business interests in the south were expressed as follows:

If the present highway system became the property of some large corporation, with widespread interests and

responsibilities all across Canada...it would be the obvious decision of that company to make capital expenditures for expansion and improvement in more highly populated areas than the North where there was greater opportunity for revenue increase and savings in operation costs. 9

CNT was not expected to be independent, self-determining or responsible to northern concerns. Management decisions were expected to reflect the concerns of the parent corporation, the Canadian National Railway System. Northern residents in the Whitehorse area were also concerned with the inaccessibility of corporate decisions taken in Toronto. It was expected that CNT's northwest operation would merge with the priorities set by CNR System directives.

It seems reasonable to suggest that the federal government was concerned primarily with establishing an institution that would be sufficiently subject to government influence to ensure that adequate telecommunications links were maintained between the Northwest and the economic centres in the south and the United States. A large crown corporation would have both the resources to do this, and the incentive to invest heavily in revenue producing telecommunications routes.

The dependence of the Northwest and Yukon Territories on adequate communications facilities was recognized by the Commissioner of the Yukon Territory. But, as the federal government's representative, it is not surprising that there was no question raised as to the acceptability of a federal decision regarding the future ownership of telecommunications facilities. The federal government assumed that its choice of institutional structure to fulfill national objectives would reflect and subsume the interests of Territorial residents.

Much of the Yukon is severely handicapped by the lack of adequate communications facilities which is not only a bar to progressive development, but imposes unwarranted hardship on many of our citizens. Such deprivation would not appear justified in light of conditions existing elsewhere in Canada and subsidized by public funds. I am pleased to report that in this field, also, the federal government is now taking a keen and sympathetic interest from which only beneficial results can eventuate. 10

The need for federal subsidies was publically recognized. However, there was no specific investigation of the means to ensure that investment decisions would result in the development of a regional communications system that would provide high quality services in remote isolated locations, as well as those that could be expected to generate sufficient revenues to make expansion and investment decisions attractive.

The only evidence that alternative institutional arrangements to those represented by CNT were considered at this time is the suggestion originating from the Whitehorse Chamber of Commerce, i.e., that of an entirely separate crown corporation operating telecommunications facilities only in the North. No proposals to take over Northwest service were submitted by private carriers for the government's consideration. The immediate contracting out of the operation of telecommunications facilities by the Department of Transport in 1947 suggests that there was no inclination to operate the system directly through a government department which had little expertise in operating commercial telecommunications services. It seems to have been assumed that the combined benefits of reduced investment costs through a crown corporation and direct subsidies for specific projects would be sufficient to encourage the development of a telecommunications system in the north in accordance with the government's policy objectives.

The federal government's decisions at this time did not place a high

priority on reflecting the needs and requirements of northern residents. This was the case in other areas as well, where the government intervened to promote service development in the Northwest. In the same period, in the transportation sector, government policy was evident in the following statement by a Minister announcing a new subsidy programme. "We are not doing this for the people of the North, we're doing it for all of Canada."<sup>11</sup> The criteria underlying the decision-making process were clearly those intended to promote 'national interests' rather than those which would reflect the important but less 'economical' interests of northern people.

The 'national interest' or the federal government's interest in the North was clearly identifiable during this period. The government's policies were designed to promote industrial exploitation of natural resources by the private sector. Where this required federal subsidies, it was hoped that the costs would be recovered by royalties from resource development. The development strategy was guided by southern interests, both Canadian and American based multinationals. The following quotation from a speech by the Minister of Indian Affairs and Northern Development expresses the government's prevailing interpretation of the national interest during these years.

What is lacking perhaps is an awareness by the potential investor of both prizes to be won in the North and the willingness of the Canadian Government to assume a reasonable part of the risk. 12

The national interest was defined by the federal government's interest in promoting resource development by private sector activity, not by a clearly formulated set of national policy guidelines to be followed by those participating in the economic and political development process in the North.

The domination of the federal government's interests over the interests of the people of the remote northwest region can be regarded as an extension of the development process described by Innis which occurred in the pursuit of exploitation of other staple resources.

Canada has been dominated by the discrepancy between the centre and the margin of western civilization. Energy has been directed toward the exploitation of staple products and the tendency has been cumulative ...Agriculture, industry, transportation, trade, finance, and governmental activities tend to become subordinate to the production of the staple for a highly specialized manufacturing community. 13

The Canadian government's priorities that permeated all levels of decision-making were oriented toward promoting mineral development in the North.

Decisions as to subsidies for telecommunications development would be bound to reflect these concerns.

Despite the concerns expressed by the organized non-native population, an Order-in-Council in 1958 granted CNT a franchise to provide commercial public telecommunications service in the Northwest.<sup>14</sup>

The Company was charged with the task of constructing and operating a system of telecommunications throughout Northwest Canada suitable to the needs and future development of the area. 15

Interpretation of those needs was left open to future debate. The interpretation and response to those needs would be carried out through the interplay of government agencies seeking to implement changing policy priorities in the north and CNT's assessment of the relevant criteria that should guide its investment policies. In 1958, however, there was no clear government

long-term planning strategy for northern development in terms of economic priorities or in terms of a national telecommunications policy. The pattern of telecommunications development that took place was a consequence of the extent of the government's financial support of CNT's expansion programme. The government responded to immediate demands for telecommunications services and facilities from business, industry and government agencies, American and Canadian, located in the north. As yet there was no evidence of any attempt to support or promote a telecommunications system capable of serving intra-regional needs for communications services which might have been expressed by the resident population. However, from the perspective of the southern centralized federal government, the question as to the extent and nature of these needs was not addressed at this time.

### 3. Canadian National Telecommunications:

#### Service Development

CNT inherited an extensive telecommunications system which included the Northern Communications System and the facilities of the Northwest Territories and Yukon Radio System. The assets of these systems, as recorded on the federal government's books, were transferred by Orders-in-Council in 1958 and 1959. The value of these assets by plant category was consolidated with CNT's other plant investments. The 1958 transfer of the Northwest Communications System increased CNT equity by \$17.8 million. In that same year, despite an aggressive construction programme, CNT's revenues increased by 15%.<sup>16</sup>

The company began a series of construction programmes, up-grading long distance capacity and installing local exchange equipment. Between 1958 and 1978, major projects were undertaken to provide increasing telecommunications



capacity along the route of the Alaska Highway, and between the Mackenzie Delta, Yellowknife, and Edmonton. The major objective was to provide adequate long distance interconnection facilities between growing economic centres in the north and between the northern and southern centres. Long distance facilities were also built between the major trunk systems and mining locations.

The development of local exchange facilities in large communities and smaller ones located along the major transportation routes was not neglected. CNT's monopoly status as sole carrier in the region was sanctioned in 1958 when Cabinet approved the acquisition of the Yukon Telephone Company, which has provided local telecommunications service in Whitehorse. Dawson City's municipally-owned and operated local exchange company, the Yukon Telephone Syndicate, was acquired along with the Yellowknife Telephone Company, the Hay River Telephone Company and the Fort Smith Telephone Company between 1959 and 1961. According to CNT, all five suffered from a lack of capital, obsolete manual exchanges and, with the exception of Whitehorse, no inter-connection with the long distance network.<sup>17</sup>

By the mid-sixties, CNT's northern network expansion programme was described as having the capacity to provide equivalent services to northern residents as those available in southern Canada.

The Yukon and Northwest Territories now have or will soon have the same communications services as the rest of the country with the exception of network television. Modern telephone and message telegraph service, leased wire telegraph, telex, facsimile, and radio.<sup>18</sup>

The settlement pattern was such that the telecommunications network could economically provide service to many communities that were not directly

involved in the development process, but were located near major routes. (Refer to Map 1). Those communities, particularly in the Northwest Territories, that were isolated remained so. In most cases they were interconnected to the long distance network by HF and later VHF radio links.<sup>19</sup> Although these services provided communications links that could be used for government services such as health and administration, they did not provide access to community residents for intra-or inter-community calling. The potential revenues that could be generated by local exchanges in the more remote communities in CNT's territory were not sufficient to cover costs. Consequently, development of exchange service was delayed.

The following tables indicate the extent of the disparity in basic telecommunications services that continues to exist in the Yukon and western Northwest Territories. Table 1 shows that the total number of telephones per 100 population in the territory served by CNT is substantially less than the Canadian average. Table 2 demonstrates that in the case of the Yukon Territory, service levels compare reasonable well with national standards. However, when Whitehorse is excluded the extent of the disparity becomes more apparent. Table 2 also indicates that service levels in the western Northwest Territories do not compare well with Canadian averages. Table 3 provides a comparison of residence mainstations per 100 households. Neither territory has access to basic telecommunications services at the same level as the rest of Canada.

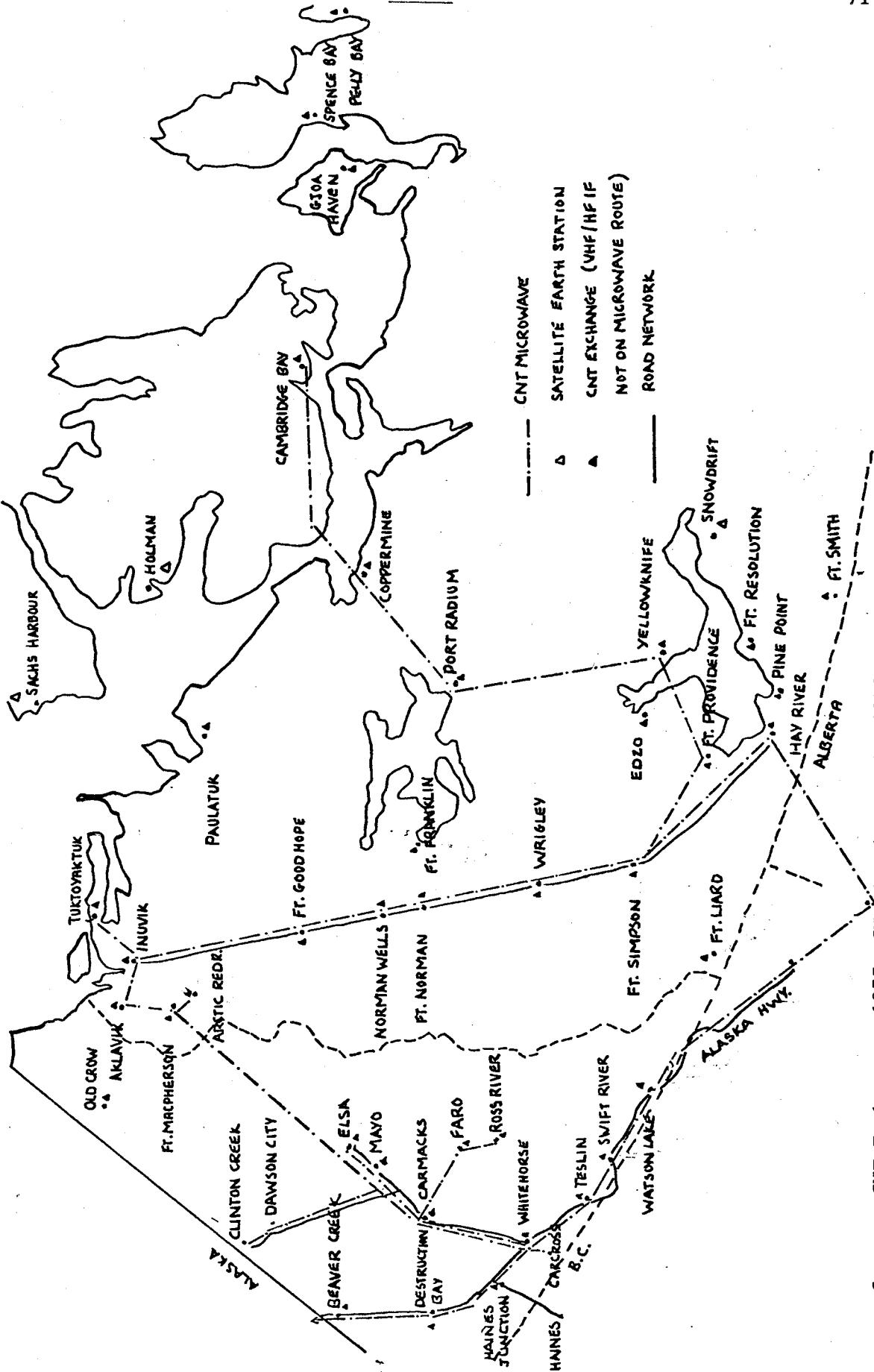
There are eleven communities in the western Northwest Territories ranging in population size from 50 to 150 that have access to CNT's VHF/HF mobile radio service or single side band radio only. These are communities where the economic base is predominately hunting, fishing, trapping, and cooperative community ventures. They are not located in areas where mineral,

oil and gas resources have been discovered or are likely to be exploited. In addition, there are approximately 30 smaller locations for which no population statistics were available, that are served by CNT's VHF/HF mobile radio services.<sup>20</sup>

In the Yukon Territory, although telecommunications services are generally classified as adequate, the figures provided here indicate that they do not always compare well with national standards. In addition, there are approximately 25 communities ranging in population size from 11 to 79 where basic telecommunications services are provided by VHF/HF mobile radio services and/or exchanges in nearby communities, i.e., residents are charged additional mileage charges.<sup>21</sup>

YUKON TERRITORY AND DISTRICT OF MACKENZIE, NWT: Local Exchanges and Microwave Systems

MAP 1



Source: CNT Exchanges, 1977; CNT in the North, 1970.

Table 1

## TELEPHONE DENSITY: CNT Operating Territory Compared to Canada Average

Year	Number of Telephones per 100 Population CNT *	Number of Telephones per 100 Population Canada
1973	33.5	52.3
1974	38.4	55.0
1975	39.5	57.2
1976	42.7	59.5
1977	45.2	61.8
1978	48.3	64.1

Source: Canadian Telecommunications Carriers Association, Telephone Development in Canada, 1978; CNT Operating Statistics, 1978.

\* Includes N.E. British Columbia, Yukon Territory and western Northwest Territories.

Table 2

## TELEPHONE DENSITY: Yukon Territory and Western Northwest Territories

Region	Total Telephones per 100 Population	Total Telephones (Excluding White- horse & Yellowknife) per 100 Population	Total Mainstations per 100 Population	Total Mainstations (Excluding White- horse & Yellowknife) per 100 Population
Yukon Territory	61.1	53.2	38.9	37.1
Western North- west Territory	48.9	36.8	30.0	22.1
Canada	61.8	-	-	-

Source: Canadian Telecommunications Carriers Association, Telephone Development in Canada, 1978;  
 CNT Operating Statistics, 1977; Research Institute of Northern Canada, Canada North  
 Almanac, 1977, Population figures in western Northwest Territories estimated.

Table 3

RESIDENCE MAINSTATIONS: Canada, Yukon and western Northwest Territories per 100 Households  
1977

	Canada	Yukon Territory	Northwest Territories
Households	7,567,345	7,315	11,534
Residence Mainstations	7,015,667	5,421	6,686
Residence Mainstations/ 100 Households	92.7	74.1	57.9

Source: CNT Operating Statistics, 1977; Statistics Canada Bulletin No. 92-82, 1976, Table 2.

The prevailing attitude of the Canadian federal government has been that, as a crown corporation, CNT's policies would correspond to the 'public interest'. No special arrangements were made for regulation of its activities in the Northwest at either the federal or territorial level. Direct regulatory supervision was largely absent until 1971. Although the Canadian National Railway System (CNR) was regulated by the Board of Transport Commissioners, its rates and CNT's northwest division profitability were not subject to separate review. Unlike other federally chartered telecommunications carriers, it seems to have been considered that sufficient protection of the 'public interest' was accomplished through the accountability to Parliament of the CNR System as a crown corporation. When CNT's development planning failed to be consistent with government policy, subsidies were implemented to provide the necessary capital for system upgrading and expansion. The Canadian government's failure to consider alternative methods of ensuring that telecommunication development in the Northwest would be responsive to varied needs and requirements within the north at this time is consistent with priorities established within the broader policy context.

#### 4. Shifts in Canadian Northern Economic Development Priorities

From the late fifties until 1968, although economic development in the north was encouraged and facilitated by government investment in infrastructure services, there was little overall planning and coordination of policies or programmes. Investment priorities were determined on the basis of isolated situations where costs rendered resource extraction economical and profitable. An Advisory Committee on Northern Development (ACND) had been established in 1948 with a mandate to coordinate federal government activities. Its failure was reflected in a speech by the Commissioner of



the Yukon Territory in 1967:

Decisions were fragmented among a host of jurisdictions and were made on an ad hoc basis, responding to a broad range of issues affecting the individual departments. No overall objectives and priorities were established; there was no explicit framework of development in the North. 22

Dosman has argued that the policy formulation process did not reflect an attempt to integrate all aspects of Northern development issues until after the discovery of oil and gas reserves in Alaska (1968).<sup>23</sup> He argues that at this point the Canadian government was unprepared to meet the onslaught of industrial activity that these discoveries precipitated. Policy and northern planning had failed to clearly define the 'national interest' or the role of the Canadian government in protecting that interest.

Subsequently policy statements began to reflect the government's attention to a broader range of social, economic and political issues related to northern development than had been the case before 1968. In 1971, the Department of Indian Affairs and Northern Development and the ACND were instructed by Cabinet to examine and report on a means of introducing "improved arrangements for joint planning and coordination of all policies including joint consideration of their financial implications."<sup>24</sup> The success of all government programmes and policies in the North was to be measured in terms of their attainment of northern policy objectives.

The government's policy statement relating to the future direction of northern development was merely a statement of objectives without definition of how they should be implemented. "Canada's North: 1970-1980" announced that federal priorities in the North would be re-ordered:

The government affirmed that the needs of people in the North are more important than resource development...that on social grounds the government will continue to provide community infrastructure and services. 25

The statement called for coordination of all levels of government departments and agencies concerned with Northern development.

There was new evidence of a planned northern development programme at least in terms of statements of policy. But despite the priority placed on the interests of the people in the north, there continued to be an implicit assumption that encouragement of oil and gas development would solve the recognized social, economic and political problems pertaining to all facets of northern development. A key assumption implicit in the position paper was that socio-economic benefits of resource development would be automatically received by southerners and northerners alike.

The government's role as a facilitator in implementing policy objectives continued to be recognized. This role had been described by the Minister for the Department of Indian Affairs and Northern Development as including a responsibility for providing subsidies to implement policy objectives.

While it is important for industry to respond to the social and economic objectives of society, it is equally important for government to establish those objectives and to set out the ground rules that will govern their achievement...These ground rules should make clear the nature and degree of support and assistance that can be made available. A very obvious role for government is in the provision of infrastructure. 26

The "ground rules", were not established. Nor is it likely that clearly defined criteria could be used to determine the extent of government financial intervention in the development process.

Communications services were listed among programmes necessary to implement social objectives:

Strengthen communications links (telephone, data, radio, live television for education and entertainment) among communities in the North and between the people of the North and fellow Canadians in the South. 27

In terms of policy statements the role of telecommunications in the north was perceived to have changed. A priority was to be given to the development of a telecommunications system responsive to the needs of northern residents in remote and less isolated areas, not solely the requirements of business, industry, and government located in the north. However, the evidence presented in Chapter VII will suggest that the process of allocating financial resources or subsidies required to implement these emerging telecommunications policy objectives did not shift to reflect the same set of priorities to the degree necessary for full implementation of policy objectives.

B. Federal and State Development Policy in Relation to  
Alaskan Telecommunications Development

1. Alaska Economic Development Priorities

The priority placed on telecommunication policy formulation and implementation in Alaska has also been closely tied to Alaskan economic expansion and political development. As in Northwest Canada, the policy context can be shown to have affected decision-making concerning telecommunications policy formulation and implementation. In delegating responsibility for the development of a statewide long distance telecommunication system in Alaska to a privately-owned carrier, the need to ensure

development in 'uneconomic' areas was continually stressed.

From the point of view of representatives of the State of Alaska, the need for telecommunications services for all Alaskan residents was given a high priority. It should be emphasized that consideration as to the future of the Alaskan telecommunications industry occurred in the 1960's. The State government had emerged as a relatively powerful advocate of its own interests in policy areas related to economic development and it was to be expected that this role would carry over into telecommunications development and planning.

The early stages of development in Alaska hinged on its resource potential and strategic military significance. Policy formulation was dominated by the federal government. Before Statehood in 1959, Alaska's economic and political structure has been described as "colonial".<sup>28</sup> The resource and administrative policies for the territory were developed and implemented by the federal government. There was a close resemblance between the political and economic distribution of authority which continues to exist in the Yukon and Northwest Territories today.

Before World War II, the Alaskan economy was based on exploitation of furs, salmon and gold by external southern interests. Few attempts were made to develop local economies beyond the level required to support primary resource extraction. The resource development policy has been characterized as having been:

Made in piecemeal fashion through a series of accommodations by remote federal officials and absentee private interests...There was little decentralization of authority from Washington to federal officials in the territory. 29

A Territorial Legislature was created in 1912 to carry out administrative duties in Alaska, but the government had no authority over fishing, wildlife, taxation, or land legislation. Although departments were created to oversee various sectors and 'independent' executive officials were elected, authority was undermined and fragmented by isolation from participation in the decision process carried out by the federally appointed governor.

The advent of World War II resulted in increased military spending which Morehouse argues initiated a transformation in the State's economy.<sup>30</sup> The increased population, together with a renewed interest in resource exploitation provided the impetus for a statehood movement which culminated in the Alaska Statehood Act of 1959.

Delegation of power to the new State administration did not result in immediate attention to the broad range of issues related to economic development. The State's resource policy was enshrined in the constitution:

It is the policy of the State to encourage the settlement of its lands and the development of its resources by making them available for maximum use consistent with the public interest. 31

However, the process of resolving which 'public interest', i.e., native, environmentalist, government/multinational, would take priority in defining the direction of economic development, combined with a series of administrative financial crises stemming from the costs of administrative responsibilities that were transferred from federal jurisdiction, prolonged implementation of economic development policies.

Throughout the 1960's, a large portion of the responsibility for economic planning for Alaska continued to be located outside the State. A

Committee for development and planning was created in 1964 "for the purpose of developing long range plans and programs in cooperation with the State government for the general economic development of Alaska."<sup>32</sup> Although one of its recommendations was that the State should receive 90% of the revenues from federal oil and mineral lease sales, rentals and royalties, few of these benefits were forthcoming in the sixties. The federal government placed a freeze on the use of the majority of land pending the resolution of Alaska Native Land Claims and implementation of Environmental Protection legislation. This effectively prevented the State from pursuing its own development policies and prolonged its ability to reap the financial benefits. The federal government's role as arbitrator and regulator appears to have resulted in its de facto takeover of major decisions affecting the development process in Alaska. However, this did not preclude the State government from pursuing an active role in the policy process.

The burst of activity precipitated by the discovery of extensive oil reserves on the North Slope of Alaska in 1968 focused federal attention on all aspects of development planning. The approach to development policy in Alaska in this period has been rather floridly characterized by Roger:

Alaska sometimes appears today as a battle-ground between the giants of technological exhibitionism and conservation. The old apostles of unlimited progress and those of the new gospel of survival through limited growth in their contemporary struggle for the mind and spirit of the Nation. This undoubtedly is a passing phenomenon, but the passing has left its mark in the form of a critical re-evaluation of the goals of Alaskan development and their broadening to include more than simple economic objectives. 33

The shift in perspective indicated in the above quotation suggests that at the level of policy formulation related to economic development in Alaska,

there was increasing attention to issues from a much broader perspective than that required to assess only the short term economic viability of resource development projects. According to statements of policy, socio-political objectives would begin to serve as justifiable criteria for decision-making and the allocation of financial resources for policy implementation.

## 2. Restructuring Telecommunications in Alaska

Attempts were made to ensure that the restructured telecommunications industry would have an incentive to implement telecommunications policy objectives that had been expressed by the federal and State governments. In contrast to the changes that took place in Canada, the American governments relied on a private investor-owned telecommunications carrier, the regulatory process, and legislative controls as a means of telecommunications policy implementation. Financial intervention in the form of State or federal subsidies was not viewed as a primary means of policy implementation. However, it was recognized that subsidies would be necessary in order to implement policy objectives.

The separation of long distance telecommunications facilities for commercial operation from the long established Alaska Communications System (ACS) occurred in 1970. Unlike the transfer in 1958 that occurred in Canada, the change was implemented with parallel changes in government institutional arrangements. These were intended to ensure that the selected private carrier would be responsive to Alaska's requirements for telecommunications development.

In the negotiations at several government levels one of the key concerns was:

To ensure that Alascom (or the selected carrier) will act in its own interests as an entity separate and apart from its corporate parent, effective regulation on an ongoing basis by the Alaska Public Utilities Commission and the Federal Communications Commission should then be possible. 34

The events leading to the sale of the ACS to the RCA Globcom Corporation (1970) were accompanied by statements as to policy and objectives that were later incorporated as conditions of the sale. The problematic nature of telecommunications development in Alaska, where many locations could not be expected to be sufficiently economically viable to attract a private investor-owned company, was discussed by Committees of the United States Senate and House of Representatives and the regulatory commissions with jurisdiction over communication in Alaska. Questions were raised as to the locus of responsibility for, and the extent of subsidy required to ensure the development of an adequate statewide telecommunications system. However, an affective means of resolving these questions was not then and has yet to be found.

When the demand for a commercial telecommunications system began to outstrip the capacity of the military network, the Department of Defense initiated legislation to govern the sale of the ACS. Extensive hearings preceded the enactment of the "Alaska Communications Disposal Act". (1967).<sup>35</sup> Among the points raised for discussion during the proceedings were the terms and conditions of the sale. The contract was to incorporate policies that would promote the further development of a statewide system.

Significant attention was given to a condition requiring a carrier to provide telecommunications services in remote and thinly scattered areas.



We are imposing a requirement for commercial operation over some facilities where the volume of commercial business will be very small indeed. 36

The question as to how services to unprofitable communities, i.e., those communities incapable of generating sufficient revenues to cover their allocated costs, would be subsidized, was raised again in the House consideration of the Bill. Had a clear answer been found at this time, the difficulties encountered in the ensuing years when Alascom became intransigent on many issues related to remote telecommunications service expansion might have been avoided.

To what extent should the rate structure throughout the State cause heavily populated areas to absorb costs of services to the remote rural areas?...To what extent and in what way does the State government intend to participate in determination of local charges to be included in the total costs, and thus the rates, of any private long lines operation? 37

The resolution of the problem was left open to misinterpretation. Alascom has since argued that:

The testimony (Senate and House) clearly establishes that the federal policy goal was to bring Alaska into meaningful participation in the nationwide telephone system...coloured by frank recognition that some government support would almost certainly be needed even under private ownership. 38 [my emphasis]

However, at the time that the institutional arrangements for provision of commercial telecommunications facilities in Alaska were under consideration, the American government's preparedness to implement a subsidy for service development in remote locations in Alaska was limited to ensuring

that a private carrier would continue to provide commercial long lines service "at least to the same extent the Department of the Air Force provides such service today."<sup>39</sup> There appears to have been no discussion at the time as to the role of existing federal agencies such as the Rural Electrification Administration which had provided financial assistance for rural telecommunications development in the Lower 48 States. Instead, discussion centred on whether the military would be charged user charges of sufficient magnitude to continue maintenance of existing facilities in remote and rural locations.

Evidence is provided in Chapter VIII which indicates that the Rural Electrification Administration had become involved in Alaska only to a limited extent by the late 1960's. Several local independent telephone companies had received assistance in the form of low interest loans that provided capital for specific investment in expansion projects. However, there was little indication of any long-term interest by the federal agency in providing the subsidized capital required to promote the development of an expanding statewide telecommunications system in Alaska. Where the need for subsidies for telecommunications development in Alaska was considered, it was restricted to maintenance of existing service levels. A commitment to implement telecommunications policy objectives on the part of the federal government existed primarily in the form of a recognition of financial need. It did not extend to a practical consideration of the means of ensuring that funds would be available to subsidize the costs of telecommunications development in Alaska.

The American government's commitment to statewide telecommunications development in Alaska appears to have been expanded with the sale of the ACS to the RCA Alaska Corporation (Alascom) in 1969.

After a competitive bidding procedure, Alascom was selected to purchase the ACS. The government's decision was based on criteria that assessed the viability of the competitors' commitments to upgrade services and undertake expansion that would integrate all Alaska communities into the statewide telecommunications network. The contract for the sale included a commitment from Alascom to provide new and improved service to 142 remote communities within three years. Federal Communications Commission (FCC) approval of the transfer was granted in 1970<sup>40</sup>, as was the Alaska Public Utilities Commission (APUC)'s approval.<sup>41</sup>

Regulatory authority was not expected to be limited to the traditional confines of rate regulation. The APUC Order stated that:

The Commission...will condition the grant of authority upon compliance by RCA Alascom with such requests for information and such orders and the Commission may make from time to time designed to make sure that an opportunity for review of plans for improvement and expansion is afforded before capital funds are committed.

The purpose in effect of conditions imposed by this order are to insure an opportunity for regulatory review of management decisions. 42

The assumption implicit in this order was that the regulatory process would be sufficiently effective in influencing the performance of not only Alascom, but also the local carriers in Alaska and the carriers operating in the Lower 48 States, to ensure that policy objectives would be implemented. Regardless of the fact that the performance of the telecommunications industry in the Lower 48 States had failed to generate sufficient revenues to provide incentives for telecommunications development in rural areas of the Lower 48 States, the matter of direct subsidies from government sources was not addressed as integral to the problem of implementing policy objectives in

Alaska.

3. RCA Alaska Communications Inc. and Local Exchange Companies:  
Service Development

After its takeover of long distance telecommunications in Alaska, Alascom undertook a major expansion programme, increasing long distance capacity in the State. Satellite facilities were introduced in conjunction with existing terrestrial facilities to upgrade inter- and intra-state long distance services.

Alascom's growth rate and expansion policies between 1970 and the present fulfilled the letter, if not the intent of the obligations in the sale contract. However, if the intent of the contract was to ensure that the benefits of increased technical capacity would be distributed throughout the State, Alascom demonstrated a reluctance to ensure that the State's development plans were implemented. For example, in the contract Alascom had agreed "to provide new and improved service to 142 remote communities in Alaska within three years of the transfer date."<sup>43</sup> It failed to provide these services until the initial costs were met by financing from the State government.

The unique separation between carriers providing local and long distance services in Alaska can be attributed to the prolonged duration of control by the military over the communications long distance facilities in the State. Economic change and growth throughout Alaska in the 1950's and sixties resulted in increasing demand by business and industry for telecommunications capability. The continued presence of the military and its ownership of the ACS effectively precluded the entry of private carriers to serve the market on a monopoly basis. Thus, the traditional monopoly

structure, i.e., local and toll service within a franchise area, did not materialize.

Independent private/cooperative carriers provided local exchange service in larger communities on a sporadic basis. The pattern of development that took place simultaneously in Northwest Canada where financially unstable local carriers were amalgamated with the long distance carrier could not have been considered until the negotiations for sale of the military system were completed.

Whereas in Canada, local service was in its initial stages of development at the time of re-organization in the late 1950's, the demand for local exchange service in Alaska by the late 1960's had engendered a number of well established independent carriers with substantial investment in local exchange facilities. The opportunity for establishing a monopoly over all telecommunications services in the State was effectively precluded. Telecommunications development at the local service level is discussed in terms of the institutional arrangements and the implications for growth and expansion in Chapter V.

Tables 4 and 5 indicate that despite the growth of the telecommunications industry in Alaska a severe disparity in basic telecommunications services available particularly in rural areas continues to exist. The magnitude of the disparity in service levels throughout Alaska and between Alaska and the Lower 48 States is indicated in Table 4. Alaska has the lowest telephone penetration ratio of the 50 States. In 1977, the number of residence mainstations per 100 households in the United States was 96, in Alaska, 76. The disparity is more pronounced in rural areas. The relationship is then 92 rural residence mainstations per 100 households to 43 in rural Alaska. The level of service in Alaska rural communities is indicated in Table 5. It

shows that 40.4% of these communities have no access to basic telecommunications service, and only 21.5% of rural communities or 46% of the rural population has access to telephone exchange service. Map 2 demonstrates the geographic isolation of many of these communities. Those with inadequate telecommunications services also tend to be isolated in terms of transportation by road, sea and air.

Table 4

## ALASKA AND U.S. AVERAGE PENETRATION OF RESIDENCE MAINSTATIONS

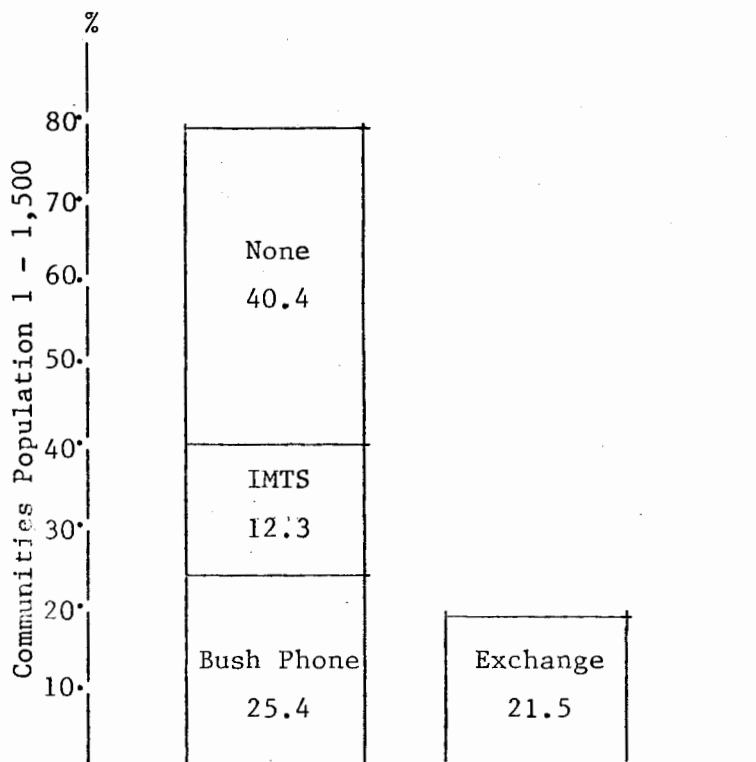
United States	Residence Mainstations per 100 Households	Rural Residence Mainstations per 100 Rural Households
1950	62	38
1955	72	50
1960	79	67
1965	85	80
1970	92	
1975	94	90
1977	96	92
Alaska	76	43

Source: REA Statistics in Option Papers of House Subcommittee on Communications, May 1977, p.354; Independent Telephone Statistics, USITA, vol. 1, 1978.

Note: Rural Households are cities, villages or boroughs with population less than 1,500 as defined by the "Rural Electrification Act of 1936", Title I, section 13.

Table 5

## DISTRIBUTION OF TYPE OF TELECOMMUNICATIONS SERVICE: Rural Alaska Communities

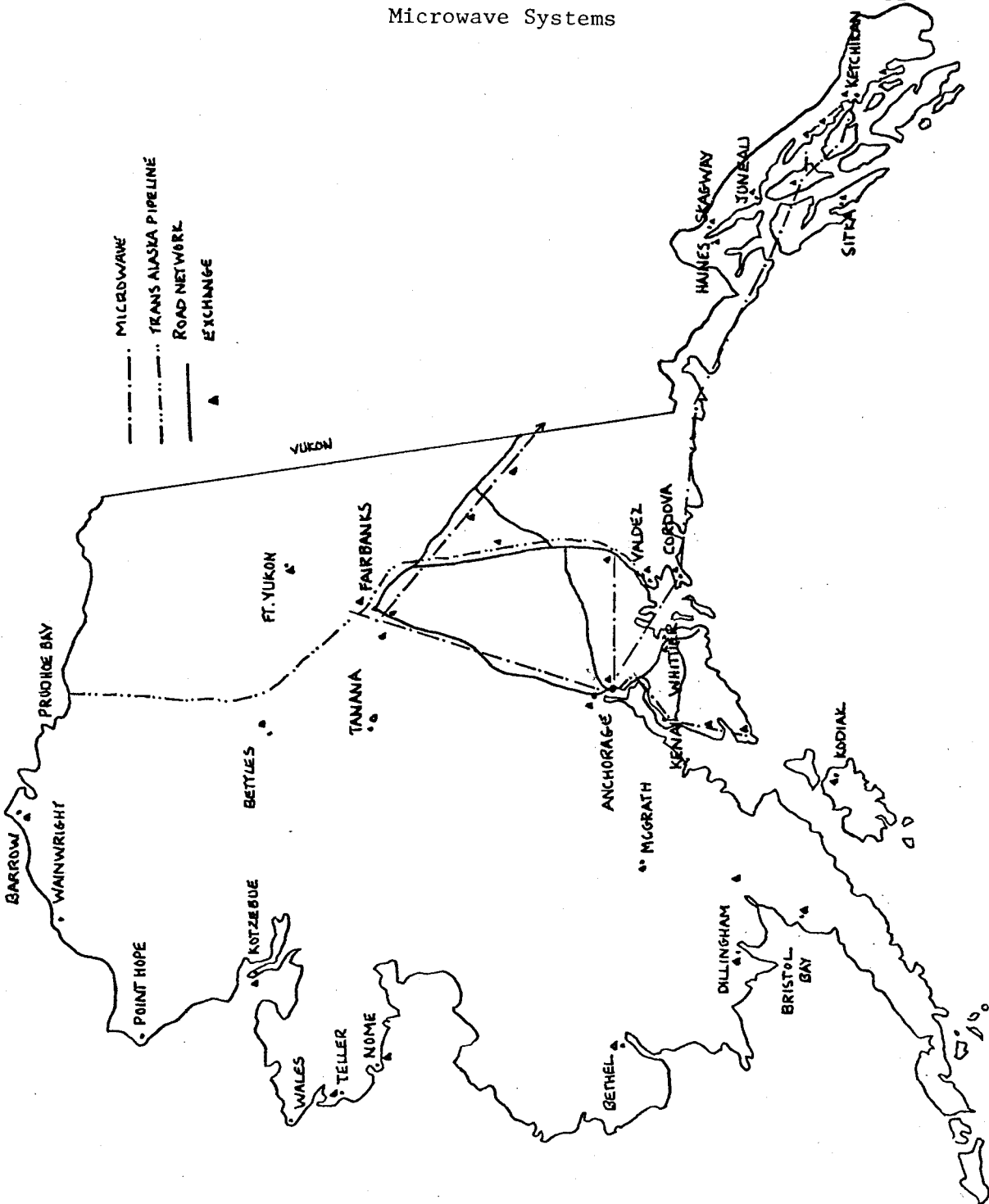


Note: Represents 331 communities or 16% of total Alaska population. 84% of Alaska's population is located in 21 communities, population over 1,500, all have access to exchange service.

Source: Comments of the State of Alaska before Federal State Joint Board, Docket 21263, February 5, 1979.



ALASKA: COMMUNITIES SERVED BY LOCAL EXCHANGE CARRIERS - Location of Microwave Systems



Source: RCA Satellite Communications Transmission Plan, 1976; APUC Tariffs, 1977.

Note: 102 small earth stations in 6 regions, 85 Bush phones (54 applications for exchange service), 15 with exchanges.

### C. Analysis

Changes in the economic and political importance of Northwest Canada and Alaska and changes in institutional arrangements to promote telecommunications demonstrate the link between telecommunications and its role as an integral part of the broader development process. However, descriptions of the development processes indicate differences in both policy objectives and the means of policy implementation adopted by the respective governments. These differences are apparent in two ways. First, the governments' role in promoting telecommunications development and their definition of the role of telecommunications in the wider development process differ. Second, the institutional arrangements established as a means of implementing policy objectives reflect the traditionally different emphasis placed on particular modes of government intervention in economic activities in the United States and Canada.

The Canadian government's interest in developing and financially supporting a commercial telecommunications network in the Northwest was directly linked to its re-awakening interest in the North in the late 1950's. Changing economic factors in world markets made it possible for the government to consider ways of attracting industry to tap the mineral wealth of the Territories. The prospect of royalties that would accrue to the federal government provided sufficient incentive for investment in infrastructural services. The federal government had retained the right to attempt to collect royalties from industrial developers engaged in the exploitation of natural resources located in the Territories. The policies and objectives that resulted in transportation and power developments during this period were intended to enhance the attractiveness of the north for investment by foreign (U.S. based) exploration and production companies. The significance of telecommunications in promoting national northern development objectives

was not overlooked.

With little effective opposition from Territorial residents or the Territorial Governments which were dominated by the federal government, the federal government instituted telecommunications structural arrangements conducive to its policy objectives. A crown corporation, with decision-making authority located in the south would theoretically be receptive to pressures to undertake telecommunications development projects that would ordinarily fail to meet traditional criteria for economic viability. Economic criteria could be moderated to take into account the government's development priorities. A crown corporation would also have access to lower interest capital to cover expansion costs than would be available to a privately-owned carrier. If corporate policy determined that the risks involved in undertaking development projects were unreasonable, a crown corporation could be expected to be more amenable to undertaking ventures jointly financed by the government.

Thus, in Canada, the reduced importance of telecommunications to meet national defense objectives after World War II was replaced by economic development priorities. In the 1960's, telecommunications links between industrial sites in the north and between regional centres and the south were regarded as necessary to encourage and promote resource development by privately-owned American-based multinationals. The historical tradition of government subsidies for services linked to economic development to be carried out largely for the benefit of non-Canadians was once again in evidence in the North. Insufficient revenues and a lack of private-investor interest did not prevent the Canadian government from ensuring that north-south communications links were maintained. A mode of communication was once again defined as a tool or catalyst for promoting economic development

objectives defined by the federal government and non-Canadian interests.

However, by the late 1960's, the stated public policy objectives of the Canadian federal government concerning northern development began to shift. The government's stated policy position began to reflect concern not only for economic industrial development in the Northwest, but for social, cultural and political development. The role defined for telecommunications was broadened accordingly, but the institutional structural arrangements remained unchanged. Industry priorities and decision-making would not be conducive to costly communications policy implementation where long-term revenue projections could not demonstrate that the revenues generated by services could cover the costs.

The telecommunications development process in Alaska suggests that its role in the development process was conceived in response to a combination of political and economic priorities that emerged at federal and State government levels. A commercial telecommunications network was regarded as an integral aspect of the political, economic, social and cultural development process of the State. Policy statements reflected a concern for a multi-faceted development process which would be facilitated by the telecommunications network designed to serve government, industry, and the needs of residents throughout the State. The telecommunications development process was expected to replicate the process that had taken place in the Lower 48 States, requiring subsidies in the same form and extent.

Though the economic problem of providing communications facilities in Alaska was viewed as more severe than the one encountered in rural areas of the Lower 48 States, services were expected to be provided within a similar institutional framework. With a less strong historical tradition condoning government ownership of utility services, the American governments were

unconvinced that there was reasonable justification for government ownership of the telecommunications industry in Alaska despite the exceptional circumstances. National communications policy objectives were to be implemented through regulatory controls over private carriers. Subsidies from government sources, when they became available, were not part of a comprehensive plan to promote statewide telecommunications development.

Continuing extensive federal involvement in telecommunications in Alaska was justified only when associated with national defense objectives. Extensive involvement of the government in a commercial telecommunications system designed to support economic and political growth and development was unacceptable to the American governments and to the telecommunications industry. Thus, the development of a commercial long-distance telecommunications network in Alaska could begin only after the economic and political growth of the State could generate revenues sufficient to attract private investors. Local telecommunications services were feasible where a large centralized population produced revenues and in several smaller communities where cooperative ownership and a non-profit organization contributed to the economic viability of smaller systems.

Superficially it seems that the transfer of the long distance telecommunications facilities was accompanied by sufficient conditions that the future development of adequate telecommunications service through Alaska was virtually guaranteed. But despite the existence of legally binding contractual agreements and relatively broad regulatory powers, numerous communities in Alaska remained without adequate service. An understanding of some of the reasons for the slow development of telecommunications in these areas lies in an analysis of government (federal/state)/industry and inter-industry relationships as they affect the government's ability to

intervene and to subsidize the telecommunications development process.

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## CHAPTER V

TELECOMMUNICATIONS CARRIER STRUCTURE:  
IMPLICATIONS FOR DEVELOPMENT OF TELECOMMUNICATIONS IN  
NORTHWEST CANADA AND ALASKA

The structural and organizational characteristics of the telecommunications carriers that operate in Northwest Canada and Alaska are described in this chapter. The emphasis is on those aspects which have a bearing on the criteria that serve as the basis for investment decisions. In the previous chapter some of the policy objectives, both explicit and implicit, that were to have been promoted by the structural reorganization of the telecommunications industry in Northwest Canada in the late 1950's and in Alaska in the late 1960's were discussed. In both cases, concerns were expressed to the effect that the carriers must implement 'national' telecommunications objectives in northern areas. However, these objectives were not necessarily coincident with stated national telecommunications policy.

A closer examination of corporate structure and the system of incentives which emerged during this period reveals that neither Canadian National Telecommunications (CNT) nor RCA Alaska Communications Inc. (Alascom) were structured in a way that was conducive to implementing national telecommunications policy throughout their service areas. Although the carriers differ in terms of corporate structure, both have incentives to realize profit levels that at least cover their costs of capital. Industry decisions as to the appropriate allocation of financial resources reflect this objective and tend to restrict development activity in high cost areas. The carriers are therefore less likely to engage in telecommunications development where some form of extensive subsidies are required. This point is made clear through an

analysis of corporate structure and industry policy statements that indicates that in carrying out planning and expansion of telecommunications services, this objective is given a high priority.

A. The Telecommunications Industry in Northwest Canada

1. The Canadian National Railways System

The original Canadian National Telegraph Company (CNT) was formed in 1920 with the amalgamation of the Great Northwestern Telegraph Company (a subsidiary of Western Union) and the telegraph systems operated by the Canadian National and Grand Trunk Pacific Railways.<sup>1</sup> In 1923, CNT became an operating unit of the Canadian National Railways System (CNR).<sup>2</sup> CNT was charged with maintenance and operation of the CNR's railway communications requirements and commercial systems which at that time included only public message or telegraph services.

The CNR System is owned by the Canadian Government. The government holds the equity portion of CNR assets and all capital stock is issued to the Minister of Finance. The CNR System is structured like a privately-owned corporation with a debt-equity ratio and since 1977 has competed with other industries for debt financing. As a crown corporation it is intended to operate at 'arms-length' from government direction and reports to Parliament through the Minister of Transport.<sup>3</sup>

Under the Financial Administration Act, the CNR is classified as a proprietary crown corporation. Other corporations in this category include Air Canada, Central Mortgage and Housing Corporation, Polymar and the Northern Transportation Company. They are "ordinarily required to conduct operations without appropriations."<sup>4</sup> The interpretation and application of this clause has changed with the fiscal policies of successive federal

governments. Because the CNR Act requires that the Rail division of the CNR System operate services along routes and at tariffs which are non-compensatory, the corporation has long been the recipient of direct subsidies. The federal government has repeatedly instituted recapitalization schemes to reduce debt and interest payments, required direct payments to compensate for operating losses from the Treasury Board, and purchased stocks and shares in the Company. However, the CNR System is comprised of seventy-three companies, the majority of which are related to business associated with transportation services. Not all of these divisions have been treated in the above manner.

The CNR Act sets out the terms and conditions for the corporation's operation. The government's policy, that the CNR operate as a "commercial entity", was incorporated into this Act. The guiding principle was adopted on the basis of a Royal Commission Inquiry recommendation in 1919 that stated:

The whole of the Dominion railways be operated by the Trustees as one united system, on a commercial basis, under their own politically undisturbed management on account of, and for the benefit of, the people of Canada. 5

This position has undergone re-examination by numerous Royal Commissions and has re-emerged in more recent government policy statements in remarkably the same form.

Since the formation of the Canadian National Railway in 1919, there has been a continuing dialogue in Canada concerning the appropriate role of the Company. Although it has generally been conceded that the Railway should operate on a commercial basis, in fact the impression has persisted that the Canadian National should be used as an instrument of public policy even at the expense of its commercial performance. It is the view of the government that CN should make every attempt to conduct its affairs

with a commercial attitude and in a commercial manner.

Indeed, the government recognizes that the operation of Canadian National, on a normal commercial basis, facilitates a fair and accurate assessment of Company performance and provides management with unambiguous criteria for decision-making. 6

According to public policy statements, the CNR is expected to conduct its business operations according to similar guidelines that would be followed by a private investor-owned company.

The federal government's rationale and justification for its treatment of the CNR is related to the complexities of the history of changes in fiscal policy and the importance of transportation that has been linked to national economic policy objectives. In this study the concern is with the implications of the government's treatment of the CNR as it affects the performance of one of its subsidiaries, CNT. At one level, the rationale underlying the government's position is that the nature of the CNR's business requires it to operate on a competitive basis with the private sector. It should, therefore, attempt to emulate private sector business practices in order both to protect the competitive position of private sector companies and to reduce the dependence of the corporation on public financial assistance. The majority of the CNR's business is carried out in competition with either the Canadian Pacific Railway (CPR) in the transportation sector or the Trans Canada Telephone System (TCTS) in the telecommunications sector. Therefore, it does not fall into the category of publically-owned and operated enterprises that are intended to be direct agents or instruments of government policy. This is true in the sense that it is not legally intended to operate at a loss or at cost in order to subsidize implementation of trans-

portation or telecommunications policy objectives.

In recent years the federal government has demonstrated an increasing reluctance to continue supporting the non-profitable operations of the CNR System by 'acquiescing' to the increasingly strong commitment of the Corporation's (government appointed) Board of Directors to business practices that parallel those followed by the private sector. The current (1979) Chief Executive Officer and President of the CNR System is Robert Brandeen. He has been quoted as placing emphasis on efficiency as the only means of ensuring the viability of Canadian transportation systems. The CNR System should be run as if it were a private company without allowances for decisions based on 'social obligations'. He has stated that:

Canada is so dependent on transport that it cannot have an inefficient system. If you remove the profit motivation, you will have an inefficient system. And in a country the size of Canada, the losses would be devastating. 7

In the opinion of the CNR President, any services that experience losses, i.e., The Newfoundland railway, Montreal Commuter services, should be paid for directly by someone other than the CNR, presumably through direct government subsidies and user charges. "These are seen as social obligations by some, as albatrosses by CN."<sup>8</sup>

The CNR's operations are divided into "semi-autonomous, profit divisions."<sup>9</sup> Aside from CNT, these include CN Rail, the Grand Trunk Corporation, CN Trucking and CN Express, CN Passenger, CN Hotels and Tower, and CN Marine. CN Rail operates the largest railway in Canada. Table 6 indicates that on the basis of operating income, CN Rail is by far the largest operating division. The Grand Trunk Corporation is a wholly-owned subsidiary operating

three railways in the United States. This company, together with CNT comprise the other two largest profit divisions of the CNR System. CN Trucking operations are conducted throughout Canada. The majority of these are common carrier transportation companies. CN Express operates throughout Canada transporting small packages and experienced losses in the last two years. CN Passenger service provides commuter service in Montreal and Toronto. In 1977, VIA Rail Canada was formed as a subsidiary of the CNR System and in 1978 the government purchased all VIA shares creating a separate corporation to provide trans-Canada rail passenger services. In 1976-77, this division experienced losses but the CNR will no longer be expected to be responsible for this unprofitable service. CN Marine operates ferry and coastal vessel services in the Atlantic provinces. These services have been designated as 'essential' by the federal government and operating expenses are met by a combination of government subsidies and user fares. This is the only service in the CNR System, aside from certain rail lines, that has been specifically designated as essential, regardless of its profitability, and therefore eligible for continuing direct government subsidies.



Table 6

CANADIAN NATIONAL RAILWAY SYSTEM DIVISIONS:  
Revenues, Expenses, Operating Income: 1974, 1977  
(million)

Division	1974			1977		
	Revenues	Expenses	Operating Income <sup>1/</sup>	Revenues	Expenses	Operating Income <sup>1/</sup>
CN Rail	1623.6	1606.8	16.8	1872.8	1673.4	199.4
Grand Trunk	-	-	-	232.2	210.4	28.6
CNT	102.0	84.1	18.2	139.7	115.6	25.2
CN Trucking	68.0	64.2	4.4	72.6	71.9	2.3
CN Express	-	-	-	141.8	175.4	(33.6)
CN Passenger	-	-	-	84.6	295.7	(49.9) <sup>2/</sup>
CN Hotels	73.7	69.3	4.4	87.2	89.5	(2.3)
CN Marine	-	-	-	20.3	114.9	0.0 <sup>3/</sup>
Other	-	-	8.1	-	-	14.2
TOTAL Operating Income			51.9			184.1

Source: CNR System Annual Reports, 1974, 1977; Financial Post Corporation Service Revised, 1978

Note 1/: Operating income includes other income

Note 2/: Includes government payment of \$161.2 million

Note 3/: Includes government subsidy of \$94.6 million

The CNR Corporation is managed by a Board of Directors appointed by the government. Coordination of the CNR operating divisions is carried out by a Board of Management and a Corporate Capital Planning Committee. Management decisions are not intended to be subject to parliamentary debate. Sufficient accountability of the corporation to its public owners is thought to be maintained by the yearly government audit. 'Political interference' in the day-to-day performance of the corporation has been condemned throughout the CNR's history - which is not to suggest that it was not or is not widespread. Recently (1976), the Prime Minister confirmed this policy:

They [crown corporations] should not be managed on a day-to-day basis by the Government even upon representations of the House of Commons. 10

Since the current trends toward efficiency in the CNR System are likely to continue, there would seem to be some argument for designating services that are classified as essential as separate corporations under the Financial Administration Act and initiating long-term agreements to subsidize the costs of providing services in accordance with stated policy objectives. Under the present circumstances services provided by the CNR that are not self-sustaining are likely to become increasingly costly to the user or be curtailed. Or, as is the case with northern telecommunications development, not be upgraded or expanded until there are clear indications that revenues generated by the services will cover their costs.

## 2. Canadian National Telecommunications Ltd.

As one of the CNR's operating divisions, Canadian National Telecommunications' (CNT) management reports directly to the CNR President. Operation and

management decisions are subject to the approval of the Corporate Capital Planning Committee and ultimately to the CNR Board of Directors. Although CNT does not seek its capital financing directly on the open market, the General Manager of CNT has stated that its financial performance is considered an important factor in the CNT's ability to attract new investment.<sup>11</sup> The parent corporation is therefore in a position to approve or 'dictate' CNT's profitability. CNT is expected to operate without experiencing losses in any of its service categories.

CNT's activities cover a range of telecommunications services. It competes with the Trans Canada Telephone System in providing a variety of data services offered jointly with Canadian Pacific Telecommunications (CPT). It offers public message telegraph service on a monopoly basis and all telecommunications facilities required by CN Rail are supplied by the company. Telephone service is provided in Newfoundland and Northwest Canada. Table 6 indicated that CNT has been one of the more profitable of the CNT divisions during the period 1974 to 1977. Table 7 indicates that CNT's profitability has been increasing since 1973. The CNR System President expects that the largest growth centre of the entire system will be CNT in its joint operations with Canadian Pacific Telecommunications in the data transmission market.<sup>12</sup>

Table 7

CANADIAN NATIONAL TELECOMMUNICATIONS OPERATING INCOME  
1973 - 1977  
(million)

	1973	1974	1975	1976	1977
Revenues	92.4	102.0	118.3	125.1	139.7
Expenses	<u>75.7</u>	<u>84.1</u>	<u>96.3</u>	<u>105.6</u>	<u>115.6</u>
Operating Income	16.7	17.9	22.0	19.5	24.1

Source: CNR System Annual Reports, 1973-1977.

Table 8 demonstrates that the telephone services provided by CNT in Newfoundland and the Canadian northwest contribute the third largest percentage of revenues to the divisions operations. This has been gradually increasing between 1973 and 1977 to a point where telephone revenues comprise 20.5% of total CNT revenues. As CNT calculates its costs on a system-wide basis it is not possible to ascertain whether telephone revenues contribute a disproportionate share of revenues to the overall profitability of CNT. For example, depreciation expenses are not directly allocated to specific services. They are absorbed in CNT Administrative accounts. These aggregated costs then are allocated back to the various regions, e.g., Northwest region. These regional costs then are used as a basis for calculating the appropriate rate level to yield a reasonable rate of return for the division of CNT servicing that region.<sup>13</sup>

Table 8

CANADIAN NATIONAL TELECOMMUNICATIONS STATEMENT OF REVENUES  
 BY OPERATING DIVISION: 1973-1977  
 (million)

Revenues	1973	%	1974	%	1975	%	1976	%	1977	%
	Total		Total		Total		Total		<sup>2/</sup> Total	
Telex	26.3	27	30.0	28	33.9	28	36.5	28	40.8	29
Private Wire	42.1	44	43.9	41	47.1	39	48.9	41	53.6	38
Broadband	1.8	2	2.1	2	2.4	1	2.5	2	2.6	2
Infoswitch	-	-	-	-	-	-	-	-	-	-
Telenet	.5	1.4	.8	1.1	1.8	1	2.5	2	2.9	3
Public Message Telegraph	9.0	9	9.5	9	11.6	10	10.3	9	10.8	8
Public Telephone <sub>1/</sub>	<u>16.2</u>	<u>17</u>	<u>19.5</u>	<u>18</u>	<u>22.7</u>	<u>19</u>	<u>24.4</u>	<u>20</u>	<u>29.4</u>	<u>20.5</u>
Total Revenue	95.9		105.7		119.6		125.1		140.2	

Source: CNT Statement CNT-A, CRTC, CNCP Rate Hearing Evidence, 1977

Note 1/ Telephone revenues include private wire, telex and other services provided by CNT in Northwest Canada and Newfoundland.

Note 2/ Estimated.

Although the CNR System is "declared to be for the general advantage of Canada" and is subject to regulation, not all services provided by subsidiary corporations have been similarly affected. In the case of CNT, only those telecommunications services operated on a monopoly basis, i.e., telegraph and telephone have always been regulated. In 1970, federal regulatory jurisdiction was extended to include "private wire" services and for the first time the Canadian Transport Commission had authority to examine the total operations of the telecommunications division.<sup>14</sup> However, being given authority over all CNT operations did not result in immediately increased attention to the nature of CNT's policies and practices. Several problems related to the inpenetrability of CNT's financial position have begun to be resolved by the federal regulatory commission only in recent years. Regulation of CNT's monopoly services was difficult because the financial information relevant to determining a 'reasonable rate-of-return' was inseparable from the operating characteristics of the competitive services.

A continuing source of controversy has concerned the appropriate regulatory standards that should be applied to CNT. As the company has no separate capital structure from its parent corporation and pays no corporate taxes, the argument has centred on the appropriate allowable rate of return that the division should have.

The majority of CNT's telecommunications services are offered on a joint basis with Canadian Pacific Telecommunications (CPT), a subsidiary of the privately-owned Canadian Pacific Railway. CNT has argued that its level of profitability should be compared to CPT and other privately-owned carriers. For example, although crown corporations are expected to earn sufficient revenues to cover interest requirements to cover the costs of debt

financing for construction programmes, administrative, operating costs, etc., CNT has consistently argued that its rate of return or profitability should be judged by standards acceptable for telephone companies owned by private shareholders.<sup>15</sup>

In 1977, CNT devised a means of creating a simulated capital structure for regulatory purposes but the CRTC found the proposals unacceptable. The parent company's practices of system-wide accounting and capital structure have made it difficult for successive regulatory commissions to do much more than 'rubber stamp' CNT's applications for rate increases.<sup>16</sup> The result has been that CNT's activities are probably less subject to investigation than the majority of privately-owned common carriers regulated at the federal level. The reasons for the apparent lack of formal regulatory control over CNT are related to its status as a crown corporation and the traditional ways in which the Canadian government has maintained accountability over these corporate entities. Control is typically exercised through Ministerial reporting procedures rather than the regulatory process. The ramifications of these regulatory problems as they relate to telecommunications service development in Northwest Canada are discussed more thoroughly in Chapter VII.

### 3. Northwest Telecommunications Inc.

CNT's telephone and business communications in the Northwest were operated as a semi-autonomous unit within the larger division until 1978. A recent re-structuring of the CNT management has resulted in the separation of the Newfoundland and Northwest telephone and Canada-wide data communications operations. Each is now incorporated as a separate wholly-owned subsidiary of the CNR System.<sup>17</sup> The northern telephone company was renamed Northwest



Telecommunications Inc. in 1979.

Management decisions of the company are now accountable to the President of the CNR's Telecommunications Division. Until recently, much of the information concerning CNT's northwest division operations was inseparable from the joint activities carried out with CPT. It is not clear exactly what consequences the corporate re-organization will have in terms of the visibility of the company's operating performance. The company believes that the re-organization will allow the public telephone service "to identify more closely with the telephone industry rather than being viewed as a part of the CNCP operation."<sup>18</sup>

However, CNT Northwest clearly does not operate under the same conditions as other private carriers and any attempt to do so will certainly not hasten the improvement of telecommunications services in high cost areas. As a separate subsidiary of the CNR System, CNT will be expected to sustain all its northern services on the basis of revenues collected within this service area. The trend would appear to be to have an increasing proportion of costs borne by users in this area, rather than sharing costs throughout an area with greater variability in high as opposed to low revenue producing centres as is the case for most other carriers in southern Canada.

Despite the considerable arguments for operating according to criteria that reflect special northern conditions, structural reorganization and the separation of monopoly from competitive services, CNT continues to follow the same corporate policies as its parent. In general, CNT's policies reflect the same principles as the larger corporation, i.e., that it perform as a "commercial entity". This policy has been rather vigorously defended leaving the impression that the corporation is aware of pressures to provide adequate service under conditions where social policy objectives take precedence over

cost considerations and industry standards for economic viability.

CNT's objective is to become economically self-supporting:

A self-sustaining communications system is the key to stable expansion of communications in the North, to the creation of an efficient communications system which will be a northern asset, not a financial burden. 19

However, its self-generated capital is inadequate to enable it to be self-sustaining and it competes with the rest of the CNR System divisions for capital funding. Since 1976, when the government ordered the CNR to seek its financial requirements on the competitive markets of Europe, divisions of the corporation have been expected to earn a higher rate of return equivalent to private sector business.<sup>20</sup> This position has been subject to criticism as each division has access to more accessible sources of capital from the parent company, than would be the case on the open market.

In any case, this issue demonstrates that CNR divisions and presumably subsidiaries receive direction as to their performance standards from the parent corporation. For the telecommunications division, the relevant standard for efficiency is judged in comparison to telecommunications carriers which are private investor-owned. CNT describes the northwest operation as a "profit-oriented service".<sup>21</sup> No consideration is given to the special nature of northern conditions, or to the fact that other carriers provide a variety of services in a wide range of market sizes.

The regulatory problems which arose in respect to CNT's competitive services appear again in relation to the Northwest division. CNT is required to provide financial data to the federal regulatory agency (CRTC), but there is no cost/revenue breakdown between different service categories. CNT's most recent position on this matter was expressed at a general rate hearing

in 1977. It justified the negligible financial information which it makes available as follows:

We don't cost services, per se, we can't because the services use a common highway. [CNT]

Do I understand that apart from the information you have provided on Public Message services, you have no studies, analysis or data, formal or otherwise, which would be of assistance to this commission, as to the breakdown of the actual cost of service? [CRTC]

That is so. [CNT] 22

Although the limitations of the financial information are recognized by CNT, its position is that it will continue to release only that required under a previous Canadian Transport Commission order until further regulations are developed by the CRTC.<sup>23</sup>

Table 9 provides data for CNT's Northwest Region. It indicates that total telephone revenues comprised 62.9% of the total Northwest division commercial revenues in 1978, increasing from 49% in 1974. The next largest revenue category is for private wire services, 30.7% in 1978, and 43.9% in 1974. Costs are not allocated according to service category and it is impossible to determine how revenues from telephone services throughout the territory contribute or relate to the costs of providing these services. Table 10 shows that toll revenues constituted 78.3% of total telephone revenues in 1973, rising to 80.0% in 1978. CNT provides no data to indicate the relationship between local and toll revenues by community in the area it services. There is no indication of the dependence of various communities on local versus toll revenues to cover the costs of providing services or the criteria CNT would use to judge services to community as uneconomical and in need of subsidy beyond those which are hidden in existing rate structures.

Table 9

## CANADIAN NATIONAL TELECOMMUNICATIONS - NORTHWEST DIVISION SERVICES

Commercial Revenue : 1974-1978  
(million)

Category	1974		1975		1976		1977		1978	
	Amt.	% of Total	Amt.	% of Total	Amt.	% of Total	Amt.	% of Total	Amt.	% of Total
Public Message Telegraph	.072	.3	.084	.3	.088	.3	.073	.3	.079	.25
Private Wire Service	10.135	43.9	10.542	41.3	10.770	39.4	9.372	33.2	9.465	30.17
Telex	1.109	4.8	1.162	4.6	1.194	4.4	1.428	5.0	1.468	4.68
Broadband	.047	.2	.059	.2	.074	.3	.105	.4	.116	.37
Telephones	11.309	49.0	13.271	52.0	14.768	54.0	16.824	59.5	19.726	62.89
Telenet	.003	-	.006	-	.004	-	.007	-	.014	.04
Telepost	-	-	-	-	-	-	-	-	-	-
Broadcast	.363	1.6	.393	1.5	.415	1.5	.423	1.5	.460	1.47
Misc.	.011	.1	.015	.1	.019	.1	.020	.1	.021	.07
Rail Service	.012	.1	.010	-	.011	-	.015	-	.018	.06
TOTAL	23.061	100.0	25.542	100.0	27.352	100.0	28.267	100.0	31.367	100.0

Source: Financial data supplied by Northwest Telecommunications Inc., 1979.

Table 10

CANADIAN NATIONAL TELECOMMUNICATIONS - NORTHWEST DIVISION  
 Local and Toll Telephone Revenues: 1973, 1978  
 (million)

Revenues	1973	% Total	1978	% Total
Toll	7.196	78.3	15.905	80.6
Local Exchange	1.941	21.7	3.541	19.6
TOTAL	9.137		19.726	

Source: Telephone Revenue - Historical, CNT Income Statements, 1973, 1979.

## B. The Telecommunications Industry in Alaska

The previous section examined structural arrangements of the telecommunications industry in Northwest Canada. It indicated some aspects of the relationship between CNT and the CNR System that affect the incentives underlying the corporate decision-making process. This system of relationships results in the establishment of criteria that are used to assess the viability of telecommunications system expansion. In the Canadian context the implications for telecommunications development in the Canadian Northwest, given the CNT/CNR System structure, were identified.

In Alaska the telecommunications industry is structurally more complex. The responsibility for providing telecommunications services is divided between RCA Alaska Communications Inc. (Alascom) which provides long distance inter- and intra-state services and a number of local carriers which provide local exchange telephone service. This section examines several aspects of the Alaska industry structure that illustrate the incentives that constrain the decision-making process.

### 1. RCA Alaska Communications Inc.

In 1970, RCA Alaska Communications Inc. (Alascom) was granted permission by the Federal Communications Commission (FCC) and the Alaska Public Utilities Commission (APUC) to provide inter- and intra-state long distance telecommunications services in Alaska. It was not granted a monopoly over either the long-term provision of service or over the provision of local exchange facilities and services.

The separation between carrier responsibilities can be described as follows. Alascom provides toll switching, toll carriage, and connection with AT&T for service to the Lower 48 States and international points. Local

companies provide central office switches, local connecting lines, subscriber stations, and billing and collection functions.

Alascom was created as a subsidiary of the RCA Globcom Corporation in 1969. Globcom provides telecommunications record and data services in the competitive international communications market and is a subsidiary of the RCA holding company system. The RCA Corporation's interests are widely diversified throughout services and hardware production related to the lucrative communications market. Alascom's counterpart, RCA Americom, provides domestic private line, voice, and television transmission services via satellite in the Lower 48 States. Other RCA subsidiaries include NBC - broadcasting, Random House - publishing, and Hertz Rentals - transportation. Research and development activities in the electronic equipment sector for commercial, industrial and government purposes have led to contracts with NASA, meteorological satellites; and the military, electronic guidance systems for ballistic missiles, among many others.

As a subsidiary of the RCA Corporation, Alascom has been under pressure to ensure that it maintains an adequate, if not increasing profit margin as interpreted by the parent company and does not create a drain on the Corporation's capital resources. The RCA Corporation's response to declining profits associated with its holdings has been to place increasing emphasis on efficiency and to exact profits in all conceivable ways. The Corporation's policies were reflected in a statement by the President and Chief Executive Officer in 1976.

...stringent operational economics, significant product improvement, and the elimination of operations that intrinsically fall short in performance or promise... 24

An extensive analysis of the Alaska telecommunications industry carried out in 1978 provides data that indicate that Alascom has "expanded its profits during a period of rapid growth even more rapidly than its investment in plant assets,"<sup>25</sup> when total company revenues are taken into consideration. Alascom's willingness to place profit margins before the needs of Alaska has also been evident in the corporation's insistence on using a mix of terrestrial and satellite facilities in replacing outmoded facilities inherited from the ACS, and its attempts to choose the most costly system design available.

Alascom cannot be called into question on the basis of public statements of priorities which contain the usual self-congratulatory utterances of corporate beneficence. Alascom is strongly in support of the development of a high quality statewide telecommunications system.

We share a deep commitment with all Alaskans to provide the best common most efficient and most economical long distance communications service for the future of the state of Alaska. 26

However, interpreted in the light of the pattern of decision-making that has occurred over the last decade, Alascom policy has been markedly in conflict with Alaskan interests.

Alascom has a responsibility for planning the expansion of the State network and is required to cooperate with other carriers providing service at the local exchange level. Despite its commitment to undertake the responsibility the company has argued that:

Since exchange operations in Alaska are divorced from both intra- and inter-state long lines operations RCA cannot plan for development on a system wide basis... 27



The traditional argument concerning the problems that arise where an 'integrated system' is absent has been used by Alascom, unconvincingly, to explain the difficulties it faces in attempting to fulfill the conditions of the contract for sale of the ACS and the requirements contained in the Alaska regulatory order permitting the carrier to provide service.

The potential problems created by the relationship between the RCA Corporation and its subsidiary companies and the particular consequences of the Alascom/Globcom relationship for Alaskan telecommunications development were not unexpected. From the beginning of Alascom's entry into the telecommunications market in Alaska, State authorities have attempted to retain control over the future direction of telecommunications development within the State. They have resorted to legislation and regulatory orders designed to reduce the control of the RCA Corporation over Alascom decisions regarding resource allocation and telecommunications development within the State.

State regulatory authorities have attempted to retain control over the future direction of telecommunications development. In the order licensing Alascom in 1970, the APUC stated that it did not wish to:

Foreclose the possibility of applications by others for authority to provide some form of long lines service that future considerations may justify. 28

This action was an explicit recognition of the potential problems that was distinctly lacking in the Canadian context. However, it was primarily a political action rather than one that could be exercised. The effectiveness of this source of power and control is limited by the Commission's decision to place the burden of proof on prospective applicants. Without the experience of having operated under the singularly distinctive Alaskan

conditions it would be extremely difficult to demonstrate the comparative superiority of a competing application.

In further recognition of the potential problems created by Alascom's relationship with its parent company, the APUC specified the information disclosures that the carrier would be required to make to regulatory agencies. The following was embedded in the regulatory order authorizing Alascom as an Alaskan carrier.

The statements required by this order shall include so far as practicable, information with respect to the decisions of RCA Alaska Communications Inc.'s management as to long range plans for capital expansions and improvements to the end that the Commission will be afforded the maximum opportunity to evaluate such plans in the public interest. 29 [my emphasis]

The potential inclusiveness of this statement contrasts sharply with the paucity of information required of CNT. However, divergent opinions as to the "practicable" extent of information required has been a continuing problem hindering regulatory control over corporate policy decision-making.

Federal regulatory approval was also required to license Alascom as a carrier providing domestic inter-state telecommunications services. The FCC maintained jurisdiction over the structural relationship between subsidiaries of the RCA Corporation. Decisions have reflected the FCC's recognition of the potentially negative consequences of these interrelationships.

Corporate structure cannot be left to the sole discretion of corporate management...It is our belief that the nature of the corporate structure to be utilized for this particular enterprise substantially affects the public interest. 30

Maintenance of separate accounts and records does not in itself ensure independent and equitable sharing of costs...Only by requiring a separate corporation can we adequately monitor the activities of the RCA Companies to prevent the occurrence of these results. 31

These statements concerned the possibility of cross-subsidies between RCA's domestic and international communications services. They resulted in the creation of two separate subsidiaries, i.e., RCA Americom and Globcom.

However, when the State of Alaska, through the Governor's Office of Telecommunications, raised the same arguments concerning the possibility that Alaska rate payers might be forced to subsidize other RCA services because of the Alascom/Globcom relationship, the FCC delayed an order requiring Alascom to be established as a separate RCA subsidiary until 1976.<sup>32</sup>

The Governor's Office of Telecommunications argued that:

The interests of the larger corporation will dominate the decisions made by the smaller corporation...Alascom has a de facto monopoly over long-line service within and to Alaska. The mixture of monopoly and competitive service in what is essentially the same corporation creates incentives for the carrier to reduce prices in the competitive services by cross-subsidizing it if necessary by the monopoly service. 33

However, a mere structural change did little to improve the balance between Alascom's priorities and the State's objectives for telecommunications development. There is still considerable latitude for interdependence between the RCA Corporation and its subsidiary. Thus, "the relationship between Alascom and RCA Corp on matters financial, managerial and operational policy are not clearly known,"<sup>34</sup> despite the combined efforts of ten years of federal and State regulatory activity.

The success of both federal and State efforts to maintain control over Alascom's activities has also been limited by one of the traditional problems and criticisms leveled against regulatory practice. In the case of Alaska 'regulatory lag' has had particularly severe consequences.

Alascom was required to upgrade the technical capacity of the telecommunications system it inherited as one of the conditions of its license to provide services. Decisions as to system design could impose constraints on the future costs of development of telecommunications in Alaska were made without full assessment by the regulatory agency. Interim orders allowed costly and expensive investment by the carrier in the initial years of operation. These interim orders were given before decisions as to policy and detailed examination of plans and development priorities could be completed. Although substantial changes in many of Alascom's initial proposals were required, there has been a continuing problem of being forced to make policy positions conform to what has already been irrevocably implemented by Alascom under the interim order.

Direct intervention in Alascom corporate decision-making by the RCA Corporation is limited by legal restrictions as well. The contract for sale of the ACS contained anti-trust provisions.<sup>35</sup> These precautions serve as a possible means of moderating carrier decisions based solely on traditional economic criteria governing investment priorities. However, Alascom's decisions continue to constrain the possibilities and alternatives for the future development of telecommunications in Alaska. Alascom remains primarily concerned with profitability, as defined by its parent corporation in the short term, rather than with the long-term development of the Alaska telecommunications industry. Given these priorities the Corporation's incentive to initiate subsidies to promote development can be expected to be extremely

limited.

## 2. Local Exchange Companies in Alaska<sup>36</sup>

Local exchange telephone service is provided in Alaska by 21 individual companies ranging in size from those providing service in single large population centres, those providing service in several scattered communities, and finally, those which provide exchange service in a single small community. The level and quality of service is conditioned not only by the demographic characteristics of the areas the companies serve, but also by corporate structure. Ownership characteristics affect the ability of these carriers to maintain minimum revenue levels that are necessary for continued operation.

The variability of corporate structure among Alaska's independent telephone companies makes it difficult to make generalizations about their ability to participate in the statewide telecommunications development process. A general overview provides an indication as to the extent that this structural arrangement is conducive to implementing communications policy objectives.

The larger, economically stable independent carriers were established by municipal governments in Alaska's few large population centres prior to Alascom's entry into the market. Together these telephone systems in Anchorage, Fairbanks, Ketchikan, and Cordova today provide more than 70% of the telephones in the State.<sup>37</sup>

The municipal corporate form is distinguishable from others with respect to access to capital, management structure, and regulation. Municipal systems are regulated by Municipal Public Utility Boards. Where these have ceased to function they are regulated directly by City Councillors. The APUC has no jurisdiction over the policies and practices of the telephone companies

which supply service to the largest percentage of the Alaskan population (excluding Anchorage). This has resulted in a situation where it is difficult to introduce an effective arrangement for cross-subsidies of rural areas by lucrative urban exchange areas. Municipal telephone companies have shown no interest in expanding service other than beyond immediate boundaries, to communities located in surrounding regions. In this sense, the fragmented Alaska telecommunications institutional structure has contributed to the difficulties facing attempts to implement coordinated planning of telecommunications expansion. The interests of the largest group in the industry at the local level are distinctly in conflict with this policy.

There are three other forms of corporate ownership that predominate in Alaska. The most severe financial problems are faced by companies operated by individual private family interests. These are least likely to engage in expansion beyond the communities they presently serve and may become less economically viable in the future. In most cases, they are operated as a component of a family business which acts as the only source of capital aside from revenues. The operating philosophy of the majority of owners is characterized by a strong desire to maintain 'independence' and self-sufficiency from government agencies. Unfortunately, they fail to recognize the severe financial penalties that Alascom has been in a position to impose on them. Despite this, they reject involvement in government-sponsored financial programmes that could increase their strength.

For the most part, these small companies were established in the 1950's in response to the need for telephone service perceived by a local resident or business. The small scale of the operations provided little incentive for takeover by other expanding carriers. These companies are probably among those which, under a regional or monopoly structural arrangement, would be

subsidized by larger exchanges. Again, the historical development of the telecommunications industry at the local level in Alaska has made it extremely difficult to implement statewide planning strategies.

The single exception to the continuing financial difficulties experienced by privately-owned local companies has been the Interior Telephone Company. Established in 1968 to provide service in two small communities, it soon began to experience financial problems and its service quality began to decline. An APUC investigation in 1972 ordered it to update its facilities and improve its financial position or risk loss of its license. The company began an aggressive programme of expansion seeking out federal financing. Applications were submitted for certification in several dispersed regions in the State taking advantage of satellite facilities in each community. The premise underlying this company's activities has been that increased revenues and distribution of costs among a larger number of subscribers may provide it with sufficient advantages of size to achieve economic stability. However, expansion has been made possible only following an active pursuit of capital and submission to the conditions imposed by the federal financing agency. More recently, the company encountered financial problems which combined with a withdrawal of federal financial support has restricted its development activities. The benefits and disadvantages of a dependency on federally subsidized investment capital are examined in more detail in Chapter VIII.

Another form of corporate ownership is represented by the systems operated by subsidiaries of large telephone companies located in the Lower 48 States. General Telephone and Electric and Continental Telephone own three companies which provide service in several communities. These companies were established through a series of takeovers of exchanges operated by individual single exchange companies in a number of communities. In terms of a state-

wide telecommunications system perspective, there are several disadvantages. As management decisions are made outside the State, it is difficult for local management to remain responsive to Alaska's problems and conditions. These companies are not interested in service expansion to remote and rural communities in the State. The possibility of cross-subsidization resulting in reduced profit margins required by the parent companies provides little incentive. Here, as in the other two cases, there is no existing incentive for carriers operating local exchanges to expand beyond their present operation.

The final corporate form is the cooperative which will be important if the State's objectives for expansion are to be implemented. The cooperative has received widespread acceptance in Alaska as a means of providing community services. In particular, the rural electricity services have been provided by cooperatives for some time. The electricity cooperative is an alternative organizational form which was spawned in an attempt to ensure that essential services were available in small communities.

The Alaska Village Electric Cooperative (AVEC) was formed in 1968 and received debt financing from the Rural Electrification Administration (REA). It is an organization which has attempted to maintain a low operating budget and has succeeded in bringing electric power to 48 villages that were previously unable to attract the interest of private utilities.

The cooperative movement represented an implicit acknowledgement that some form of subsidy would be required to ensure that, despite high costs, remote communities would be ensured access to services. Unfortunately, the organization has experienced many problems which have been attributed almost entirely to a lack of experienced management rather than to the nature of the organizational form.



Ideally, the advantage of the cooperative is that it allows for a higher degree of managerial autonomy and should be more responsive to the need to place the extension of telecommunications throughout Alaska as a higher priority than increasing profit margins. However, in reality, until the emergence of federally sponsored financial assistance, most cooperatives behaved similarly to other Alaskan independents by demonstrating a reluctance to expand service. The emergence of satellite technology as a viable alternative to terrestrial land lines and the availability of low interest investment capital has been taken advantage of by an increasing number of cooperatives which have developed plans to provide regional telephone service. The cooperatives have also been responsible for bringing several issues that have delayed statewide telecommunications development to the attention of the regulatory commissions.

Table 11 presents information concerning the local exchange telephone companies that operate in Alaska. It is clear that the privately-owned companies are the smallest not only in terms of total telephones, but also by total revenues and operating income. In contrast, the data for the municipal and subsidiaries of holding companies tends to present a distinctly more healthy financial picture. Among the cooperatives, Matanuska, Copper Valley, and OTZ have actively sought financial assistance and appear to have the most optimistic future. The evidence would seem to indicate that financial assistance and/or multiple exchange service are two of the more important factors that enhance the economic viability of Alaska's telephone industry. They should be considered in relation to the implementation of Alaska's telecommunications policy objectives, for companies serving locations outside the urban areas served by the municipal utilities.

Table 11

## ALASKA LOCAL EXCHANGE TELECOMMUNICATIONS CARRIERS: 1976

Corporate Form	Total Telephones	Revenues		Total Revenues <sup>1/</sup> (000)	Operating Expenses (000)	Operating Income (pretax) (000)	Number of Communities Served
		% Local	% Toll				
<u>Municipal Utilities</u>							
Anchorage	115,242	66.1	36.2	28,170	22,233	5,937	1
Fairbanks	32,000	52.1	42.5	8,095	5,911	2,018	1
Ketchikan	7,500	56.0	37.0	1,605	1,706	410	1
Cordova	790	27.9	72.1	262	164	98	1
<u> Holding Company Subsidiary</u>							
Glacier State	13,970	41.9	57.4	7,086	4,069	3,018	10
Juneau/Douglas	13,025	47.7	51.2	4,973	2,824	2,147	3
General	8,917	44.3	55.7	2,787	1,706	1,081	12
Sitka/Southeastern	4,242	43.3	56.7	1,201	927	274	4
National	821	27.9	72.1	326	208	118	13
<u>Private Companies</u>							
Interior	884	21.1	78.6	665	543	122	6
GAB	292	33.1	64.7	139	131	8	1
Yukon	148	24.6	75.4	57	30	27	1
Whittier	93	30.4	71.7	46	36	10	1
Bush Tel	85	21.1	78.9	38	45	(7)	1
Mukluk	110	-	-	-	-	-	3
Bettles <sup>2/</sup>	32	-	-	-	-	-	1
<u>Cooperatives</u>							
Matanuska	10,207	42.7	50.1	2,892	2,196	696	10
Copper Valley	3,140	29.7	70.4	1,591	888	703	2
OTZ	517	54.3	45.7	219	136	83	
Nushagak	345	44.6	56.2	121	108	13	
Bristol Bay	229	37.6	66.1	109	89	20	1
TOTAL (estimate)	212,589	54.8	44.8	60,400	43,400	16,900	

Source: 1976 Annual Financial Reports; Information filed with the APUC; Data originally reported in W.H. Melody, Telecommunications in Alaska, 1978, Tables 5 & 6.

Applications for certificates to extend the service regions of local carriers have forced the APUC to make case-by-case rulings in the absence of clearly established policy concerning the most advantageous structure of the telecommunications industry in Alaska. The jurisdiction of the APUC was expanded in 1970 to include regulation of the intra-state activities of the new long distance carrier as well as continuing regulation of Alaska's independent local telecommunications carriers.<sup>39</sup> Although the scope of the APUC's regulatory activities expanded over the years, it seems to have been occupied with case-by-case consideration of fragmented aspects of broad policy problems. Policies must be developed and problems resolved if the regulatory agency is to provide direction for telecommunications development in the State.

Inter-related issues that have a bearing on allocation of cost responsibility particularly with regard to development planning in rural areas have not been addressed. Decisions related to cost/revenue relationships between local companies and Alascom, certification of carriers maximizing potential for financial viability, Alascom's practices for furnishing telecommunications capacity to local carriers, etc., have been made on a company-by-company basis. This has increased the problems faced by carriers which might consider providing service in rural areas. Lack of a consistent policy framework designed to encourage telecommunications expansion in the State places a continuing limitation on incentives to which existing or new institutions can respond.

The APUC certainly has had an impact on the direction and pace of telecommunications development, but its powers to establish broad enforceable policy directives have been limited. In part, this has happened because of the Alaska court's failure to uphold the APUC's decisions.<sup>40</sup> Since the APUC's findings were not upheld in the context of a narrow definition of its duties,

i.e., determination of "just and reasonable rates", it is not surprising that the Commission has not ventured into the area of general policy formulation and enforcement. Ad hoc consideration of issues at the behest of industry have been the norm. The regulatory agency has not provided a venue for considering issues that would promote internal subsidies of the costs of telecommunications service in rural areas, or other forms of inter-industry incentives for expansion.

### C. Analysis

CNT's Northwest telecommunications division is heavily influenced by demands made on it at higher levels in the organizational structure. Its operating policies and criteria for assessing the economic viability of investment decisions reflect its concern for operating according to conservative economic criteria of the private market. The larger CNR System requires it to operate in a commercial manner. Although CNT is part of a government-owned corporation which might suggest that to some degree its operation and management decisions would be based on criteria other than a narrow interpretation of economic efficiency, this is not the case. CNT investment policies for its competitive services are directed by criteria that enable it to compete on an equitable basis with private sector organizations.<sup>41</sup> As CNT's northwest division contributes to the overall efficiency of the CNR System it is also oriented toward maintaining efficient low risk business practices. National telecommunications policy implementation is seen to be strictly the business of government and is attractive to CNT only when it can be found to be in its own economic self-interest. Although CNT Northwest services are not offered in competition with the private sector and are faced with unique northern conditions, the company continues to follow

the same policies as the rest of the CNR System.

CNT's policy is that unless revenues can be guaranteed to cover costs, generating what the corporation considers to be an adequate return on investment, service will not be expanded or upgraded. Table 12 indicates that to date, CNT's total capital investment in the Northwest is over \$100 million. This includes private line, date, public message and public telephone service. Of this total more than eight million dollars were classified as financial assistance in 1977 alone. It is through contributions or subsidies that government and industry have influenced CNT planning, expansion and telecommunications development policies. Where regulation failed to ensure government communications policy implementation, financial assistance from industry and government was used to promote development. The disparities in telecommunications services in the Northwest indicate that all northerners did not benefit from these subsidies.

Yearly appropriations to CNT for those limited situations where formal contracts were entered into between CNT and the federal government are available from the Public Accounts of Canada. These represent isolated instances and do not provide an adequate picture of the extent of the subsidies that CNT has received. The Financial Statements for Crown Corporations that are available list loans, advances, and grants to the CNR System as a whole, but provide no detailed information for divisions such as CNT. The majority of subsidies that CNT has received cannot be traced through financial information that is publically available. It is not possible to identify the services or locations that received the benefits of these direct subsidies. Nor is it possible to determine whether appropriations were made for construction and/or operating costs. In most cases, information provided by CNT and government agencies prevents documentation of the extent that outlying areas received benefits from government subsidies.

Table 12

CANADIAN NATIONAL TELECOMMUNICATIONS - NORTHWEST DIVISION  
 CAPITAL INVESTMENT IN PLANT  
 GRANTS AND DONATIONS  
 1971, 1977  
 (million)

	1971	1977
Outside Plant	17.3	17.5
Inside Plant	14.2	32.0
Vehicles/Work Equipment	1.4	2.1
Radio and Microwave	2.4	18.5
Buildings	4.6	8.2
Grande Prairie - Alaska Microwave	25.2	25.2
Tropospheric Scatter	<u>7.2</u>	<u>7.2</u>
 TOTAL INVESTMENT	 72.4	 110.7
TOTAL DEPRECIATION	<u>30.0</u>	<u>40.4</u>
	42.3	70.3
Grants	7.5	8.5

Source: CNT Statement CNT-B, CRTC CNT Northwest Rate Hearing, 1977;  
 Bruce, D.W. "The Development of CNT in Northwest Canada,"  
 Toronto, 1978.

In Alaska, major constraints to development of an accessible statewide telecommunications system have been imposed by Alascom. The company establishes policies and practices which increase the difficulties experienced by the local carriers. Alascom's policies have affected all issues concerning the long-term development of the State's telecommunications network and, specifically, the expansion and improvement of services in rural areas. The major carrier's policies are in conflict with the stated objectives of State and federal governments.

The decision-making autonomy of Alascom is as open to question as that of CNT's northwest division even though the formal institutional arrangements are distinctly different. Like CNT, Alascom is required to have its annual business plan and all its major capital programmes approved by the RCA Corporation. It is also reliant on the holding company's expertise in technical and legal matters which further prevents decisions from reflecting the particular conditions of Alaska.

It is clear that Alascom is primarily accountable to its parent and owner, RCA Corp. and that the profit and other standards imposed by RCA are those to which Alascom responds. If the structure of the Alascom/RCA Corp. relationship is not changed, the future is likely to bring continuing conflict and disagreement between the State's telecommunications policy authorities and Alascom. 42

The extent of this conflict and the similar one that apparently exists in the Canadian context is examined in further detail as it relates to the narrower issue of service extension to remote and rural areas in Chapters VII and VIII. Recognition of the strength of this conflict has encouraged the development of a web of institutions and procedures within the government organizational hierarchy in the United States and Canada. These agencies

have been created ostensibly to provide vehicles for intervention and retention of a degree of control over decisions affecting telecommunications growth and development within Alaska and Northwest Canada.

The dichotomy, suggested above between government interests and those of the telecommunications industry in Northwest Canada and Alaska, will be shown to be less one of government versus industry and more closely related to the nature of the priorities established by both sectors through their acceptance of economic criteria reflecting priorities for telecommunications development that are linked to broader social, political and economic policies for development in these regions.

Chapters VII and VIII examine the effectiveness of the Canadian and American governments' intervention in the telecommunications development process where subsidies have been intended to implement telecommunications policy objectives.



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41. "The Regulation of CNT...", p.5.
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## CHAPTER VI

## IMPLEMENTING GOVERNMENT SUBSIDIES: ALTERNATIVE METHODS

The preceding chapters (Chapters III and IV) have documented changes in priorities and objectives concerning the development of telecommunications services in Northwest Canada and Alaska. Over the past decade statements regarding northern development policy in Canada and the United States have indicated an increased concern for the 'quality' of political, social, cultural and economic life for northern and, in particular, northern Native people. In this context, the commitment on the part of government agencies, departments, and regulatory commissions responsible for telecommunications planning and policy implementation to promote the development of basic telecommunications services throughout these areas has appeared to increase. Policy statements have reflected a concern that services should be available in response to the needs and demands of northern residents, and at the level and quality available in southern regions of both countries.

The analysis of the institutional structure of the telecommunications industries in Northwest Canada and Alaska (Chapter V) indicated that incentives bias decisions affecting the allocation of financial resources in accordance with objectives and priorities established by the parent corporations. A continuing disparity in the availability of basic telecommunications services results from industry adherence to criteria that reflect acceptable cost/revenue relationships based on criteria drawn from experience under less extreme and less variable conditions in Southern Canada and the Lower 48 States. Combined with incentives to operate 'efficiently' and profitably, the telecommunications industries are not responsive to the need to encourage

full implementation of national telecommunications policy objectives.

In many remote areas of Northwest Canada and Alaska, special demographic characteristics have been judged by the telecommunications industries to require an unjustified extension of internal subsidies. Consequently, the likelihood that service development will be judged uneconomical has been increased. The level and quality of service provided in many locations has tended to be inferior as compared to national standards or services have not been extended at all.

The telecommunications industry in both Canada and the United States is replete with subsidies between and within service classes and carriers. The extent and beneficiaries of these subsidies is often difficult to discern. Limited internal subsidies are believed to contribute to the efficient operation of the industry. Subsidies between geographic areas within classes of service are commonplace. However, they have rarely been extended by privately-owned carriers to remote or rural areas where the revenues generated, in aggregate, fail to cover the costs of service. The same problem exists with respect to the particular case of the publically-owned carrier in Northwest Canada.

The allocation of financial resources for the development of telecommunications services is not dependent solely on criteria determined by the industry. Different levels of government in Canada and the United States have intervened in the decision-making process in order to implement telecommunications policy objectives. The subsidy methods which have been adopted have taken a number of different forms. However, the intent has generally been similar in that they have been used to achieve a modification in the criteria used as a basis for allocating financial resources in a way that promotes the provision of telecommunications services to meet policy

objectives.

By defining subsidies in terms of changes in the allocation of financial resources that would not have occurred in the absence of government intervention, a range of subsidy methods can be considered as potential means of implementing changing policy objectives. This definition represents a departure from the usual definition of subsidies in that it is more inclusive. Recent studies of subsidies in the economics literature have tended to restrict the use of the concept in order to achieve greater 'analytical clarity'. A series of studies (1972-1975), carried out by the Joint Economic Committee of the U.S. Congressional Subcommittee on Priorities and Economy in Government<sup>1</sup>, were addressed to defining the subject area and examining the costs of subsidy programmes in a number of sectors of the American economy.<sup>2</sup> After an extensive review of the literature, it was concluded that subsidies should be defined by the form of income transfer initiated by the government between the public and the private sector or within the private sector. The objective being:

most usually the supplying to a general market a product or service which would be supplied in as great a quantity only at a higher price in the absence of the payment. 3

Subsidies were restricted to forms of government intervention that modify the allocation of resources in the private market. This excludes subsidies resulting from government activities that partially or completely abandon the private market as a means of allocating resources. Furthermore, the emphasis has been placed on the form or type of subsidy and its impact, rather than on a comprehensive analysis of subsidies in relation to policy objectives within an institutional context. Because of the historical

significance of the role of government ownership and reliance on the public sector to provide services in communications, transportation, and energy sectors of the economy, a broader definition of the concept of a subsidy has been adopted.

The following section provides a brief review of the basic kinds of subsidy methods that have been employed in Canada and the United States to promote telecommunications development in Northwest Canada and Alaska. Almost all detailed subsidy programmes fall into one of the following general classifications.

A. The Regulatory Process and Internal Subsidies for Telecommunications Development

The regulatory process is generally conceived as an imposition of government control over the decision process that would have occurred if privately-owned telecommunications carriers responded only to market influences. Trebing has described regulation as a method of reallocating resources which:

...involves an attempt to impose social judgements and goals upon existing market judgements and goals insofar as the actions of persons, firms, individuals are concerned...Government regulation is premised on the belief that no foreseeable or practicable restructuring of the relevant markets will establish compatibility of interests between society and the market without imposing unacceptable burdens on the former... 4

If the regulatory process is to be used as an effective means of implementing policy objectives, it is necessary to assume that regulatory commissions can impose or enforce criteria to be used in decisions to allocate financial

resources that reflect those policy objectives and priorities.

Given this assumption, the government can modify decisions that affect the development of telecommunications services. This can be done by ensuring that the boundaries of internal subsidies are extended to ensure that sufficient financial resources are allocated to provide services under conditions that would not be acceptable to the telecommunications industry on the basis of traditional economic criteria for evaluating profitability.

By manipulating cost allocation procedures and rate structures, it is possible to introduce subsidies that result in a more equitable distribution of services regardless of cost variations between geographic areas. The costs of service in high cost/low revenue areas can be borne either by users in the same service class or another. Assuming that the regulatory process provides the government with effective control over corporate decisions, changes in cost/revenue relationships can be achieved that provide an incentive to carriers to provide telecommunications services in uneconomic areas.

In order to implement subsidies through the regulatory process the government can order the telecommunications industry to provide services as the price for a monopoly franchise. It can also encourage inter-industry negotiations to allocate the costs of service to other portions of the telecommunications network. However, the extent to which explicit subsidies can be encouraged within the regulatory process is limited by economic and political factors. Overall rate levels must ensure that total revenues are sufficient to meet the industry's total revenue requirement which is itself a highly subjective determination. Furthermore, individual rates within the rate structure must remain 'just and reasonable' as determined by the joint interpretation of industry and the regulatory agency.

If the carrier cannot be assured that combined services will generate



an 'adequate' return, there will be little incentive to provide services. The greater the deviation of costs from average conditions, the more likely it is that the internal subsidies will become unacceptable to the telecommunications industry, the customers who bear the cost, and hence to the regulatory agencies. However, theoretically, there are conditions under which:

Internal subsidization may thus be viewed as an extension of state power whose purpose, like that of other taxes, is to compel members of the public to support a service that the market would provide at a reduced level or not at all. 5

Thus, the regulatory process can act as a vehicle for implementing subsidies to the extent that the telecommunications industry is compelled to provide telecommunications services where they would not have been provided under market conditions.

However, there is no necessary relationship between the distribution of services resulting from the use of internal subsidies and stated national telecommunications policy objectives, although these are used as a justification. The effect of subsidy policy is dependent on particular economic and political factors inherent in the institutional system of relationships in which it is implemented.

#### B. Government Ownership and Subsidies

The provision of services by corporations that are government-owned represents a case in which private markets are supplanted either wholly or in part by the public sector. Theoretically, the assumption underlying this alternative is that the private sector cannot be expected to provide services

at a level, quality, or prices that meet the government's assessment of the need for services. The justification for this form of intervention is typically provided by references to the government's obligation to act in the 'national interest'. Thus, "the state has an obligation to provide transportation and communications at minimum standards regardless of cost benefit considerations."<sup>6</sup>

In theory, a government-owned corporation will be capable of incorporating greater flexibility in the decision-making process. Decisions to allocate financial resources for telecommunications service development can be based on criteria that reflect broader economic or political considerations than those criteria employed by privately-owned industries. Social policy objectives can be implemented because the government has structured the decision-making process in a way that makes it receptive to implementing appropriate government policy.

The degree of direct control the government exerts over the decision process can be variable. A government department or programme can be created, responsible to Ministerial, legislative and/or Cabinet direction with a specific mandate to provide services according to clearly defined policy guidelines. Or alternatively, an 'independent' corporation which retains access to low interest capital can be created with the expectation that the decision-making process will result in acceptable levels of service development.

Again, the distribution of the benefits of subsidies for the development of various telecommunications services bears no necessary correspondence to stated national policy objectives. The allocation of financial resources will reflect changing priorities for implementing different aspects of telecommunications policy. The impact of subsidies that result from government

ownership depends, in part, on whether the corporation is expected to emulate the private market. If this is the case, subsidies will be limited to increased access to capital which reduces investment risk and permits expansion and development of services in areas where it would be unprofitable for private investors. On the other hand, if government ownership implies that services should be provided regardless of their profitability, subsidies for service development can be more extensive. Thus, the extent of financial assistance or subsidy under these institutional arrangements can also vary.

### C. Direct Subsidies and their Impact on Telecommunications Development

Direct subsidies represent another means of government intervention in decision processes that affect the availability of telecommunications services. Subsidies can be provided in the form of long or short term loans or grants which subsidize some portion of the operating or capital costs of providing service. Additional user charges can be imposed on government agencies, subsidies can be provided directly to customer classes to pay a portion of the rates charged for service, etc. The particular structure of these subsidies can be endlessly varied.

The use of direct subsidies implies that although existing institutional arrangements provide appropriate incentives for telecommunication service development, subsidies are required to provide additional incentives to ensure that specific aspects of policy objectives are implemented. No attempt is made to change the criteria by which financial resources are allocated within the telecommunications industry. Instead, an infusion of financial assistance is expected to alter cost/revenue relationships, increasing the likelihood that corporate decisions will reflect government priorities for service development.

Direct subsidies can be implemented through formal institutional arrangements, i.e., a specific government agency with a mandate to promote telecommunications development, or informal, i.e., negotiated agreements between representatives of industry and a range of government agencies. To be effective, direct subsidies require an elaborate system of accountability to ensure that funds are allocated for service development in accordance with government objectives. The principle underlying grants or loans as subsidies assumes that the industry will increase the provision of a service or reduce its cost in direct proportion to the amount of the financial assistance received. There is usually no accountability in terms of services provided upon receipt of these subsidies.

The use of direct subsidies as a method of policy implementation tends to assume that, in the long term, the existing structure of the telecommunications industry will provide incentives for telecommunications development that fulfills government policy objectives. It also tends to be assumed that disparities in service availability are temporary and can be resolved by short term provision of financial assistance. The visibility and explicit nature of direct subsidies, makes them vulnerable to abandonment when the political justification for their existence is overtaken by other government priorities.

#### D. Summary

The effectiveness of any subsidy method depends on whether it results in a change in the supply of telecommunications services in accordance with a given policy objective. The justification for government subsidies is usually that although the market may result in an economically efficient allocation of resources, this is not necessarily a socially efficient

allocation. The discussion of subsidy methods in the following chapters (Chapters VII and VIII) indicates that subsidy methods as they are discussed in this chapter are really only general classes or concepts of subsidy. The impact and effect of subsidies is conditioned by, and can only be understood in terms of, the institutional context and changing system of relationships in which they are implemented. Chapters VII and VIII examine different subsidy methods that have been used to promote telecommunications development in Northwest Canada and Alaska. Their effectiveness is evaluated in terms of whether incentives have been created that encourage full implementation of national telecommunications policy objectives. These chapters provide a basis for an interpretation of factors related to the method and extent of subsidies that either promote or hinder effective policy implementation (Chapter IX).

## Footnotes and References

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3. U.S. The Economics of Federal Subsidy Programs, p.11.
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## CHAPTER VII

TELECOMMUNICATIONS POLICY IMPLEMENTATION IN NORTHWEST CANADA:  
THE ROLE OF SUBSIDIESA. Changes in Northern Telecommunications Policy Objectives

It has been demonstrated (Chapter IV) that the federal government's policies concerning northern development were undergoing a process of re-definition in the late 1960's. The government's priorities for northern development began to indicate a growing concern for a greater balance between the need to promote a planned industrial development strategy while simultaneously implementing policies reflecting the expressed needs of northern residents. Communications policy and the government's active participation in the telecommunications development process in the north also became more significant.

Telecommunications facilities continued to be required in support of government administration and industrial expansion, but financial resources were also required to support the development of a telecommunications network that was responsive to the needs of northern residents. The costs of upgrading and expanding telecommunications services, ranging from basic telephone service to data services, would certainly require some form of subsidy. This chapter examines the extent to which federal priorities for telecommunications development in support of industrial development tended to result in continued use of methods of subsidy to promote telecommunications development to support government and industrial requirements. Despite the emphasis on social policies and objectives that would seem to have required subsidies designed to promote the development of basic telecommunications services in remote

northern areas, subsidy policy did not reflect these stated priorities.

Changes in perspective as to the role and importance of telecommunications in Canada, and particularly in the north, resulted in changes in government institutional arrangements. Government departments became increasingly concerned with investigating acceptable means of implementing costly policy objectives. However, the process of examining the problems related to telecommunications development, i.e., assessing the need for improved northern telecommunications systems and the appropriate structure and extent of subsidies required to implement newly established policy objectives, did not result in a more effective policy implementation process as far as all aspects of northern telecommunications policy was concerned.

1. Federal Departments Responsible for  
Telecommunications Policy Implementation

Before 1969, telecommunications development was the responsibility of the Telecommunications and Electronics Branch of the Department of Transport (DOT). Its special responsibilities for Northern telecommunications development were:

To expand operations in response to developing technology on increasing demand; to further development of telecommunications facilities...which involve the administration of government needs, and may include public needs as well. 1  
[my emphasis]

The DOT's mandate emphasized telecommunications development to meet industry and government requirements over the development of a regional commercial telecommunications network.

A review of descriptions of the DOT's performance suggests that its



activities were largely confined to technical aspects of telecommunications development and sporadic financing of individual development projects.<sup>2</sup>

CNT's expanding network in the north was viewed as a result to the DOT's promotional activities in a collaborative effort with industry. No comprehensive policy objectives were developed to guide decisions regarding the network's development. Decisions appear to have been made in response to immediate service demands from industry and government users.

The Department of Communications (DOC) was established in 1969, with a mandate to "coordinate, promote and recommend national policies and programmes with respect to communications services for Canada."<sup>3</sup> The mandate of the DOC reflected the federal government's revitalized attention to rapidly emerging communications "technology" as a means of fulfilling a broad range of socio-economic and political national objectives.

National policy objectives served to justify the federal government's concern for the maintenance of some degree of sovereignty over the development process in the north. In the telecommunications sector, this concern was translated into a need to promote technological innovation through stimulation of research and development activities. These activities were intended ostensibly to assess the benefits and suitability of newly available technology to meet northern telecommunications needs. The government's role in subsidizing research and development was also closely linked to its pursuit of lucrative contracts for the American and Canadian telecommunications manufacturing industry. Thus, an important stimulus to the newly created department's emphasis on northern communications policy formulation was a response to the emphasis on the importance of telecommunications technological innovation.

However, the justification given for the new department's activities was

couched in terms of vaguely defined political and social benefits that were to be associated with telecommunications development projects in the north. The Department of Communications quickly gave northern communications policy formulation a high priority. Its initial activities appeared to demonstrate a concern for assessing the communications needs of northern residents with the implicit assumption that steps would be taken to implement newly defined policy objectives.

After its first year of operation, the DOC stated that the north was an area to which it was devoting particular attention by studying needs for telecommunications services and fostering their implementation. Objectives for telecommunications development in the north were established.

The aim of the department is to have communications frontiers extended northward so that the quality of service may be equivalent to that enjoyed in Southern Canada. Research will be undertaken to determine optimum technical solutions. Programs involving public and private investment will be encouraged and arranged. 4 [my emphasis]

The strength of the DOC's interest in the North and the rapid pace with which studies were undertaken following its creation in 1969 may have been a reflection of the efforts of a new department to define and justify a role. Northern telecommunications development had received little active attention from existing agencies, i.e., Canadian Transport Commission, Ministry of Transport, Department of Indian Affairs and Northern Development, that held responsibility for northern development. An active programme of research into northern telecommunications needs and financial assistance for experiments in innovative telecommunications technology, i.e., satellites, trail radios, etc., provided a vehicle on which the DOC could actively cultivate a

unique and important role.

## 2. Telecommunications Needs Assessment and Studies of Subsidy Issues

The Department defined its role in terms of its responsibility to recognize a variety of northern communications needs ranging from the special needs of remote communities for intra-community and inter-community communications, to the requirements of industry, government, and the military.

In the early 1970's the DOC began a programme designed to establish priorities to serve as guidelines for allocation of federal financial assistance to aid in policy implementation. In 1970, a conference was sponsored by the DOC to ascertain the communications needs of the northern people.<sup>5</sup> The Yellowknife Conference marks one of the few times that the opinion of Native northerners was sought directly by the federal department responsible for telecommunications policy implementation. This conference resulted in public recognition that the communications needs of Native northern people had not been met. In the future, priority was to be given to local exchange and high quality reliable, 24-hour, long distance telecommunications facility improvements especially in isolated communities.

A report commissioned by the DOC was completed the following year.<sup>6</sup> It was intended to develop a scheme of priorities that would be economically feasible and responsive to anticipated needs. Its recommendations were indicative of the fundamental discrepancy between policy formulation and implementation. Although priorities were established, answers concerning how they should be implemented were noticeably absent. The institutionalized system of incentives directing choices for investment alternatives was to

remain unaltered. The report raised questions as to the need for subsidies and the alternatives for allocating the costs of policy implementation.

If equal service is to be provided, the cost per capita will be higher where the population is more widely dispersed and, for that reason, even more dependent on telecommunications than the urban population. This raises the difficult question of the extent to which these additional costs, attributable to the general objectives of social well-being and economic prosperity, should be borne by the direct beneficiaries, by the subscribers to the system, or by the general taxpayer. 7

By the early seventies the cost issue related to telecommunications development in the north had been explicitly recognized, but the problems of the cost of implementing "social objectives" remained unresolved.

Another study completed for the DOC in 1970 argued that if telecommunications development in the North was to meet policy objectives, government attention would have to be focused on planning and financing to stimulate coordinated activity.<sup>8</sup> An agency was proposed to give concentrated attention to a northern communications expansion programme. Its function would be:

To describe a cooperative approach towards the resolution of northern communications problems by determining procedures, methods and committing resources. 9

It was to include federal, territorial, provincial, carrier, and Native representatives in the decision process. The legislative changes for the proposed restructuring of institutional arrangements, that would have incorporated policy planning and implementation in a central agency, were never completed. Moreover,

The challenge to develop a national consensus not only on goals but on the institutional innovations required to meet the emerging objectives, 10

remained unmet. An appropriate allocation of responsibility for meeting stated policy objectives between users of services, industry and government, and the 'public' became a subject of debate. However, severe constraints to effective policy implementation remained embedded in the institutional structure at several levels of the government decision-making hierarchy.

The policy implementation process did not suffer from a lack of alternatives available to government to intervene in the development process. The use of subsidies by the Canadian government had not been absent as a means of promoting telecommunications development.

One of the most clearly and consistently articulated policies of Canadian governments, past and present, rests on the principle of universal equality of access to telecommunications facilities and services. That principle is founded on considerations of social justice, national viability and economic necessity. It has been persistently implemented from the epoque of open telegraph wire...to the Telesat Thin Route Network in the North. 11

The history of the federal government's commitment through financial support at different times to infrastructural service development, including telecommunications, has been documented by Innis. His analysis led him to conclude that:

The relation of the government of Canada to general economic growth has been unique. The heavy expenditures on transportation improvement, including railways and canals, have involved government grants, subsidies, and guarantees to an exceptional degree. 12

With specific reference to the early westward expansion of telecommunications, Innis noted that:

The question as to how far the government is justified in shouldering a debt for the sake of a small proportion of its population which owns telephones can only be answered in terms of the intangible advantages to be gained by the immediate increase in the use of the telephone. 13

Several studies commissioned by the DOC dealt with the problem of subsidy policy. For example, a study on communications and regional development (1971) defined telecommunications as an instrument or catalyst for social and economic development and part of the economic infrastructure.<sup>14</sup> It questioned the adequacy of regulation as a means of promoting regional telecommunications development where insufficient capital was available from internal revenue sources. Another study confirmed the federal government's preference for policy implementation outside the limiting confines of regulation.

A preferred policy would impose a more explicit and direct subsidy on specific classes of service or to particular groups of customers or possibly, a subsidy to carriers in conjunction with the condition upon the establishment of appropriate rates. The necessity for subsidy should be determined by regulatory authority subject to legislative guidelines or specific legislative approval. 15

Government financial intervention to meet telecommunications requirements associated with infrastructural development was approved.

Despite the government's approval of subsidies, a summary of the activities of federal regulatory agencies responsible for communications

policy implementation to 1970 found that regulation had been largely ineffective in implementing subsidies. The study completed for the DOC stated that:

The breadth and intensity of administrative, judicial and legislative control or guidance exercised over the industry in Canada over the years has been minimal. 16

Regulation had been confined to formal rate hearings concerned with the rate of return generated on company-determined expansion programmes. Little pressure had been exerted through the regulatory process to ensure the telecommunications industry met stated policy objectives. These studies focused on the regulatory process in Canada as a means of subsidy policy implementation. In finding that the telecommunications industry had been largely unregulated, an analysis of the impact of other methods of subsidy that had been used by the government to influence the telecommunication industries' performance was overlooked. The narrow focus of the DOC studies on the regulatory process limited their ability to examine whether other methods of subsidy were incorporated in the institutional arrangements for providing telecommunications.

Furthermore, the generality of the discussions of subsidy issues made it extremely unlikely that these reports would provide an understanding of subsidy problems in any specific case. Thus, the research undertaken by the government at this time provided few guidelines for effective methods of implementing government policies in the north.

The following sections examine federal intervention and subsidy policy in the telecommunications development process in the context of Northwest Canada. Federal regulatory and policy agencies are examined in light of

their effectiveness in implementing the full range of telecommunications policy objectives that were established for the north by the late 1960's. Chapter VI indicated a range of options for subsidy policy that exists. The characteristics of regulatory and other government agencies and the priorities placed on implementing specific policy objectives, have had a continuing impact on the telecommunications development process in Northwest Canada.

B. Telecommunications Regulatory Process and  
the Use of Internal Subsidies

Theoretically, the regulatory process can be seen as an institutionalized system of relationships between the government and the telecommunications industries through which policies that have been established for telecommunications development can be implemented. It is possible to examine the regulatory process in terms of whether it has been used as a context in which the government has attempted to implement policy objectives by encouraging the use of subsidies within the telecommunications industry.

The impact of these subsidy methods on the telecommunications development process in Northwest Canada has been difficult to decipher because internal subsidy practices have not been considered as an appropriate area for investigation by Canadian federal regulatory agencies until recently. Traditionally, regulatory commissions have not regarded it to be part of their mandates to make rulings as to industry practices related to cost allocation and revenue separation procedures. These decisions have been considered to be the prerogative of the telecommunications industry.

Neither the Canadian Transport Commission (CTC) nor its predecessor, the Board of Transport Commissioners, viewed their responsibility as one of actively implementing northern telecommunications policies. Minimal attempts



were made to ensure that the telecommunication industries' use of internal subsidies was conducive to the development of a comprehensive telecommunications network in the north that would be capable of serving a variety of needs. The regulatory process can be regarded as an ineffective means of implementing the full range of national telecommunications objectives in the north. However, this does not imply that some policy objectives were not implemented effectively, or that industry practices were inconsistent with the prevailing interpretation of government objectives that were given the highest priority.

1. The Limitations of Federal Regulation of Telecommunications Carriers

Common carrier regulation by the CTC concerned itself almost entirely with overall profit regulation. However, even this means of control was relatively absent in CTC's relationship with CNT. Few hearings were held during the corporation's history. Decisions issued by the CTC over the years abound with statements to the effect that:

The basic responsibility of the committee is to protect the public interest...it must foster the growth of the best telecommunications services at the lowest possible cost to subscribers...as a test of the reasonableness of rates, the Committee evaluates the rate of return on the company's investment. 17

The CTC's interpretation of its obligations excluded attention to the issue of internal subsidies. Scrutiny of company practices was regarded as being beyond the limitations of legislation under which the Commission operated. The CTC's reluctance to use its powers as a means of policy implementation is demonstrated by its refusal to order changes in a carriers' plans despite

findings that non-urban services were in need of improvement:

Until it is decided precisely what further improvements to non-urban services would be appropriate and who should pay for them...the Committee is not prepared to order any major changes in plans. 18

The CTC felt that the statutory provisions of the Railway Act requiring a determination of rates as just, reasonable, and free from discrimination, did not entitle it to "assume functions or decision-making that are clearly within the discretionary powers of the company."<sup>19</sup> Thus, public policy decisions were seen as falling outside regulatory jurisdiction. The function of the regulatory process was theoretically to ensure that telecommunications carriers granted a monopoly franchise over telecommunications services were regulated in terms of maximum profitability. Decisions as to investment priorities, planning and development were not part of the narrowly defined regulatory process. Other government agencies might well be influencing these decisions through subsidies or other means but this was not recognized as a regulatory function.

The CTC had been created with the enactment of the National Transportation Act in 1967. It united federal regulatory authority over rail, air, water, motor vehicle and commodity pipeline transportation. Telecommunications was included under the terms of the Railway Act, sections 320-321. Each of the major responsibilities was delegated to a committee within the CTC creating a complex structure. Until 1972, no separate committee existed to carry out telecommunications regulatory responsibilities.

Several factors contributed to the CTC's inactivity in regulatory matters beyond a narrow review of the economic implications of carrier

applications for rate increases. The concern of the commission was with the maintenance of an 'economic, efficient, and adequate' national transportation system. Telecommunications regulation was not a primary focal point but an incidental by-product of CTC transportation regulation. The Commission's history of regulatory practice in telecommunications demonstrates its lack of involvement in broad policy issues and its reluctance to give a wide interpretation to its legislative mandate.

Formal control through the appointed telecommunications regulatory commissions in Canada was sufficient only for broad economic regulation and in many instances failed to achieve this objective. This was confirmed by the federal government's review of existing statutory authority in 1973.<sup>20</sup> A lack of statutory national policy objectives to be used as criteria by the regulatory commission in the decision-making process was cited as the major barrier to the use of formal regulation as a means of telecommunications policy implementation.

An attempt was made in 1975 to ameliorate this problem. The CRTC Act transferred federal regulatory authority to the CRTC.<sup>21</sup> Statutory limitations on the commission's powers remained unchanged but the new commission began to interpret its responsibility in broader terms than its predecessors.<sup>22</sup> The CRTC turned its attention to policy issues that had been neglected by its predecessors in a series of general rate cases. Appropriate standards for access to and quality of service, adequacy of construction programme budgets particularly for northern service expansion projects, the reasonableness of rates charged for different levels of service, the extent of financial information available to the commission, and industry practices for revenue separations, were among the issues addressed.<sup>23</sup>

The reasons for the political acceptability of the new agencies' broader interpretation of its regulatory role are beyond the scope of this study. The concern here is on the subsequent changes in the use of the regulatory process to promote northern telecommunications development through the use of internal subsidies. Although the CRTC began investigations into a variety of telecommunications industry practices that had been previously overlooked, these changes in the extensiveness of regulatory interest in carrier performance left CNT's northern services largely unaffected.

## 2. The Impact of Regulation on CNT Internal Subsidy Policy

CNT's northern telecommunications service division has had infrequent appearances before the CRTC. Subsidy issues were raised in the course of the most recent general rate application hearing in 1977 that point to the difficulties the regulatory commission faces in attempting to implement policy objectives.

First, successive federal regulatory commissions have been unable to determine the direction or extent of cross-subsidy practices used by CNT. The corporation contends that it is unable to separate the costs of providing public telephone services from the costs of its other services.<sup>24</sup> It is virtually impossible to determine whether the revenues from telephone service do in fact provide a reasonable level of return, or whether these revenues actually support the other competitive services provided by CNT. Suggestions that the latter situation is the case abound,<sup>25</sup> but without detailed costing information the regulatory commission is prevented from actively curtailing these practices. CNT argues that its rates for the Northwest Telecommunications division services are based on the overall revenue requirement for

data, private line, public message, and telephone service. Telephone services are at the lower end of the scale, just covering costs, and some services in smaller communities are subsidized.<sup>26</sup>

Second, a lack of adequate financial information has prevented commissions from assessing the extent of intra- and inter-industry subsidy practices. Internal subsidies can be used to benefit any class of customers and they can remain hidden in the company's rate averaging practices. CNT maintains that it attempts to apply standard rates within classes of service throughout its territory. However, the principal of cross-subsidization required to carry this out is pursued only up to a point. CNT does not feel that it can be expected to offer any service at uneconomic rates. Areas that cannot afford to provide incentives to the company to underwrite the costs of service are not entitled to service levels that are comparable with those in areas which can. Where industries guarantee revenues, or population concentration and regional economic growth characteristics make services capable of generating revenues which cover costs, CNT will provide upgraded services. In 1977, the CRTC was forced to reject CNT's proposals for rate restructuring for services supplied in communities of different sizes because of a lack of costing information.<sup>27</sup>

Inter-carrier internal subsidies could have important ramifications for the total revenues available to CNT. The company is dependent for a large percentage of its telephone revenues on long distance traffic. Toll revenues accounted for 80.6% of total telephone revenues in 1978 (refer to Table 10, Chapter V). CNT claims that toll revenues are not used to subsidize local exchange development or operation but has no studies to indicate that this is in fact the case.<sup>28</sup>

In the United States, manipulation of revenue separations procedures has

been used by regulatory commissions and the telecommunications industry as a means of implementing or frustrating the implementation of telecommunications development objectives. However, in Canada, revenue settlements for members of the TCTS are made according to an agreement between the members.<sup>29</sup> Toll revenues derived from services offered on a Trans-Canada basis and divided between operating carriers were not subjected to review by federal regulatory commissions until an investigation was initiated by the CRTC (1979). The CRTC has taken the following position:

The Commission is convinced that as a minimum, a much fuller review of the operations, finances and practices of TCTS and its individual members will be required than has ever been the case before.<sup>30</sup>

CNT is not a member of the Trans Canada Telephone System (TCTS) and therefore has had little means of negotiating beneficial revenue settlements from the major toll carriers. The company contends that toll revenues received from TCTS are sufficient,<sup>31</sup> but again seems to have no evidence to support this conclusion.

A recent inter-regulatory committee examining the fairness of revenue division procedures used by B.C. Tel and Bell Canada found that the methods used by these carriers to allocate revenues to independent local exchange companies were unfair. Increased payments to the local telephone company concerned was recommended.<sup>32</sup> Since CNT is not a party to the negotiation of revenue settlement procedures it is possible that a closer look at these arrangements as far as CNT is concerned would result in a similar judgement.

The CRTC is just beginning to test its jurisdiction in the area of regulation of inter-provincial/territorial rates and revenue settlements.

It will be some time before procedures are established. Currently there is no way to assess whether subsidies that are common practice in the telecommunications industry in the United States have even begun to be applied in areas such as Northwest Canada.

A fundamental principle recommended recently by the CRTC may have implications for CNT's access to revenues in the future.

Subsidies flowing between telephone systems or between parts of such systems should be recognized and approved on the basis of sound public policy. 33

American revenue settlement procedures have been designed over the years to facilitate (not always successfully) implementation of a variety of regulatory goals, i.e., universal service at reasonable rates, improvement of facilities of participating carriers, rate restructuring to keep local rates and intra-regional rates at reasonable levels, etc. If the CRTC continues its investigation of previously closed industry practices the results may be beneficial to carriers that operate under high cost northern conditions. Under appropriate regulatory conditions increased revenues could find their way into construction, expansion and improvement programmes undertaken by CNT to upgrade services in small northern communities. Unfortunately, the step from CRTC attention to this problem to policy implementation through revenue separations is more akin to a gigantic leap. Since Canadian regulators are only beginning to examine this issue, the regulatory process should continue to be seen as an ineffective means of promoting internal subsidies for the development of basic telecommunications services, especially in isolated high cost areas of Northwest Canada.

The federal regulatory role in promoting telecommunications development in

Northwest Canada as it has been carried out through the CRTC and its predecessors can at best be described as insignificant in the sense that it has not actively sought to influence corporate decision-making concerning subsidy policy. The CRTC is only now beginning to establish objectives and extend its influence beyond the boundaries of traditional rate of return regulation. Its predecessors did not even contemplate such action.

The actions of the CTC and the CRTC represent different approaches to and concepts of regulation. The more passive role of the CTC in its attention to policy issues, i.e., subsidy policy, as compared to the CRTC's consideration of issues formerly left to industry discretion is a reflection of this difference. However, despite structural and conceptual differences in approaches to regulation, factors continue to confront the CRTC that prevent it from effectively implementing subsidy policy. The CRTC has held public hearings on issues of specific concern to northerners. It has ordered carriers serving northern communities to roll back rate increases. These actions do not necessarily assist northern residents who continue to receive inadequate services although they may pay less for them. Such actions on the part of the CRTC have no bearing on the resolution of subsidy issues.

#### C. Government Ownership as a Form of Subsidy

The advantage of government ownership were shown in the immediate possibility of commanding tremendous capital resources at a comparatively low rate of interest and placing at the command of the community in the shortest possible time the conveniences of modern civilization which involve heavy capital investments. 34

The quotation cited above is taken from Innis' analysis (1933) of the



significance of the use of government ownership as a historical tradition in the Canadian context. Innis referred to methods of government intervention employed in Canada in order to ensure transportation services were provided during the late 1800's and early 1900's. Government ownership often has been used in Canada as a way of subsidizing development of industries that play an important role in the economic development process. This method of subsidy has been justified as necessary to implement policy objectives to promote everything from national security; social, economic and political development; national prestige; to national unity. Despite charges of inefficiency levelled against industries in the transportation, energy and communications sectors, government-owned industries in the form of corporations or agencies within government departments abound. These corporations have been viewed as necessary to protect numerous definitions of the 'public interest'. However, an examination of the operating characteristics of these corporations often reveals a discrepancy between that segment of the 'public' assumed to be the beneficiary, and the actual beneficiary. This section examines the implications of CNT's corporate structure in terms of its impact in telecommunications development in North-west Canada.

1. Implications of CNT Corporation Structure for Subsidy Policy Implementation

Chapter V provided clear indications that CNT is more responsive to system-wide CNR policy objectives, than to the needs of Northern residents. CNT's position regarding the issue of subsidies for high cost northern telecommunications services provides further indications that the company does not see itself as a vehicle for fostering telecommunications policy

implementation in all areas of Northwest Canada.

CNT is compelled to function only as any other business would and rightly has no authority to disburse what amount to communication subsidies. 35

CNT argues that the rules and regulations prescribed by regulatory agencies protect carriers from being forced to provide uneconomical service unless the expense is carried by the individual, company or government requesting service.

CNT's position has been that it should be used as an 'instrument of government policy' only under the condition that the costs of uneconomic services are completely met by the government.

Any subsidies, if they are to be paid, have to come from an appropriate department of the government and the decision has to be approved by the elected representatives of the taxpayer. 36

CNT's Toronto management has conceded before the CRTC that strict adherence to economic efficiency criteria in decision-making may not always be feasible with respect to the telephone division:

Inevitably [there are] times when our responsibility to provide service as a telephone company...decisions are taken because of the franchise...investments are made not on a commercial basis, but it must be made because of a responsibility to provide service. 37

Thus, CNT policy requires that northern residents qualify for high quality telecommunications services only when sufficient revenues can be generated

to cover costs allocated according to CNT's procedures and criteria for economic feasibility. CNT apparently does not consider that internal subsidies have a bearing on the judgement of economic viability of proposals for telecommunications service development.

It is interesting to note that CNT justifies its position through an analogy with the overbuilding of railway lines in the early 1900's. This policy is seen to have resulted in nothing more than a financial burden to Canadian taxpayers. The importance of 'uneconomical development' in the transportation sector as viewed in the historical context of political, economic and social development of Canada, remains not surprisingly unrecognized within the narrow corporate perspective.

The following summarizes CNT's perception of its role in the telecommunications development process in Northwest Canada.

We are a business, not a government agency. There are departments of the federal and other governments which have a responsibility for providing assistance to operations which are not viable but are nevertheless deemed to be essential for national policy...We are not one of them. 39

This position is not particularly unusual for a crown corporation. Historically, government-owned enterprises have been created to operate on a commercial basis, emulating the private sector. The CNR System is one of many corporations that fall under the section of the Financial Administration Act that states that they are "ordinarily required to conduct operations without appropriations."<sup>40</sup> The fact that responsibility for telecommunications in the Northwest was placed under the umbrella of a corporation intended to operate in this way is an interesting comment on the role and importance

historically ascribed to telecommunications in the North.

## 2. Subsidy Policy and Government Ownership in Northern Power Development

It has been indicated earlier in this study that CNT interprets its mandate as requiring it to be both self-sustaining and profit-oriented. For example, in a recent speech to the Northern Resources Conference in Whitehorse, the manager of CNT stated that "There are no taxpayers' dollars involved in CNT's operations in the north. This is a profit-oriented service which is capable of standing on its own feet financially."<sup>41</sup> The structure and organization of the telecommunications industry in Northwest Canada can be contrasted with that of the power industry. It has been organized to act in a manner that is more directly and explicitly amenable to energy development and national policy implementation.

The Northern Canada Power Commission (NCPC) provides an example of a crown corporation established in the Northern Territories that has a mandate to operate on a 'self-sustaining' basis. It was created in 1948 to provide electric power at approximately the same time that telecommunications facilities were transferred from the Department of Transport to CNT.<sup>42</sup> CNPC was required to provide power at cost and to recover its costs in its tariffs charged for electricity. The Act stated that:

The Commission shall, with the approval of the Governor-in-Council, establish schedules or ranges of rates for public utilities supplied by it under this Act, but the rates to be charged...shall not be less than the estimated cost to the Commission... 43

By supplying power at low cost it was intended that the Commission would "assist substantially in the development of the mineral industries in the Territories."<sup>44</sup>

Unlike the CNR System, the NCPD is classified as a Schedule C or agency corporation under the Financial Administration Act. Also included in this category are the Canadian Film Development Corporation, the National Harbours, Atomic Energy of Canada Ltd. These companies tend to be more closely aligned in their activities with implementation of government policy objectives which are seen to be in the 'national interest'. These corporations are responsible "for the management of trading or service operations on a quasi-commercial basis."<sup>45</sup> There is no necessary legal expectation that they operate without, in some cases, substantial appropriations from parliament. The Act states that: "The Minister of Finance may...make advances to the Power Commission for the purpose of capital expenditures under this Act from unappropriated money in the Consolidated Revenue Funds of not exceeding at any one time \$1 million."<sup>46</sup>

From 1948 to 1959, NCPD interpreted its mandate as being to provide service only when the need was definitely established and there was sufficient guarantee that it could recover its costs.<sup>47</sup> Its performance and role as a contributing factor in the northern development process has been described as follows:

It is apparent, then, that the idea behind the NCPC was to use a public agency to undertake the kind of large-scale investments in efficient generating facilities which private investors would not undertake. Thus, the Commission's customers would receive the benefits of lower cost power at no cost to the federal taxpayer living elsewhere in Canada. The latter provision was zealously safe-guarded, at least until the late 1950's by the Commission's adherence to conservative practices for evaluating the feasibility of projects, by its policy of guaranteeing markets in advance, as well as by its general rate policy. 48

As power requirements and energy development became a more integral aspect of the federal government's economic development policies in the north, the conservative investment policies of NCPC were modified. The potential role of electric power, not only in stimulating industrial and resource development, but also in its role in supporting expanded government administration, education, health, and welfare programmes, were among the reasons given for this shift in policy. The need for an agency to perform newly defined roles led to a gradual relaxation of economic criteria in evaluating expansion and development of power facilities in the territories. Since the mid-sixties income tax payments have been eliminated, large amounts of federal funds have been invested, and since 1975, the Commission has operated with a deficit.<sup>49</sup>

NCPC's primary role has been to ensure the availability of sufficient power to meet requirements of industry and government users in the Yukon and Northwest Territories. The Commission was originally established in response to the needs of the Yellowknife Gold Mining Company and provided

the government with a means of ensuring that the capacity of power developments met the needs of both the mine and the community. Other projects were initiated to meet demands of United Keno Hill Mines in Mayo, and Government administrative needs in Fort Smith, the capital of the Northwest Territories. Later, hydro developments in the mid-1950's on the Yukon River near Whitehorse provided power for its growing demands. In the 1970's another project, the Aishihik Dam, was undertaken primarily to meet needs of the Cyprus Anvil mine in Faro, Yukon Territory. This latter project has been regarded as a major cause of NCPC's deficit performance in recent years.<sup>50</sup>

As NCPC is legally obliged to operate on a self-sustaining basis, the problem of cost allocation has been addressed by the Commission and the federal government. NCPC commissioned a study in 1976 which recommended rate increases in the order of 100% as a solution to the problem.<sup>51</sup> The negative ramifications of this proposal were condemned by both the National Energy Board (responsible for NCPC rate regulation) and the federal Anti-Inflation Board. A Task Force, under the auspices of the Department of Indian Affairs and Northern Development, was set up to examine the problem.<sup>52</sup> The report reviewed several alternatives to rate increases. Deferred government loan repayments, reimbursements from the Treasury Board to cover costs of investigating power projects, grants, interest-free loans, and deferment of debt service charges, were among those discussed.

None were considered specifically in terms of a government subsidy for power costs in the north. Any action that has been taken, including

a recent cash infusion of \$7.5 million in 1978, has been in response to short-term NCPC financial difficulties "as a result of extraordinary increases in costs of operation and to ensure that further rate increases are kept to a reasonable level."<sup>53</sup> Discussions as to the need for a subsidy were restricted to the justification for using federal funds to reduce the cost of power for domestic (residential) non-government consumption of electric power in the north. The restrictive application of the subsidy concept is evident in the following quotation from the Task Force Report:

No general subsidies other than those currently provided by the Yukon Territorial Government through equalization payments...be granted to domestic consumers of electrical power in the Yukon. 54

The tendency to divorce the problem of power production costs in the north from the problem of high costs to consumers has resulted in a series of tangled and often counter-productive measures that have been taken to ameliorate the problem. The reason for the separate treatment of what is essentially a systemic problem stems partially from the fact that NCPC is primarily a producer of power. It acts as a direct supplier in only a small number of communities in the Yukon. The costs of power in the majority of communities also reflect the rates charged by the company which acts as a distributor and retail supplier. In the Yukon, the Yukon Electrical Company, a subsidiary of Alberta Power Corporation, and International Utilities Ltd., based in Philadelphia, supplies power in all but four Yukon Communities. Over 70% of the



Yukon Electrical Company's residential customers are located in Whitehorse. A large percentage of the remaining customers are located in communities that depend on high cost diesel-generated power. Small population sizes and high power generation costs have combined to make the unsubsidized cost of power particularly in small outlying communities in the Yukon inordinately high when compared to costs in southern areas of Canada. The Task Force Study is the only major study that is publically available to have addressed the need for subsidies for power consumers in the North. It focused the majority of its attention on one small portion of the on-going problem of a disparity between the costs of an essential service between the remote communities in the north and larger centres both inside and outside the north.

Where subsidies have been introduced they have been haphazard, short-term, and have simply assumed that a disparity was inappropriate. Neither the federal nor Territorial Governments have shown any inclination to design subsidy programmes in response to an assessment of the need for power throughout the north, and especially, of the need in those communities where costs are highest and have therefore the greatest potential to restrict use.

An example of the tendency to implement subsidies without reference to need or to objectives is provided by a scheme introduced by the Yukon Territorial Government in 1970. Before implementing a subsidy for an initial block of power in all communities in the Yukon for non-government residential users, the Territorial Government commissioned a study. It was completed by a B.C. Hydro consultant and recommended a programme that had a matching of financial resources to the subsidy dollar requirement in a single year as its primary objective.<sup>55</sup> Not only did the study fail to consider future growth,

but more importantly, it failed to discuss the objectives of the programme, the distribution of benefits or the rationale underlying it. A series of additional studies undertaken between 1970 and 1978 all suffered from essentially the same problem. Throughout this period the need for a subsidy was justified by the recognized differences between the costs of power in the north as opposed to southern Canadian cities, and never on the basis of the special needs of northern residents.

The federal government's Task Force Report (1976) also failed to conceive of the problem in a wholistic fashion. By assuming the continued existence of the Territorial Government's subsidy plan (which received its funding through a system of federal government tax rebates), it was capable of finding that there was little evidence of a need for subsidies. This was the general conclusion of a report which also stated that:

...a comparison of average bills indicates that consumers in some of the small outlying communities of the North are paying some of the highest rates in Canada for relatively small consumption of electricity. 56

By 1978, the Yukon Territorial Government's subsidy programme was in a precarious position, initially because of the inability of the revenues from federal utility tax rebates to meet the exponentially growing cost of the subsidy plan due to growth in population, consumption and increased rates, and later, by the withdrawal of the rebate system by the federal government. In 1978 the federal government announced its own subsidy programme designed to supplement the existing one.<sup>57</sup> However, there was no evidence that any further consideration had been given to the purpose of the programme. The levels of consumption to be subsidized were arbitrarily based on comparisons with consumption levels in the south, and the extent of the benefits received by northern residents was determined, not by need, but by an arbitrary dollar

figure allocated for the programme by the Treasury Board.

The Yukon Territorial Government commissioned a further study (1978), originally to examine the problems associated with its own programme, and later, the effects of the combined federal and territorial programmes. This study made suggestions as to the optimum structure of subsidy programme, which while being constrained by estimates of the revenues available, would ensure that future increases in costs of power to Yukon consumers would be shared between the consumer and the government financing source.<sup>58</sup> Again, limitations imposed on the study precluded an extensive investigation as to the appropriate objectives that should be incorporated into a programme designed to subsidize power costs in the north. By September of 1979, the recommendations had not been acted upon. Electricity consumers in the north continue to receive subsidies but they remain contingent on the vagaries of fiscal resource allocation at the federal level. No clear rationale exists to provide support for a long term solution to the cost problem in the event that restraint and other federal priorities take precedence and withdraw the existing level of subsidization.

The history of the electric subsidy problem in the Yukon is discussed here at some length because it indicates problems associated with the way in which subsidies have been conceptualized that are relevant in other contexts. Federal financial assistance for maintaining the financial performance of NCPC has been the primary concern. The majority of NCPC's customers are either industrial concerns, or the consumers located in Whitehorse. The same pattern holds for the Northwest Territories as well. By comparison, the problem of the availability of an essential service, electricity, in outlying communities in the north has received inadequate and piecemeal attention. Subsidies have been implemented in accordance with temporary availability of

federal funds, not in accordance with need. In the case of these subsidies, the assumption has been that a reduction in disparities between service costs between the south and the north automatically results in the conclusion that services that are available, are both reasonable and adequate regardless of northern conditions.

In the power industry, there is evidence that a government-owned corporation was used to implement economic development objectives. It was designed to be flexible and open to direct government policy implementation. Policies and programmes were focused on meeting the demands for power from industry and government located in or near major economic centres, such as Whitehorse and Yellowknife.

Superficially, it appears that the same degree of linkage between corporate decision-making and broader economic policy objectives did not occur in the telecommunications industry. Decisions concerning CNT's policies and internal operations were largely developed unencumbered by active federal intervention through the regulatory process. However, telecommunications services have been upgraded in CNT's territory in accordance with government policies and priorities that have taken precedence over the years. The federal government has depended on direct subsidies. Their effectiveness and impact on the telecommunications development process is discussed in the next section. Although isolated communities have received subsidies to upgrade communications facilities in the north, the majority of financial assistance has been directed to meet telecommunications requirements of business, industry and government. Insufficient attention has been given to the causes of the problem, the need for subsidies, or how to ensure that once funds do become available, the benefits are received by those for whom they were originally intended.

#### D. Direct Subsidies Implemented by Government Departments

The federal government's role in the telecommunications development process has been extensive in Northwest Canada, despite CNT's contention that "over the period of CNT's development in the North, financial and other arrangements have been minimal and insignificant."<sup>59</sup> This section outlines several of the direct subsidy methods that the federal government has used to influence the pace and direction of telecommunications development. Of necessity this review is general as detailed information concerning corporate/government inter-financing was unavailable. The information which is presented, is sufficient to begin to discern a link between federal investment that is consistent with changing priorities in national economic development policy.

The shifting emphasis placed on economic development in the northwest in the late 1950's has been outlined (Chapter IV). Subsidy programmes were introduced at this time to promote transportation and power development. Programmes such as 'Roads to Resources', the Remote Resources Airports Programmes, and the Northern Roads Network Programme were established.<sup>60</sup> The objective was to use public financing to support transportation links connecting specific resource projects. Subsidies for transportation development tended to ignore the need for a well integrated plan that would result in an area-wide integrated road network.<sup>61</sup>

##### 1. Direct Subsidies for CNT Network Development

CNT was also a recipient of federal financing during this period. Emphasis was placed on construction and expansion of long distance trunk facilities.<sup>62</sup> Increased interconnection capacity between growing economic and political centres, and between northern and southern Canada was provided.

Federal financial assistance was available for construction of two of the three major arteries or telecommunications links in the CNT system.<sup>63</sup> The first route followed the Alaska Highway and was originally constructed and financed by joint U.S./Canadian agreements during World War II. When the U.S. military again required increased capacity in the late 1960's, the original pole line was replaced by microwave. The system running from the Yukon/Alaska border to Grande Prairie, Alberta, received substantial federal assistance. A fifteen-year contract was negotiated that ensured that the cost of the system would be paid for by the end of the contract period.<sup>64</sup> Thus telecommunications services were improved primarily to meet military needs. According to the federal Minister of Northern Affairs (1959), "supplying services to remote communities that do not have it now"<sup>65</sup> was feasible only where major trunk lines were located in close proximity to communities. Whitehorse, Fort Nelson, Watson Lake and other communities fortunate enough to be located along the highway benefited from expanded upgraded services.

The second major telecommunications route in the Northwest was constructed in the mid- and late sixties. It followed the course of the Mackenzie River from Hay River to Inuvik in the Northwest Territories. The original pole line was constructed by CNT under government contracts. The government guaranteed the difference in costs to CNT to a break-even situation over ten years. When microwave overbuilding took place in the early seventies the federal government again supplied financial assistance to maintain the costly obsolete interim system.

Northern communities such as Norman Wells, Aklavik, and Fort Simpson were interconnected to the main system only after the government agreed to assist in the deficit operation. In 1970, a third major microwave route was constructed, interconnecting the two older systems. This increased capacity

was required in response to oil exploration and received some financial support from government sources.

The major proportion of federal assistance was allocated for construction and upgrading the "backbone" of the system. Few funds were directly allocated to ensure that community residents obtained access to adequate, high quality basic services. Exchanges were introduced by CNT when corporate criteria determined their economic feasibility. Fortunately the advantage of terrestrial systems constructed during this period was that communities located along the major routes were less costly to connect. Breakouts were used to connect numerous communities in the Yukon and Northwest Territories. However, in many cases obsolete pole lines are used to carry intra-regional and local traffic while traffic from Alaska and Yukon and Northwest Territories economic centres to the south is routed over modern microwave facilities.<sup>66</sup>

CNT's response to demands for services from industry was quick as long as the cost of service and facilities was guaranteed either by government or industry subsidies. As early as 1957 and 1959, pole lines were constructed to Cassiar, a major asbestos development, and to Mayo and Elsa, sites of United Keno Mines. Financial support for the latter was approved by the Treasury Board in 1959.<sup>67</sup> CNT's policy has been to rely on incentive grants from oil and mining companies in the form of minimum revenue guarantees as an additional means of protecting its investment.

The dominant priorities guiding federal investment in northern telecommunications projects by 1973 have been summarized as follows:

Substantial population growth, which is so necessary, not only for the extraction but also for the processing of resources, cannot be expected unless the communications enjoyed by most Canadians are extended to the North. Defense of the nation requires reliable communications corridors reaching to the top of the continent...

Communications carriers face high risks in providing services because of the large costs of installation and operation and maintenance associated with a small and widely scattered market. 68

No mention is made of carrier or government responsibility for financing development of services for residents in smaller communities. Insufficient revenues from mining, oil and gas exploration, or government services, has left many of them with less than adequate service as compared to southern Canada.

## 2. Subsidies Allocated to Remote Areas

Subsidies for services in small isolated communities, mainly in the Northwest Territories, have been a recent phenomena. Bell Canada received financial assistance in 1973. A Minimum Annual Revenue Guarantee Programme (MARG) was the first active recognition of a need for government financing to provide an incentive for expansion in areas where costs were clearly in excess of revenues.

Another long-term plan was introduced by the DOC in 1977.<sup>70</sup> This subsidy programme was specifically designed to reduce disparities between the availability of essential services throughout the North and between the north and south. Under the terms of the five-year \$9 million Northern Communications Assistance Programme (NCAP), the federal government committed financing for the capital costs of telecommunications facilities between communities in the Northwest Territories. CNT (and Bell Canada) agreed to invest equal amounts in capital and operating funds for local exchanges.

In the Public Notice accompanying the programme's announcement, the DOC admitted that it represented the first direct step taken by the government to implement its communications policy in the north, i.e., "that a minimum level of communications service be established as a priority at all communities



throughout both Territories, comparable to similar communities in the south, as public and private funds become available."<sup>71</sup> Government commitment to this policy would seem to have been firmly established:

The major difficulty in extending service is the high cost of the required facilities as compared to the limited revenues available to recover these expenses, and there is a limit to the level of losses which can be reasonably supported. It was therefore concluded that government financial support is necessary to assist the telephone companies in extending reliable service throughout the territories. <sup>72</sup>

Several communities benefited from the programme in both CNT and Bell territory. Satellite earth stations were installed to replace existing VHF systems which had provided communities with single channel interconnection with the long distance public network and no local exchange service.

Unfortunately, this program was among those 'delayed' under 1978 government financial restraint programmes.<sup>73</sup> Introduction of a subsidy programme directed toward increasing services in isolated communities reflected a shift in government priorities. Increasingly, government attention has been focused on a broad spectrum of issues related to economic development in the north. However, the fact that the programme was so easily abolished points to the lack of an effective means of implementing policy objectives. It also illustrates that where policy objectives, unrelated to mainstream industrial development in the north, are concerned, subsidy programmes for telecommunications development continue to be sporadic and unplanned.

#### E. Northern Participation in the Policy Implementation

The previous section has examined federal subsidies for telecommunications

development in the Northwest in the context of their relationship to a larger set of changing economic development priorities. An examination of the major participants in the decision process that affects the availability of subsidies also indicates that the structural relationships of the institutions is not responsive to multi-faceted needs for telecommunications services in the North.

The Department of Communications is responsible for initiating direct subsidies in order to implement its interpretation of national telecommunications policy objectives. The DOC's recommendations are then referred to Cabinet. There are several ways in which northern residents can make their views known to the Department but these tend to be forums where there is little opportunity to influence the decision process.

To the extent that CRTC hearings have been open to submissions from northern residents, the regulatory process has provided a forum for those groups or individuals who have been able to afford the costs of participation. However, the issues of direct concern for remote telecommunications service development are generally subsumed within larger issues concerning general rate applications by the carriers. In the case of CNT, the scarcity of public hearings has reduced the possibility of making use of the opportunity to publicize problems.

The federal government has attempted to represent the decision process concerning the allocation of financial resources as being open to public participation and influence because of the participation of northern people on committees that are said to have input into decisions affecting policy formulation, planning or policy implementation. However, a closer examination of the composition and role of these committees lends support to the argument that there are few effective ongoing means of access for most northerners to

the decision process.

The NCAP programme discussed in the previous section provides an example. The original idea for the programme came from submissions to the CRTC presented by the Inuit Tapirisat of Canada. When the Department of Communications finally initiated the programme, it noted that "active participation" from native and non-native northerners concerning the final policy proposal had been received through an interdepartmental committee.<sup>74</sup>

The Committee referred to was the Advisory Committee on Northern Development (ACND). The ACND is supposed to provide, through a committee structure, the mechanism for interdepartmental planning and co-ordination of federal policies and programmes pertaining to the Canadian North. Through a number of specialized committees and working groups, it reports to the Minister of Indian Affairs and Northern Development.

The Committee on Northern Communications is composed of representatives of various federal and territorial departments and agencies and assists in coordination of government activities in the Territories. It is interesting that of the 23 members, 20 are representatives of government departments located in Ottawa. The Yukon and Northwest Territorial governments are each represented by one member and a further member represents the Public Service Commission in Yellowknife.<sup>75</sup> Native organizations are conspicuously absent. Furthermore, the Chairperson of the Committee states that:

The Committee is just that [advisory] and is not an integral component in the hierarchy of any particular government department or agency. In fact, it meets rather infrequently and attending its meetings occupies only a tiny portion of the time of those who are members of the Committee, including the Chairman. <sup>76</sup>

This committee was reportedly used as the vehicle for public input into the decision to implement a communications subsidy but by its own definition, it could not have been effective in influencing decisions concerning the programme.

The lack of public accessibility to the planning and policy implementation process carried out by the DOC, with the ultimate 'closed door' sanctification of Cabinet, is also indicated by the DOC's tendency not to announce policies or prospective programs until after decisions are made "so as not to raise expectations until funds become available."<sup>77</sup>

Yet another example of the inadequacy of northern representation in the decision process is provided by the CRTC's recently created Inter-regulatory Committee to examine TCTS rates and practices. No representatives from the territorial governments or other northern groups were included, despite the importance of the committee's deliberations for future regulation and development of telecommunications in the north.<sup>78</sup>

The liaison between federal government representatives located in Ottawa and the North and the telecommunications industry is strong, but their activities and negotiating processes remain invisible to people in the north, should they want to participate in planning and development of services to meet their own needs.

#### F. Analysis

This chapter has demonstrated that the process of telecommunications policy implementation in Northwest Canada has been influenced by decisions made by the federal government concerning the use of several methods of subsidy. The initiatives taken by the government have not always been recognized as subsidies and the consequences of the use of subsidies has not

been examined in terms of their impact on the telecommunications development process.

The data illustrates the fact that subsidies have been effectively used to promote telecommunications service development when it has been linked to government priorities associated with economic development, i.e., when telecommunications services have been considered to be an essential aspect of the economic infrastructure. However, where the need for telecommunications services has been more closely linked to implementation of social policy objectives, government subsidies have been more restricted and less effective as a means of policy implementation.

CNT is reluctant to recognize the fact that internal subsidies have played a role in promoting telecommunications service development. The regulatory process was not actively used to promote policy implementation. However company practices appear to have resulted in a telecommunications system that met the needs of the military, the government, the industry, thus fulfilling some aspects of national telecommunications policy.

The role of CNT as a crown-owned corporation in implementing the government's telecommunications policy objectives has tended to be obscured by the company's contention that its operations are not subject to government influence and that it does not engage in providing telecommunications services that require subsidies. However, if subsidies are considered to include methods used by the government to promote the development of services, the selection of CNT to provide telecommunications services in the northwest can be considered a method of subsidy. The incentives inherent in CNT's structure and operation have promoted service development that met the objectives to which the government gave highest priority. The advantages of CNT's status as a division of the CNR System (discussed in Chapter V) were sufficient to

promote the development of a telecommunications system to meet the requirements of industry, government and business. The institutional structure did not provide incentives for telecommunications development in remote high cost areas. In this sense, it can be seen as an ineffective means of fully implementing telecommunications policy that requires the development of adequate basic services throughout the Northwest.

The discussion of the federal government's use of direct subsidies also demonstrates a bias toward promoting the development of telecommunications services that contribute to the infrastructural service base that is supported and financed by the government as part of its plan to promote industrial development in the north. The majority of subsidy methods that have been initiated by the federal government and CNT have tended to promote the construction and operation of services in response to priorities defined by national economic development policy. When subsidies have been initiated to promote service development in remote high cost areas, the justification has been given in terms of social policy objectives. However, these subsidies have been temporary solutions applied to a problem that exists because of the institutionalized system of incentives that directs the decision-making process concerning the allocation of financial resources. There is no evidence that federal subsidy programmes designed to promote telecommunications development in remote areas have been given adequate consideration in terms of available alternatives that would be effective in implementing national telecommunications policy objectives.

There is evidence that the structure of government agencies and the telecommunications industry, and the relationships between and within them represent an institutional system that is relatively ineffective as a means of fully implementing national telecommunications policy objectives. This

is particularly evident in areas where services are costly and tend to be categorized as fulfilling social policy objectives rather than higher priority economic or military 'national' objectives. The regulatory process has not yet exercised its authority to promote internal subsidies to fulfill social aspects of national telecommunications policy objectives. The carrier is oriented towards providing services in and between lucrative revenue producing centres. Direct subsidies have not been implemented in a way that effectively alters the carrier's investment policies concerning telecommunications service development in remote areas.

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## CHAPTER VIII

TELECOMMUNICATIONS POLICY IMPLEMENTATION IN ALASKA:  
THE ROLE OF SUBSIDIESA. National and State Telecommunications Policy Objectives

A commitment to develop a statewide telecommunications system in Alaska is evident in statements as to national and State telecommunications policy. It is also implicit in the institutional arrangements that were made at the federal and State government levels when the Alaska telecommunications industry was restructured in 1970. In 1971, the Federal Communications Commission (FCC) made it clear that national telecommunications policy was to be applied to Alaska.

With the acquisition of the Alaska Communications System by RCAA (Alascom), it is to be expected that the people of the State of Alaska, in the not too distant future, will have at their disposal communications facilities and services comparable to those offered throughout the Lower 48 States. Clearly, this is the primary objective of the Disposal Act. 1 [my emphasis]

The FCC certificate authorizing RCA Alaska Communications Inc. (Alascom) as a long distance carrier in Alaska carried with it the expectation that the corporation had agreed to undertake an extensive telecommunications development programme. This programme was to reduce disparities in the level and quality of telecommunications services between Alaska and the Lower 48 States in fulfillment of national telecommunications policy objectives.

The FCC's mandate to promote telecommunications development is derived from the Communications Act of 1934 which authorized federal jurisdiction

over interstate rates and the allocation of licences for telecommunications carriers using the radio frequency spectrum, i.e., landline microwave and satellite facilities. With the withdrawal of military control of telecommunications facilities in Alaska, the FCC was bound to implement national telecommunications policy concerning domestic telecommunications services.

To make available, so far as possible, to all people of the United States a rapid, efficient, nationwide, and world-wide wire and radio communications service with adequate facilities at reasonable charges... 2

Institutions representing the State of Alaska have exercised varying degrees of control over telecommunications and the extent and nature of subsidies for telecommunications development. As far as the formulation of explicit policy objectives for telecommunications development are concerned, it is possible to discern a unified position at the State government level. Representatives of Alaska have continually sought to ensure subsidy policy would provide incentives to the telecommunications industry to promote service development throughout the State.

The State of Alaska's jurisdiction over telecommunications is derived from legislation giving the State regulatory commission authority over intrastate rates, local rates, and the carriers providing these services, i.e., Alascom and the local exchange telephone companies. The Alaska Public Utilities Commission (APUC) initially exercised its authority over Alascom in 1970 by making the carrier's licence contingent on fulfillment of a number of conditions that were derived from State telecommunications policy objectives.

The State government has also been represented by the executive branch;

i.e., the Governor's office, Congressional representatives, and the State Legislative Assembly members. In 1974, the State's active and continuing interest in telecommunications was formally recognized with the creation of the Alaska State Governor's Office of Telecommunications (OT). This agency was given a responsibility for planning and policy recommendations. It was to "ensure the development of communications services to facilitate social and economic goals of the State of Alaska."<sup>3</sup> The office was intended to function as an agency 'autonomous' from the legislative branch of government, although it received its financial support from yearly legislative appropriations. The Office engaged in advocacy activities focusing on a wide range of issues. These included analyses of problems encountered in promoting expansion of telecommunications services to remote and rural communities which historically had been unable to attract the interest of telecommunications carriers in Alaska.

Representatives of State and Federal governments participated in Congressional hearings preceding the sale in 1969 of the Alaska Communications System (ACS). Special attention was given to establishing telecommunications policy objectives that would incorporate the needs of rural and remote communities. Telecommunications services were defined as essential services that should be accessible at reasonable cost to all Alaskans.

Essential to any comprehensive plan of development must be the provision of adequate public utility services at reasonable rates. This is true in all the service fields -- communications, power and transportation. 4

Problems associated with financing telecommunications development were considered within the traditional framework of telecommunications subsidies



initiated by the carriers.

The problem is to provide adequate service to subscribers in the sparsely settled areas at rates they can afford. This is not a new problem to private carriers, most of whom practise an averaging of rates and charges over the entire system so that the deficits on some portion are made up by surpluses on another. 5

Several years later (1975) the same policy position was evident in an FCC decision:

It is clear that there is an urgent need for efficient, high quality communications to the rural Alaskan bush communities. 6

State and Federal governments have been actively involved in policy formulation and implementation for approximately ten years. Specific attention has been given to include the needs of isolated communities within a broad planning perspective. However, problems continue to exist because the allocation of financial resources for telecommunications development has not paralleled statements of policy intent. The extent of the problems that continue to be faced is evident in the following remarks made by the Office of Telecommunications in Alaska.

Despite major improvements in the Alaskan telecommunications system since 1970, the state is still a long way from having a fully developed telecommunications system. The small earth station program has extended limited toll and television services to some areas of the bush. But major areas of the state still lack local service; too many areas that have local service receive unacceptable service quality; several areas of the state receive toll service of unacceptable quality. 7

As these conditions continue to exist, it is clear that the question as to the appropriate use of subsidies, where and how they should be located, remains unanswered in an effective way. Additional revenues and capital are necessary to provide an incentive, particularly to local telephone companies, to expand services to communities throughout the state. A way must also be found to provide incentives to Alascom and independent Alaskan carriers telecommunication facilities in remote communities.

The following discussion reviews the roles of federal and State agencies in the policy implementation process. The effectiveness with which subsidies have been used or encouraged by these agencies to promote implementation of policy objectives that are consistent with stated national telecommunications objectives is also examined.

#### B. The Use of Subsidies in Federal Telecommunications Policy Implementation

The federal regulatory process represents one forum in which decisions have been made that affect the allocation of financial resources within the telecommunications industry. It has had an impact on the extent to which subsidies are initiated that promote telecommunications policy implementation in Alaska. Among the means available to the Federal Communications Commission (FCC) to influence the allocation of financial resources within the telecommunications industry are its powers giving it the authority to approve regulated carriers' construction plans and its authority over the division of revenues within the telecommunications industry.

The FCC may approve, modify or deny an interstate carrier's plans for telecommunications service development in order to ensure that the most cost effective programme is pursued that facilitates implementation of policy objectives. For example, Alascom originally planned to provide telecommuni-

cations services in rural Alaska using a mix of large satellite earth stations and expensive interconnecting microwave lines. The FCC required revisions to this plan to reflect the use of less costly earth segment facilities and a reduced use of microwave facilities.<sup>8</sup>

The FCC also has the authority to order the telecommunications industry to adopt specific procedures for allocating interstate toll revenues between telecommunications carriers participating in the nationwide long distance public telecommunications system. By ordering that a specific methodology be adopted, the FCC has the ability to manipulate the extent of geographical internal subsidies to cover the varying costs of providing service throughout the United States. The methods that are currently in use were adopted in 1971.<sup>9</sup> They reflect the results of a process of negotiation between the regulatory agency and the telecommunications industry. This process excluded a consideration of the revenue requirements of the Alaska telecommunications industry. The existing procedures result in a system of revenue allocation that is intended to facilitate policy implementation, i.e., a universally accessible basic telecommunications system. The procedures have been replete with internal subsidies in order to meet this objective.

In 1972 the FCC ordered that service to isolated villages in Alaska could be made economically feasible by "nationwide cost averaging and equalization for interstate rate-making purposes."<sup>10</sup> This policy has required a phased reduction of interstate rates to the same levels as average interstate rates between states in the Lower 48. The process of rate integration had had serious ramifications for revenues available to Alaskan telecommunications development especially in high cost areas throughout the State.

In recognition of the consequences of reduced revenues for the Alaska telecommunications industry, the FCC established a Joint Federal/State

regulatory board to recommend changes in procedures to ensure that sufficient revenues would be available to promote continued development of telecommunications services in Alaska.<sup>11</sup> However, changes in the revenue allocation procedures can be expected to reflect the dominant interests of telecommunications carriers, i.e., AT&T, operating in the Lower 48 States. Their objective has been to ensure that they retain the maximum possible share of available revenues. They have a continuing incentive to resist adopting procedures that would provide sufficient revenues to promote telecommunications development in extremely high cost areas in Alaska.

The Board is composed of FCC, Lower 48 States, and Alaska regulatory commission representatives. Its mandate has been to determine "what changes, if any, should be made to the existing NARUC/FCC Separations Manual to make it applicable to Alaska and Hawaii."<sup>12</sup> By July of 1979, hundreds of pages of evidence had been accumulated. The argument over subsidy methods and their applicability as a means of policy implementation has continued. The State of Alaska's position has been that procedures adopted in the Lower 48 States are inappropriate when applied to Alaska because they fail to provide sufficient revenues to ensure that national telecommunications policies are implemented. The position held by the telecommunications industry and a majority of regulatory commissions in the Lower 48 States has been that any revision or exception to existing procedures would constitute an 'uneconomic' subsidy. This investigation is nearing its final stages and may result in a decision that will allow Alaskan carriers to receive additional revenues. If this is the outcome, it will be an admission that separations and settlement methodologies are but a means to implement telecommunications policy objectives, and that subsidies are integral to all parts of the telecommunications network and crucial to its continued development.

To date, despite its mandate to implement national telecommunications policy objectives, the FCC has failed to order adoption of procedures that would provide sufficient revenues to promote the full implementation of national telecommunications policy in Alaska. The issues related to the ability of existing government agencies to ensure that jurisdictional cost and revenue separation procedures fully reflect policy objectives are discussed further in terms of the State's ability to secure benefits that promote telecommunications development through subsidies initiated by the federal and State regulatory agencies. The subject is raised here to demonstrate that although the FCC has the authority to implement policy, it does not have an incentive to ensure that separations procedures provide a complete solution to the financial problems with which the telecommunications industry in Alaska is faced. Assuming that a satisfactory resolution of the revenue settlement issue occurs and that increased revenues are eventually reflected in the division of revenues at the intrastate level between Alascom and the local telephone carriers; the size of the increased proportion of revenues will be unlikely to provide a sufficient incentive for telecommunications development in the State on the scale that is required to implement fully national telecommunications policy objectives.

The FCC has no authority to provide a subsidy in the form of low cost financing or other alternatives from sources outside the limitations of the revenues that can be generated internally by the telecommunications industry. The FCC has established policies that can be used to justify an argument for subsidies for rural and remote telecommunications development in Alaska. However, it is beyond the powers of the Commission to order the implementation of direct subsidy programmes.

The responsibility for the allocation of subsidies required to fulfill

telecommunications policy objectives is divided at the federal level. An act of Congress created the Rural Electrification Administration (REA) in 1936 in response to an early need in the Lower 48 States for an agency with a mandate to foster the development of public utility services by influencing the availability and allocation of investment capital.<sup>13</sup>

The REA is not directly governed by policies developed by the FCC and operates independently of the regulatory agency. Even though the priorities it develops for allocating capital for financing telecommunications development programmes in rural areas have an important influence on the extent that policies developed by the FCC are implemented, there is no formal coordination between the two agencies. A description of subsidies that have been made available for telecommunications development by the REA follows. The analysis is concerned with the implications of this form of subsidy for effective policy implementation in Alaska.

1. Direct Subsidies for Telecommunications Development in Alaska:

The Role of the Rural Electrification Administration

The REA was created to be responsive to a situation analogous, though less extreme, to that facing the telecommunications industry in Alaska today. Although it is possible to draw an analogy between the circumstances, the REA is unlikely to respond in the same manner that it did in the Lower 48 States. Low interest loans provided a source of investment capital that succeeded in providing an incentive for independent commercial interests and cooperatives to develop utility services in rural areas of the Lower 48 States.

(a) Background: Subsidies for Rural Electric Service Development:  
1936 - 1949

The REA was originally created to provide capital financing to

reduce the growing disparity between electric services available between rural farm and urban areas. In the early 1930's a familiar growth pattern was becoming increasingly evident. The privately-owned power utility companies followed a policy of capital investment in profitable markets despite State regulatory controls. The result was a consistent failure to provide service in high cost, less profitable rural areas. When services were provided they were offered at excessive prices. Furthermore, selective building policies were followed whereby only the more profitable parts of a rural territory received access to services, leaving the less promising areas unserved.<sup>14</sup>

Aside from the practical need for a low cost source of financing to encourage small independent companies to provide service, the federal agency was created partly in response to growing disillusionment during the 1930's. Large private power utilities had failed to deliver promises to satisfy the expectations of those who had come to see electric power 'technology' as having the potential to ameliorate the American industrial crises of the 1920's. It was believed that:

Giant power may bring about the decentralization of industry, the restoration of country life, and the upbuilding of small communities and the family...If we control it, instead of permitting it to control us, the coming electrical development will form the basis of civilization happier, freer and fuller of opportunity than the world has ever known... 15

Carey has referred to this burgeoning ideology as the "Mythos of the Electronic Revolution".<sup>16</sup> The REA was partly a response to a political movement which believed that hydroelectric power and a new form of political organization could redeem the myth which had failed to materialize. The

federal government was to provide the financial resources necessary to implement the realization of the "myth" where private investor-owned utility companies had failed.

The REA was intended to be a "new model" for a "new America".<sup>17</sup> The federal government's allegiance to this perspective was reflected in the President's comments to the World Power Conference in 1936, the same year the REA was formed.

Sheer inertia has caused us to neglect formulating a public policy that would promote opportunity for people to take advantage of the flexibility of electric energy, that would send it out wherever and whenever wanted at the lowest possible cost. 18

The REA was conceived as a social experiment, "a corporation clothed with the power of government, but possessed of the flexibility and initiative of private enterprise."<sup>19</sup>

The inherent contradiction in this statement has pervaded the policies of the REA throughout its involvement in rural electric development and subsequently in telecommunications development. Conservative investment policies, highly centralized administrative decision-making and loans rather than direct grants, reflect the agency's allegiance to criteria guiding investment decisions in the private sector. Adherence to these policies has increasingly reduced the aggressiveness with which the REA has pursued its mandate to aid in the implementation of policy objectives.

Statutory provision was made for the REA in the Rural Electrification Act (RE Act) of 1936.<sup>20</sup> As an 'independent' agency, the enabling legislation theoretically permitted it to use less stringent and selective investment criteria than those employed by the private sector. The REA was created to



redress the problem of the imbalance of services available in rural and urban areas and seemed to be an admission that regulated private public utilities could not be induced or coerced into providing services in areas which would not be immediately profitable.

By 1939, the REA had been criticized because of the lack of Congressional control over its lending practices. The RE Act was amended to increase the responsiveness of the agency to Congressional oversight. The REA was made directly accountable to the Department of Agriculture where it has remained. The availability of public funds to support the continuation of the development fund was made contingent on a yearly review of expenditures through the Congressional Appropriations Committee.

The REA made capital available at reduced rates of interest, but was not authorized to "subsidize" farm electrification although this was in fact what it was doing. During later years the agency was continually subjected to criticism but there was never a clear admission that the programme was a subsidy scheme. Interest rates charged to borrowers of REA funds have historically been far below those available for equivalent loans obtainable from the private capital market. The REA's activities clearly constituted a subsidy insofar as the services to farm areas would not have been provided had the electric industry relied solely on market factors to determine the economic viability of expanding services in rural areas.

(b) REA Expansion and Rural Telecommunications Development:

1949 to Present

The REA's activities were expanded to include telephone development in 1949. Farmer telephone systems had begun to decline in rural areas

before the second World War. Funds were necessary to enable independent telephone companies with no access to lucrative urban markets to introduce modern facilities and expand service. The Bell Telephone System had successfully introduced services in urban areas but had resisted 'suggestions' that corporate responsibilities extended to providing telecommunications services in less lucrative non-urban areas.

Congressional justification for making loans available at less than the cost of capital in the private capital market for rural telecommunications development was given as follows:

It is hereby declared to be the policy of the Congress that adequate telephone service be made generally available in rural areas through the improvement and expansion of existing telephone facilities and the construction and operation of such additional facilities as are required to assure the availability of adequate telephone service to the widest practicable number of rural users of such service. 21

However, the inclusion of telecommunications service within the REA's jurisdiction can also be linked to broader policy objectives. The first, which is evident in traditional explanations, links telecommunications service development in rural areas to the federal government's desire to provide incentives for industrial decentralization. Telecommunications services were regarded as a key to increased growth in the industrial and manufacturing sectors of the American economy. An idealized faith in telecommunications "technology" to facilitate broader economic and political objectives was as strong as it had been in the days of the arrival of the widespread use of electricity earlier in the century.<sup>22</sup>

The extension of the REA's congressional mandate to promote rural tele-

communications can also be attributed to the populist political movement located in the rural farm areas that successfully represented their demands to Congress with sufficient strength that could not be overlooked.<sup>23</sup>

Until the 1970's, few modifications were made in REA lending practices. Independent telephone companies obtained loans to provide telephone services in rural areas of the Lower 48 States and the disparities between rural and urban service levels were gradually reduced. However, since this time the REA has undergone several changes primarily designed to restrict the size of direct appropriations of public funds required to meet increased demands for low interest loans.

The Rural Telephone Bank (RTB) was formed in 1971. It was to obtain capital from a variety of sources including the federal government, borrowers and private corporations. The bank's objectives were as follows:

The general purposes of the telephone bank shall be to obtain an adequate supply of supplemental funds to the extent feasible from non-federal sources, to utilize said funds in making of loans...and to conduct its operations to the extent practicable on a self-sustaining basis. 24. [my emphasis]

The Bank, together with amendments introduced by the Nixon Administration in 1973, represented a step toward financial independence from government for the rural telephone industry. Changes in 1973 resulted in a revolving fund for insured and guaranteed loans. REA low interest loans would continue to be available but only to those companies which demonstrated an inability to pay interest rates at the current 'real cost of money' on the private capital market. Congressional policy became more clearly oriented to providing the minimum possible in direct financial assistance by encouraging

more active efforts on the part of borrowers to become economically self-sufficient. Congress stated that:

...rural electric and telephone systems should be encouraged and assisted to develop their resources and ability to achieve the financial strength needed to enable them to satisfy their credit needs from their own financial organizations and other sources at reasonable rates and terms consistent with the loan applicant's ability to pay and achievement of the Act's objectives. 25 [my emphasis]

By 1971, the original task of promoting the development of basic telephone service in the Lower 48 States had been largely completed. The REA had become one of the largest money lending institutions in the United States. While its original goal had been to provide telephone service to all who wanted it or needed it, the agency gradually shifted its attention to upgrading service quality. Today the majority of its funds are used to ensure that rural residents have access to high quality individual line telephone services. Between 1950 and 1977, the number of rural residence mainstation telephones per 100 households increased from 38 to 92 in the Lower 48 States. In contrast, the ratio for the Alaska population in 1977 was 43 per 100 households.<sup>26</sup>

Independent REA companies have become interested in ensuring that federal low interest loans continue to be available for an increasingly wide array of telecommunications services particularly in the interactive data communications field. The incentive to protect capital sources for the development of these services by telecommunications carriers rather than by the broadband cable manufacturing industry is strong and REA associated companies can be expected to actively seek to secure their access to REA funds.

Thus, far from creating the conditions for its demise, the REA is now engaged in a process of unofficially seeking new areas of investment. To date, its involvement in financing interactive telecommunications services has been limited because the Act restricts investment to cable facilities for exclusive educational use. National policy continues to evidence concern for improved rural services "both in the interest of equity and to encourage a better population balance between rural and urban areas."<sup>27</sup> It can be expected that legislative changes will be made to enable the REA to assist in development of innovative telecommunications systems in rural areas.<sup>28</sup>

Instead of shifting its attention to the last remaining enclave in the United States where a severe disparity between rural and urban telephone service exists, there are indications that, in the long term, the REA will direct its energies toward financing rural telecommunications development in the Lower 48 States. In the short term, REA investment in Alaska represents a continuing justification that can be used by the independent telephone industry for the existence of the agency as a source of capital that can be allocated for telecommunications development in Alaska.

(c) REA Borrowing Criteria

The lending policy of the REA as expressed by the Administrator is:

To help borrowers develop the internal strength to assure their success as independent enterprises. 30

The key to the successful history of the REA borrowing record has been its policy to lend only to ventures which are almost 'certain' to be financially viable. The following outlines some of the major policies developed over

thirty years. They indicate the emphasis given to 'efficiency' and 'sound' economic decision-making.

The REC Act defines the types of loans and borrowers eligible for REA financing in a general sense. The final determination of eligibility is based on the Administrator's judgement. Rural areas are defined as those with a population less than 1500, although loans can be made in areas where the population exceeds 1500 if 50% is allocated to outlying areas. Loans are made to corporate organizations, both commercial and non-profit. The latter category includes cooperatives but not municipal companies. Loans may be made for financing improvement, expansion, construction, acquisition, and operation of telephone systems. Loans are made at a range of interest rates: 2% for companies that prove their inability to pay higher rates or operate in extremely low density areas; 5% standard REA and 'cost of money' rate, RTB.

Decisions as to loan qualification are made on the basis of extensive information supplied by potential borrowers through detailed application procedures. The formal criteria fall into three categories that result in a significant degree of control over borrower planning and development decisions by the REA.

The first category of criteria relates to the REA's determination of the "economic feasibility" of projects. Data is collected to project trends in population, households, economic growth, and types and grades of service required. Costs are estimated on the basis of detailed engineering studies and compared with revenues generated under proposed rate schedules. Although plans are reviewed by regulatory authorities, it seems likely that a potential borrower would seek to satisfy the REA. A bias toward implementing a system that meets the agency's requirements rather than those specifically designed

to meet special conditions in a proposed service area is encouraged.

The second category of criteria for loan eligibility is related to REA specifications for corporate management, organization, and capital structure. The Agency's control over corporate decisions applies as long as any portion of a loan remains outstanding. This means that future expansion plans and expenditures which do not use REA financial assistance may continue to require REA approval.

The final category of criteria relate to the financial and accounting procedures. Although this information duplicates that required by most regulatory agencies when general rate applications are filed, it represents a substantial task for companies that would not ordinarily require such detailed financial information.

Considered together, REA criteria, technical, managerial and financial, can be seen in two ways. On the one hand, any company which meets REA standards is virtually assured of maintaining an economically viable telephone operation in the long term. On the other, the criteria may be too stringent to allow for the degree of risk that may be necessary in order to stimulate telephone development in exceptional circumstances.

(d) REA Lending History in Alaska<sup>31</sup>

A brief synopsis of the REA's lending history provides an indication of how effectively it can be expected to promote telecommunications development in rural high cost areas of Alaska. As the agency is one of the only capital sources that the telecommunications industry in Alaska can turn to, its appeal, despite the consequences, is obvious.

The REA has made loans to Alaska telecommunications carriers since the 1950's. An examination of the borrower companies' location and service area

confirms that the REA has continued to apply conservative lending policies in Alaska. Loans have been made to existing carriers to assist in system expansion in areas that were expected to experience continuing, rapid economic growth as a result of the oil and gas resource development boom.

Table 13 indicates that before 1975, two local companies in Alaska had applied for and received REA loans. The Matanuska Telephone Association received its first loan in 1954 to establish a single local telephone exchange. The Association has received further loans and has grown to become the fifth largest independent carrier in Alaska (see Table 11, Chapter V). REA loans assisted Matanuska in meeting demands for telephone service in the Matanuska Valley that resulted from industrial activity in the Alyeska pipeline corridor. The other recipient of REA funds was the Copper Valley Telephone Cooperative. In this case, financing was also required to meet business and industry demands on existing service capacity in Valdez, the Alaska pipeline terminus.

In 1975, additional local exchange companies received REA financing. In neither the case of the Nushagak Telephone Cooperative nor the Glacier State Telephone Company were REA funds used to assist in increasing the accessibility of telecommunications services in rural communities that demonstrated the most severe need.

Until 1975, REA loans were made for upgrading service in regions which already received basic telephone service and required additional investment capital in order to meet unusually rapid regional growth. Given the certainty, at the time, of expanded economic activity, these cases do not provide an illustration of the REA's willingness to engage in high risk investment practices necessary to ensure implementation of federal or State communications policy objectives.



Table 13

RURAL ELECTRIFICATION ADMINISTRATION:  
Loans to Alaska Telephone Companies - Cumulative to 1978  
(000)

	REA	RTB	REA Guaranteed
<u>1954 - 1974</u>			
Matanuska Telephone Association	11,521	2,923	-
Copper Valley Co-operative	878	1,176	-
<u>1975</u>			
Matanuska Telephone Association	11,521	2,923	-
Copper Valley Co-operative	3,350	1,176	-
Nushagak Co-operative	571	302	-
Glacier State	-	-	8,090
Interior	-	1,470	-
<u>1976</u>			
Matanuska Telephone Association	11,521	2,923	-
Copper Valley Co-operative	4,228	1,176	-
Nushagak Co-operative	1,231	302	-
Glacier State	-	-	8,090
Interior	-	1,470	-
OTZ Telephone Co-operative	3,355	-	-
<u>1977</u>			
Interior	4,500	1,470	-
<u>1978</u>			
United Utilities	1,239	-	-

Source: Rural Electrification Administration. Annual Statistical Report, Rural Telephone Borrowers, 1970-1977; and Comments of the State of Alaska, before the Federal State Joint Board, Docket 21263, February 5, 1979, Table VI, p.33.

The REA had not demonstrated an interest or ability to adjust its lending criteria to meet rural Alaska conditions. The agency had clearly not indicated an interest in fulfilling its mandate to improve rural telecommunications service throughout the United States by encouraging Alaska carriers to participate in its lending programme.

After 1975, the REA's interest in Alaska increased substantially. Local telephone companies began to approach the REA for loans to implement expansion programmes to bring telephone exchange service to rural and remote communities.

Telephone companies that have successfully qualified for REA financing since 1975 include the Interior Telephone Company, the OTZ Telephone Cooperative, and United Utilities. Originally, Interior received loans that were allocated for new construction to upgrade existing plant facilities. In 1976, the company applied for financial assistance to expand service to seventy-four communities, none of which had telecommunications facilities other than radio or single channel Alascom bush telephones.

OTZ and United Utilities are also among the recipient of REA funds where capital has been allocated for installation of local exchanges in communities where none previously existed. OTZ has pursued a policy of implementing a multi-exchange telecommunications system and provides service in ten villages. The cooperative organization is sponsored by the Native NANA Region Corporation. REA financing permitted the Cooperative to take advantage of small earth stations supplied by Alascom and the State in order to expand telecommunications service in remote areas.

United Utilities is a corporation established under the terms of the Alaska Native Claims Settlement Act. Its objective is to further "the cause of the Alaska Native in local autonomy and self-determination by

getting the villages involved in deciding the level of service desired, by letting them participate in the equity representation thereby sharing all profits and risks..."<sup>32</sup> The initial proposal envisioned a regional system of local exchanges located in 57 communities, interconnected by satellite links. United finally received approval for a loan which included funds to acquire earth stations for four villages.

REA funding has provided initial telecommunications service for many subscribers in Alaska but until 1975 most were located in areas that had been previously served by existing telephone companies. By 1976, a total of approximately \$30 million had been loaned to Alaska telecommunications carriers. The major portion of this assistance had been allocated for construction to upgrade facilities where local exchange service had previously existed. In 1979, this total had increased to over \$50 million with an additional \$12 million in pending applications.<sup>33</sup> The preceding discussion suggests that the REA has begun to lend to companies planning to initiate service in isolated areas. The impact of the REA's continuing participation in Alaska telecommunications development by providing subsidized investment capital is discussed next.

## 2. Analysis

The necessary financial assistance required to effectively implement Alaska's policies for telecommunications growth and expansion appears to be available from the REA, at least in the short term. To assess the continuing impact of the REA capital in Alaska, one must look more closely at the relationship that is evolving between Alaska's telecommunications industry, government agencies, and the REA.

The funding source carries with it biases that may constrain the future

telecommunications development pattern in Alaska. Some of the consequences will be beneficial, others detrimental, in terms of the State's long-term policy objectives. The impact that the REA will have on the telecommunications development process in Alaska stems from its interpretation of its own role, its interpretation of Alaska policy objectives and the way it implements its programmes. In this context, the extent to which REA objectives are contradictory to the needs and requirements of rural Alaska, and the State's latitude to encourage modification of REA policies to reduce areas of conflict is of interest. The REA has stated that:

Modern telecommunications are essential to achieving better living conditions, to stimulating agriculture production and to economic and business development in general. 34

Emphasis is placed on economic growth as a prerequisite for economic stability in the telecommunications industry. When Alaskan carriers originally received REA support, the REA transferred these criteria to the Alaska context. "Subsidies" for telecommunications development in areas that demonstrated economic growth were justifiable. Economic growth produces sufficient demand for services and subsequent revenues to clearly indicate whether a carrier can become a self-sustaining financially stable operation. The REA has no mandate to finance projects that cannot provide evidence of continuing economic stability.

In Alaska, rural and remote areas that remain without adequate telecommunications services are just those areas that are unlikely to become major participants in the industrial development process. A trend toward industrial decentralization similar to what was expected to occur in the

Lower 48 States is not likely. Subsidies in the form of low interest loans for capital investment in expanded telecommunications facilities cannot be justified in Alaska using criteria drawn from this development model. However, REA continues to be oriented toward investment in projects that provide significant proof that loans are adequately secure by southern standards.

In the Lower 48 States evidence for loan security is based on surveys indicating rates of regional growth and economic development. In Alaska historical precedents are lacking. The surveys that the REA uses to assess the eligibility of projects in rural Alaska cannot be expected to provide substantial evidence of growth trends based on traditional economic indicators. For many isolated communities there is no reliable historical data to indicate traffic flows, or communities of interest for business and industry. Not only has there been inadequate telecommunications, but native business organizations in these communities have had less time to develop. It is also possible that telecommunications needs are not measurable by traditional indicators and that the uses of telecommunication services in rural and remote Alaska defy the available methods of analysis for quantification of costs and benefits. For the REA to assess the acceptability of loan applications from Alaska local telephone carriers proposing to provide service in rural areas, it will be necessary for it to modify its criteria.

A study commissioned by the REA to assess the agency's role in Alaska recently concluded that Alaska local telephone companies should:

...expand their service areas to serve as many rural communities as is feasible from an economic and operating standpoint. In those locations where no local telephone company exists, new ones should be formed to provide the needed service. 35

Unfortunately, the REA may not be flexible enough to approve loans to local telephone companies which have trouble demonstrating their long term potential for financial stability. The REA is a highly centralized organization. Decisions are made primarily on the basis of criteria which have been developed on the basis of experience in another context.

The study mentioned above was commissioned by the REA to "reformulate a realistic program for Alaska." It concluded that "some innovative and new techniques to provide modern telecommunications" were required. However it was unable to address fundamental problems relating to institutional arrangements and their impact on the allocations of financial resources to subsidize telecommunications development in Alaska. Stating that "economic considerations will probably be one of the key factors in determining the number of telephone cooperatives or companies established in Alaska in the immediate future,"<sup>36</sup> the report provided no indication as to the REA's interpretation of the highly subjective and yet crucial determination as to what would be considered "feasible". Thus, the REA has provided no indication that it has either the interest or flexibility to provide the financial assistance required to promote telecommunications development in rural areas of Alaska.

C. The Use of Subsidies and State Government Agencies for Telecommunications Development: The Governor's Office of Telecommunications

After Alascom's entry (1970) into the Alaska long distance telecommunications market, agencies representing the State of Alaska became more actively involved in the decision-making process affecting subsidies for the development of all facets of the telecommunications system. One of the issues confronting all decision-making bodies was a search for an appropriate means of meeting rural telecommunications policy objectives. Policy statements

from agencies representing the State of Alaska indicate the priority that this problem was given.

The importance of rural telecommunications development and reduction of the disparity in level, cost and quality of services between rural and urban areas was consistently reiterated by the Governor's Office of Telecommunications.

The means to communicate is a basic, fundamental right of every Alaska citizen regardless of where he or she lives and the promotion of reasonably priced, widely available local telephone exchange service in rural Alaska is a fundamental State policy as well as a profound national commitment. 37

The Alaska Public Utilities Commission (APUC) and the Alaska State Legislature also echoed the importance of telecommunications development particularly as it affects rural Alaska.

The Commission observes that all citizens of the United States are guaranteed, where at all practical, these basic communications services...The State of Alaska through legislation and its involvement in the small earth station program, has expressed a policy of providing communications to rural Alaska. That policy as articulated in legislative resolutions and funded through budget appropriations, speaks to the need for total communications for all of the citizens in the State of Alaska. 38

The level of services required to meet policy objectives was extended beyond a minimum of 24-hour single channel access to the statewide telecommunications network. Services available in larger Alaskan centres and the Lower 48 States were the standards to be met.

Subsidies were and continue to be necessary to implement this objective.

The State has made an effort to implement telecommunications policy objectives within the limitations of political and economic constraints. The role of the State government as an advocate of telecommunications policy before the State Legislature and regulatory agencies is examined in the following sections.

The Governor's Office of Telecommunications (OT) was created by legislative order in 1974. Its responsibilities included planning and policy formulation, monitoring and coordinating the activities of other institutions participating in the telecommunications development process, and initiating and maintaining a comprehensive, long range communications plan for Alaska. It was also expected to consider the methods and costs of improving existing telecommunications systems, the need and justification for federal and State subsidies, and the costs and benefits of new technology.<sup>39</sup>

OT's role was intended to be advisory. Expertise, centralized in a single agency, was expected to provide a comprehensive perspective on issues confronting regulatory agencies (federal and State) and the Alaska Legislature.

OT intervened in the decision process affecting telecommunications policy implementation by advocating policies and practices that would effectively subsidize the costs of telecommunications development. This role has been carried out in several ways. First, OT advocated regulatory intervention that would affect the flow of revenues within the industry to extend the limitations of internal subsidies to incentives for investment and expansion at the local exchange company level. Secondly, it pursued the Alaska Legislature as a source of financing for direct subsidies, arguing that the State had a responsibility to bear the cost of policy implementation. Representative examples of each of these forms of intervention in the decision process



are discussed below.

1. Regulation and Internal Subsidies for  
Telecommunications Development

OT has been concerned with issues confronting State and federal regulatory agencies that affect the flow of revenues within the telecommunications industry in Alaska. The results of the process of distributing revenues generated by the inter-state long distance market can provide disincentives or incentives for development and expansion of the telecommunications system particularly in rural areas. The financial viability of all participants in the industry is dependent on the procedures and methods established through a complex process of negotiations for dividing available revenues. These methods, separations and cost allocation procedures and revenues settlements, affect rate structures and levels established for local and toll services in Alaska. Separation and cost allocation procedures are the means by which telephone property costs, expenses, taxes and revenues are apportioned among a company's operations. Revenue settlements are the means by which revenues are divided among telephone companies participating in the national telecommunications network. These procedures subsequently affect usage of the telecommunications system and the revenues generated to cover the costs allocated to respective carriers.

Revenue settlements are based on formulae that apportion the costs of the telecommunications system, long distance and local, among the telecommunications carriers and among the State and Federal regulatory jurisdictions. The process is politicized because a fundamental principle rests on the assumption that the costs of jointly used telecommunications facilities should be shared by users of the telecommunications system.

Cost separations methodologies have been developed by regulatory

commissions and the telecommunications carriers to provide telecommunications services that fulfill policy objectives. The procedures are a means to an end, i.e., they are designed to ensure that equal, universal, high quality, essential basic telephone services are available at reasonable cost throughout the United States.

The methods, currently in use in the Lower 48 States, are intended to fulfill several aspects of national telecommunications policy objectives. For example, local exchange service rates are kept low to promote access to the national telecommunications network; interstate toll rates are uniform, averaging the cost variability of different locations, and revenues are sufficient to maintain participating carriers at a level that permits them to offer adequate services in rural and urban areas.

Since the 1920's procedures have been established in the Lower 48 States that shift greater proportions of the costs of providing service to interstate toll carriers and federal jurisdiction. In effect, the costs of the entire telecommunications network are distributed throughout the system; toll service subsidizing local exchange service, interstate subsidizing intrastate service. To varying degrees the major carrier, AT&T, has borne an increasing proportion of the total costs of service, and the independent telephone companies have benefited from a greater share of revenues allocated to them from the toll revenue pool.

Alaska was neither a participant in the negotiations that resulted in existing procedures allocating revenues throughout the telecommunications industry nor a beneficiary of the process.

Although Alascom began to receive a share of revenues from the interstate toll revenue pool, agreements were concluded between AT&T and Alascom without reference to whether the result met the second of the two objectives,

i.e., promoting telecommunications development.

At the intrastate level, the financial viability of the local telephone companies and their incentive for expansion is affected by the revenue division procedures adopted by Alascom. For many years Alaska's local companies received a share of revenues equal to Alascom's assessment. This resulted in a capricious revenue allocation system favouring companies with sufficient financial resources and expertise to ensure that their share was 'equitable' according to criteria established in the Lower 48 States. But even with recent regulatory orders prescribing cost separations and revenue division procedures to be used in Alaska, the methods fail to achieve their original objectives. Revenues remain inadequate and provide little incentive for expansion and development. An important aspect of OT's role was to ensure that settlement procedures developed at both the State and federal level adequately reflect Alaska conditions. OT's position reflected the belief that telecommunications development in rural areas is intimately linked to the successful incorporation of policy objectives in the separations process.

If the many interrelated factors contributing to telecommunications services are coordinated from a total system viewpoint, it should be possible for Alaska to have the facilities it needs at reasonable costs. 40

OT was able to advocate planned development of local exchanges in rural Alaska, but financial incentives were necessary to interest new or existing local carriers in serving these areas. An adequate share of toll revenues to ensure financial viability would provide such an incentive.

OT attempted to aid the local telephone carriers and Alascom to obtain

beneficial cost allocations and revenue divisions by advocating the need for special consideration of Alaska conditions before regulatory agencies. In effect, the State agency advocated an inter-industry subsidy, allocating a greater proportion of costs to users of the nationwide network, rather than to subscribers in Alaska and particularly to rural subscribers.

An extension of procedures already adopted in the Lower 48 States in order to meet national telecommunications policy objectives was required. Existing procedures failed to account for Alaska costs and revenue requirements in Alaska were omitted from the original calculations on which existing methodologies were based.

Many arguments have been raised to demonstrate that Alaska should not receive the same benefits as the Lower 48 States because the required subsidy would be extended beyond the subsidy necessary to accomplish the same objectives in the Lower 48 States. The opposition to appropriate revenue settlements comes from carriers that would experience a minor decrease in their level of profitability, e.g., AT&T in interstate negotiations and Alascom in intrastate negotiations. But this reasoning is often masked. Alascom has stated that:

Local exchange service in the bush is desirable but questions that the associated burden of subsidization ultimately incurred by users throughout Alaska may exceed the benefit that might otherwise accrue to the users in remote areas of Alaska. 41

The above quotation exemplifies the erroneous argument raised in defense of changes in the existing distribution of resources within the telecommunications industry. Methodology, because of its intricacy and the mystification surrounding formulae, weighting factors, and separation of facilities

and costs into categories has been used to mask the arbitrary, subjective nature of the underlying assumptions. It has become increasingly possible for economists and financial experts to argue that existing arrangements for distribution of resources are based on objective criteria that promote the maintenance of an optimal level of telecommunications services throughout the United States. Any changes in revenue distribution to promote further development of the nationwide telecommunications network must therefore represent a 'subsidy'.

This argument is raised wherever policy implementation requires increased revenues that must be derived from the dominant carriers. On behalf of the State, OT attempted to justify extensions of the boundaries of internal subsidies by demonstrating the social, economic, health, and educational value of services to Alaskan communities. The opposition from the industry and other government agencies argued the immediate cost implications of implementing policy objectives. An argument for 'subsidies' to implement 'social objectives' was one with which the industry could easily agree. A demonstration that long-term economic benefits would accrue to the telecommunications industry if decisions were made to extend internal subsidies would have been countered by the carrier's short-term economic objectives. The decision-making power lies with those concerned with immediate costs and benefits which are interpreted in light of the telecommunications industry's and regulatory agencies' objectives.

## 2. The Use of Direct Subsidies to Promote Telecommunications Development

The use of direct government subsidies to meet the costs of telecommunications development has been advocated by OT. The context was provided by

a situation where government policy statements were in impending danger of being irreversibly disregarded by Alascom. In 1975, the Alaska State Legislature passed a resolution appropriating \$5 million for 100 small earth stations to provide long distance telecommunications service to the State's bush communities. With the disclaimer that "the Legislature of the State of Alaska does not wish the State to become extensively involved in the operation of the State's telecommunications network," and justified in terms of the FCC's policy of "promoting ownership of earth stations by 'users' of satellite services...since State represents all users in Alaska," the State came to an interim agreement with Alascom.<sup>42</sup>

The move was unusual, not because of State ownership and investment per se, but because it was a departure from the areas where direct subsidies for communications development had found legislative support. The Legislature had provided joint financing with NASA and the Research and Development industry for experimental satellite demonstration projects. For example, in 1971, experimental ATS 1 audio satellites provided remote health care and educational/informational programming to bush communities. In 1974, the ATS 6 satellites delivered experimental broadcast services.<sup>43</sup> These projects were justified by the State, "so that State planning and requirements for future operational communications could be grounded in actual experience."<sup>44</sup> But it had not directly financed commercial telecommunications systems in Alaska in the past.

A review of the context in which the decision to subsidize telecommunications development occurred indicates factors that combined to result in this somewhat unprecedented intervention by the State of Alaska in the telecommunications development process. The financial responsibility for expansion of telecommunications facilities in Alaska was debated during

discussions in 1970 concerning Alascom's certification.

The APUC expressed concern regarding the ability of the bush telephone services to pay for themselves. It indicated that a question remains as to whether the deficit incurred in providing bush telephone service should be borne by other subscribers of the State. 45

The discussions at this time related specifically to subsidies for bush telephone service, not to the development of full exchange service.

When, in 1974, Alascom presented its plans to implement its contract commitment to supply telecommunications services to bush communities, they were found totally unacceptable.<sup>46</sup> The Plan which proposed rural service via 38 small earth stations plus microwave links to 108 communities was severely criticized for its cost, urban orientation and limited capacity. Subsequent revisions to the Plan also proposed terrestrial facilities for service despite the incompatibility of terrain and distance, and the inability to provide voice channels required for local exchange development and broadcast capability.

The State legislature finally became committed to financing and owning earth stations after facing:

...a continuing series of problems in attempting to get Alascom to commit itself to an adequate Alaska Communications plan and to the establishment of a corporate structure that would permit regulation by the State. 47

The State's involvement in this program was not viewed as a subsidy. It was regarded as a "means of providing the state with permanent proprietary participation in telecommunications planning and policy"<sup>48</sup> that would be

impossible through an advisory capacity. There was no admission of an on-going need for State support or responsibility for continuing telecommunications development in costly rural areas.

Public funds continued to be made available to support commercial broadcast development. The government provided financial assistance for delivery of a commercial broadcast network in 1976.<sup>49</sup> \$1.5 million was allocated to supply service in larger communities and 24 bush communities. Funds were provided so that construction, operation and maintenance would be economically feasible in the long term when supported by the users. A report prepared for OT noted that:

A commitment to support commercial broadcasters which imposes continuing demands on the general fund would be improper. The question becomes one of deciding the extent to which the State government should help compensate for the isolation of Alaska from the rest of the United States. The objective in formulating any subsidy plan should be to have the broadcaster contribute at a minimum, to the point where it is a wash, so remaining funding requirements may be evaluated in terms of supporting the viewers. 50

Although subsidies allocated directly to support the development of a television distribution system were believed to be fraught with dangers of self perpetuation, the government opted for short-term financial support.

The State did not venture into areas traditionally considered the purview of the private telecommunications industry in order to provide commercial services. The State's financial involvement in the earth station program must be viewed as a single departure from the State government's perception of its role in the telecommunications development process. It was not an admission of the need for subsidies to support the development of a



commercial system in the short or long term. It was an effort to institutionalize a means of control over industry planning and to implement the minimum level of service required by communications policy. It was stated that:

Because of the State's involvement, economic and technical data relevant to the program can be substantiated and its relationship, hence effect, on other State telecommunications components, (i.e., need for subsidy, etc.) can be identified. 51

In a reiteration of the State's policy concerning telecommunications development, OT made its intention to remain uninvolved financially in the commercial telecommunications sector clear. "The State does not want to own or operate telephone facilities or provide telephone services to rural communities."<sup>52</sup> The initial action was regarded as stimulative. It provided encouragement for further telecommunications development and legitimized the government's commitment to its stated policy objectives. The State's position is to continue to rely on the structure of existing institutional arrangements, and political pressure on the inter- and intra-industry economic decision-making process as a means of creating incentives for further telecommunications development.

### 3. Analysis

By creating an agency within a degree of autonomy from the legislative, regulatory and judicial decision process, OT was placed in a position where policy positions could theoretically reflect its interpretation of the 'public interest', unencumbered by the dominant economic and political forces participating in the decision process. If the problems encountered by OT

considered in a structural sense it appears that the potential strength of OT was undermined by its inability to implement policy. It was faced with two opposing alternatives. Advocacy of subsidy policies moderated by consideration of their acceptability to the APUC and the Alaska Legislature, versus promotion of positions that would conflict with the dominant economic interests actively participating in the decision process. However, when the role of the agency is located within a broader context, it becomes evident that its effectiveness was constrained not so much by its structural shortcomings, but by the unacceptability of its proposals given the economic interests of others represented at different levels in the decision process.

The characteristics, geographical, institutional, and technical, of Alaska telecommunications development tended to result in OT's advocacy of subsidies to redistribute cost/revenue relationships. This was particularly true where the costs of expansion of telecommunications services in rural areas required substantial extensions of existing subsidies. The agency became more than a purveyor of information, but an advocate 'risking' contradiction of the major economic interests of government and industry. An indication of its strength was provided by accusations of a lack of political accountability and the demise of OT on July 1, 1979.

Responsibility for communications planning and policy formulation was dispersed. Other agents of government would have less expertise to examine complex telecommunications issues. The resulting fragmentation would effectively disperse a potential source of government influence over the decision process. One of OT's paramount objectives was "to ensure that the State of Alaska retains authority to determine its communications destiny". It became clear that dominate political interests preferred that this be the case as long as the means of control did not contradict the economic interests

of Alascom, AT&T and other representatives of government.

In Alaska intervention is possible at both the State and federal level. The State's 'interest' is interpreted through the State legislature, OT, the APUC and other agencies funded by the State which represent a diversity of native and non-native, urban and rural interests. What is presented as the policy of the State of Alaska reflects a combination of the positions held by numerous groups. It is not until one examines the process through which this policy is implemented that one can begin to see the way in which the dominant interests find expression in priorities and decisions affecting the use of subsidies to promote telecommunications development.

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## CHAPTER IX

## ANALYSIS AND CONCLUSION

Different subsidy methods which have been used to promote telecommunications development in Northwest Canada and Alaska have been examined in the preceding chapters. Some of the key factors that have either restricted or promoted the implementation of stated national telecommunications policy objectives are examined in the following analysis. These factors are related to the changing structure of institutional relationships. They are also related to changes in the importance of telecommunications in the development process. National and, occasionally, regional economic and political priorities have provided incentives for implementing subsidy policy.

The contribution that an institutional analysis can provide in developing insights as to constraints to the effective implementation of subsidy policy objectives and the use of alternative subsidy methods to promote telecommunications development in Northwest Canada and Alaska are indicated. The third part of the analysis examines the way that characteristics of existing institutional arrangements prevent subsidy policy from being fully effective. Finally, suggestions are made for changes in institutional arrangements and subsidy methods that could be expected to be more effective in promoting telecommunications policy implementation.

A. A Context for Institutional Analysis

In this study policy implementation has been examined as an ongoing process of decision-making that occurs within the context of a system of changing institutional relationships. An analytic framework has been developed



which has made it possible to examine criteria that are used as a basis for decision-making and the incentives inherent in institutional arrangements that have historical antecedents. The weight given to these criteria affects decisions to allocate financial resources for the development of telecommunications services. The advantage of an approach concerned with historical context is that it overcomes problems that arise when a static analysis of isolated government and corporate entities is used. Structural reorganization without reference to context invariably results in a re-creation of pre-existing problems. This is because constraints that are historical or that exist because of relations between other levels in the institutional hierarchy are not taken into consideration.

The following perspective often results from static and ahistorical analysis of the policy implementation process. The incentives underlying decisions are examined only at one level and at one period in time. Conflicts between the apparent objectives of corporations and government agencies become the focal concern. The result is illustrated by the following approach. Description of problems associated with telecommunications policy implementation in remote northern regions in terms of an opposition between two objectives is encouraged. The government's stated policy objectives (social objectives) appear to be in conflict with those which the telecommunications industries seek to implement (economic efficiency).

An analysis of CNT and Alascom corporate objectives indicates that they are interested primarily in profits. This reduces their incentive to invest in telecommunications facilities in high cost areas. Corporate policy and practice conflict with national telecommunications policy, i.e., the provision of adequate basic telecommunications services to all citizens. From this perspective, the policies and performance of the telecommunications carriers

are seen as emerging only as a direct consequence of their internal structure. Other factors that affect corporate decision making, i.e., incentives created by the location of the carrier within the larger telecommunications industry, are ignored. If the role of government agencies is described as "superimposing a public interest priority upon pre-existing and antagonistic commercial incentives,"<sup>1</sup> evidence of a continuing disparity in telecommunications services can be attributed to an imbalance of power between the government and the industry in the decision-making process.

This explanation depends on the assumption that a simple opposition or conflict between government and corporate interests suffices to explain decisions to implement policy. It is impossible to interpret the implicit meaning of policy objectives, or to undertake an analysis of many of the factors that prevent effective policy implementation using this type of analysis. The appearance of this superficial conflict, i.e., the failure of the government's 'public interest' effort and the success of private corporate interests, is maintained only if one relies on stated policy objectives as an expression of the incentives guiding the decision-making process.

If policy implementation is re-examined over a period of time in the context of a system of institutional relationships, it becomes clear that this explanation is too simplistic. One if forced to examine whether industry incentives really conflict with policy priorities that government agencies seek to implement. The foregoing explanation ignores the complexity of the economic and political relationships that influence decision-making. An analysis of the impact of government intervention, i.e., subsidy policy, on telecommunications development must consider shifts in government and industry priorities determined by other levels in the policy process. This is only possible if policy implementation is examined in the context of a system of

institutional arrangements.

The difference between the approach described above, and the one adopted in this study lies in the analysis of incentives that underly the decision-making process. This study has attempted to link the incentive system underlying decisions related to telecommunications development to changes in policy priorities at other levels in the institutional system. It has been important not simply to examine explicit government and industry objectives. Industry performance has been examined in terms of the location of these corporations within the larger telecommunications industry structure. No thorough analysis of corporate influence on government policy has been attempted.

Similarly, the analysis of policies that are given a priority by government agencies is not derived solely from an examination of currently stated policy objectives. It is based on an analysis of implicit priorities. These are inferred from changes in economic and political objectives that have influenced the context in which decisions concerning telecommunications development are made. Thus, the analysis of the role and impact of different subsidy methods rests on an examination of patterns and changes in the importance of telecommunications in the political and economic development process.

Although subsidy policy has been examined in an institutional context, the conclusions that can be drawn concerning the nature of the policy process are limited. This analysis drawn on information that is restricted to the history and evolution of agencies and corporations that participate directly in telecommunications policy implementation. Furthermore, the analysis is based on documentary evidence released for the most part by these organizations. This information provides a basis for understanding some aspects of institutional relationships. However, it does not reflect the multi-dimensional nature of these relationships that would be required for a comprehensive

analysis of the policy process. Nevertheless, it provides a basis to develop inferences about the impact of institutional relationships and structure on decisions to implement telecommunications subsidy policy.

B. Subsidy Policy and Shifts in National Policy Objectives and Priorities

The evidence presented in this study has indicated that the history of subsidy policies and their impact on telecommunications development in Northwest Canada and Alaska has been linked to changes in the political and economic significance of both regions to their respective national governments. Subsidy policies and methods have changed with changes in the role defined for telecommunications services in the economic and political development process.

The primary role of telecommunications during the first phase of development in Northwest Canada and Alaska between the 1850's and 1900's was associated with the American government's desire to extend its sphere of political and economic control. Subsidies, in the form of monopoly charters and other indirect financial benefits, were used to increase the attractiveness of the proposed inter-continental telegraph route to private investors. Direct subsidies and/or government ownership was unnecessary in view of the anticipated profitability of the proposed service.

The second major phase in telecommunications development demonstrates the connection between subsidies and the priority of national defense objectives in the United States and Canada between the 1900's and 1950's. Spending by both federal governments financed service development that met dominant military objectives. Facilities for commercial telecommunications use were of secondary importance. In this phase, subsidies took the form of government

ownership because the profitability of the required services could not be expected to attract an immediate response from private investors.

Throughout these periods, traditional economic criteria were subservient in the decision-making process to the importance of implementing national policies that were of paramount importance. The extent of government spending was determined by the costs of facilities to meet military requirements, not by short term cost/revenue relationships. The subsidy method, i.e., government ownership, was a reflection of the extent to which the governments had to intervene to supply services beyond the level that the private market was likely to supply. Military priorities and objectives were largely responsible for the telecommunications systems that evolved in Northwest Canada and Alaska. These objectives shaped institutional relationships and the structure of the telecommunications industry that emerged to provide commercial services in the 1950's.

Beginning in the 1950's, the role of telecommunications services in Northwest Canada and Alaska began to be re-interpreted. The strategic military importance of the Canadian northwest and Alaska continued to influence the development of telecommunications in both areas. However, the political and economic significance of the regions began to supercede military objectives, providing new roles for telecommunications services. New demands for commercial telecommunications capacity imposed new requirements and modified both technical aspects of the northern telecommunications systems and the institutions which provided services. The objectives that provided justification for government intervention, and that shaped institutional arrangements, incentives for investment, and determined

subsidy policies and methods were distinctly different.

1. Subsidy Policy in Northwest Canada:

1950's to 1970's

Communications capability within Northwest Canada and between the north and the south became of increasing importance in view of changes in the region's economic significance in the 1950's. The Canadian government's attempts to foster resource development were thought to require the development of commercial telecommunications services. The justification for government subsidies was evaluated in terms of potential benefits. These were defined by national economic policy objectives that placed priority on promoting industrial development in the north. The expected benefits to be obtained from implementing this policy objective significantly outweighed short term considerations.

The analogy between national economic policy, telecommunications, and the Canadian government's subsidy policy in Northwest Canada, and the role of transportation in the development of the Canadian economy at the turn of the century cannot be overlooked. Innis has noted that the federal government's consideration of the costs of railway transportation was focused:

...on the importance of the road as a political measure and on its probable difficulties as a commercial measure...no amount of statistical analysis of surplus or deficit can prove or disprove its success, i.e., success should be measured in terms of the value to Confederation. 2

Decisions concerning the acceptability of government expenditures to meet

the costs of construction of transportation systems were weighed in terms of the long-term economic benefits to those who stood to gain from the political and economic unification of Canada. In a similar way, the short term costs of telecommunications development were given less weight than the long-term economic benefits. These benefits could be expected if foreign private investors became interested in exploiting natural resources in Northwest Canada. Telecommunications services were to provide additional incentives to resource developers to locate in the north.

The Canadian government's willingness to subsidize the costs of telecommunications services in the 1950's and 1960's, fits within Innis' theoretical conception of the role of communication in the process of economic development. For example.

The rapid and extensive dissemination of information was essential to the effective planning of labour, capital, raw materials, and finished products...the demand for private information hastened the development for communications. 3

There was a need for a viable commercial telecommunications system to support the communications needs of resource industries locating in isolated northern regions. Government ownership and the subsidies implicit in this institutional arrangement were justifiable methods of implementing an important aspect of national economic policy. These subsidies were necessary in the absence of profits sufficient to attract private investors.

Direct subsidies, in the form of financial grants to meet operating costs, government/corporate contracts subsidizing the capital costs of

expanded facilities, and reduced costs of capital associated with government ownership, promoted telecommunications service development that met the government's objectives. It was unlikely that a commercial telecommunications system would have been provided if the government had relied on the private market. Subsidies were justified by the need to fulfill stated national telecommunications policy objectives. However, subsidies benefited resource industries and government agencies that were expanding their presence in the Northwest. Consideration of subsidy benefits for local residents was of secondary importance. The telecommunications system was designed to meet higher priority needs of government and industry. It appears that in Northwest Canada, "the standard interpretation of the entire history of the Canadian economy [which] assigns to the state a major role in guiding and stimulating development,"<sup>4</sup> held for the federal government's role in subsidizing the costs of telecommunications development in the 1950's.

The selection of a crown corporation as the appropriate institutional structure to provide telecommunications was a response to the need to implement dominant national policy objectives. A crown corporation with access to low interest capital and potentially subject to direct government control was the logical outcome, given the importance of communication in the Northwest and the lack of private investor interest. A government-owned corporation would permit direct subsidies to be used without a high degree of public scrutiny. Substantial financial transfers would be made between institutions within the public sector. The corporation's legislated mandate, i.e., the requirement for commercial



viability, provided incentives for telecommunications service development on routes where a reasonable return on investment could be expected. These characteristics corresponded to the federal government's need to ensure that adequate commercial telecommunications facilities were provided to meet economic development priorities. Few attempts were made to provide incentives to encourage investment in facilities to meet communications needs in remote locations. Exceptions were made where communities were important from the perspective of southern based government and corporate interests.

It is interesting that the structure and organization chosen for the telecommunications industry would also serve to protect the federal government from an obligation to provide subsidies for uneconomic remote service development. In later years when attention shifted to the role of telecommunications in fulfilling social objectives, the requirement that telecommunications operations be commercially viable would serve to justify 'temporary' disparities in service availability throughout the Northwest.

## 2. Subsidy Policy in Alaska:

### 1950's to 1970's

In Alaska, the role of telecommunications appears to have been defined differently during the period between the 1950's and 1970's when the military-owned Alaska Communications System was finally relinquished to the private sector. Although the economic significance of Alaska's resource base to the American economy increased, the tradition of subsidies

in the form of government ownership of telecommunications to promote infrastructural service development was absent.

The parallel with the transportation sector is evident again in this context. In the Lower 48 States, early railway expansion was characterized by the absence of direct public ownership. The government relied on regulated private investor-owned companies to provide the utility services necessary for economic development.<sup>5</sup> Other forms of subsidies supported the private market, rather than replacing it. Although the need for expanded telecommunications services in Alaska was associated with national and State economic development priorities there was no tradition to justify direct government ownership to subsidize the costs of a separate commercial telecommunications system. The incentive for government ownership of commercial telecommunications facilities provided by the importance of infrastructural development was absent during this period in Alaska.

The federal government's lack of interest in continued ownership of telecommunications facilities can also be linked to technical advances in the sophistication of telecommunications technology. The strategic significance of Alaska in inter-continental communications systems for defense was declining. The Alaska Communications System was in the process of becoming obsolete in the face of satellite technology with the capability of performing the Alaskan system's military detection and surveillance functions.

Government subsidized loans had been acceptable in the 1950's and 1960's to support rural telecommunications development in the Lower 48 States. These subsidies had entailed the traditional transfer of financial resources

from the public to the private sector. However, they had never been required on the scale necessary to convert the aging Alaska Communications System to a viable commercial statewide telecommunications network. Subsidies had not been considered in the Lower 48 States until after privately-owned carriers had failed to provide adequate services. Direct subsidies were a response to a market deficiency, they were not integral to the telecommunications planning and policy implementation process.

After 1959, the State government in Alaska began to define the need for commercial telecommunications in terms of a range of policy priorities. These were related to the economic, political, cultural and social development objectives of the State. However, access to large capital requirements that would have been necessary to provide subsidies was restricted throughout this period. It was not until the late 1960's and 1970's that royalties from Alaska's oil and gas reserves became available.

Until 1968, when oil and gas exploitation became of paramount economic and political importance to both federal and State governments, there was little incentive to implement the subsidies needed to promote statewide telecommunications development. Existing subsidies inherent in the military's ownership of the Alaska Communications System continued to be acceptable as long as they remained hidden in military budgets and required no substantial increase.

The growth and importance of the Alaska economy failed to produce an overwhelming demand for expanded telecommunications services between the 1950's and 1960's. Telecommunications development tended to be regarded from the same perspective as it had been in the Lower 48 States. Regulated private carriers were expected to provide adequate commercial telecommunications services. Where they might fail in more costly areas, direct govern-

ment subsidies would ensure that national telecommunications policies would be implemented. The privately-owned telecommunications structure, relying on traditional economic criteria as a guide to decision-making was expected to be sufficient to promote development of adequate services throughout Alaska.

The choice of a private investor-owned telecommunications carrier to provide long distance services and the emergence of independent local exchange carriers serving locations that were economically viable reflected this perspective. Alascom was expected to implement national telecommunications policies by operating according to the same economic principles that had permitted telecommunications development in the Lower 48 States. Subsidies had been required to implement national telecommunications policy objectives in the Lower 48 States. They would be necessary and would require modification and extension to meet the same objectives in Alaska. However, this was overlooked to the extent that subsidies were not regarded as an integral aspect of effective telecommunications policy implementation. Subsidies required to meet costs of development in Alaska were defined as inappropriate by the dominant carriers and government representatives wherever they involved a possible decline in potential revenues.

### 3. Summary

Decisions related to investment in telecommunications services in Alaska have been evaluated in terms of traditional economic criteria assessing their profitability. Co-operatives and municipal companies have been unable to extend local exchange services in the majority of Alaskan rural and remote communities. Despite their tendency to operate according to less stringent economic criteria, existing subsidies have not provided incentives for service

development under the extreme cost conditions that characterize rural and remote villages throughout Alaska. By employing subsidies in the same form and to the same extent that would be considered appropriate in the Lower 48 States, the telecommunications industry has not succeeded in providing services at the level or quality required by stated national telecommunications policy objectives. This is particularly true in communities where costs diverge significantly from the average in the Lower 48 States.

In Northwest Canada, the pattern of telecommunications development has been similar although the extent of the problem is less severe. Subsidy methods have not been modified to meet changes in national telecommunications policy objectives. Subsidies have been available to promote telecommunications development to meet the requirements of industry, business and government agencies located in the north. In areas where costs are most extreme and the role of telecommunications has been defined in terms of implementing social policy objectives, subsidies have been labelled as uneconomic by both the carrier and government agencies responsible for policy implementation.

In both cases, where the role of telecommunications services has been less clearly associated with the dominant interpretation of the 'national interest', subsidy policy has been relatively ineffective. It has not resulted in the full implementation of stated national policy objectives in Northwest Canada or Alaska. The further that remote communities have deviated from average costs in other parts of the country, the more often the extension of subsidies has been considered to be an unjustifiable, uneconomic expenditure by both government agencies and telecommunications carriers.

It is apparent that there is an arbitrary distinction between subsidies that are considered economically justifiable and those that are condemned as inefficient. The demarcation line is not drawn on the basis of the economic

principles of profitability. Instead, it often seems to be decided by the priority ascribed at any particular period in time to telecommunications in implementing larger economic and political objectives.

In Northwest Canada and Alaska, it has been politically unacceptable to provide extended subsidies to compensate the northern carriers for costs beyond those experienced under average conditions in southern areas. Exceptions have occurred in cases where a sufficient political justification has existed for the use of criteria other than traditional economic criteria to allocate financial resources. Subsidies have been effectively used to implement telecommunications policy objectives, irrespective of short term economic criteria, if they have promoted dominant economic or political interests. When the 'national interest', however defined, has required, the Canadian and American governments have both intervened in the telecommunications development process.

In both Northwest Canada and Alaska, when the need for telecommunications services has been associated with social policy, formal policy statements reflect the governments' commitment to ensure that services meet stated national telecommunications policy objectives. However, service development requiring extended subsidies has not been regarded as an area where the government is necessarily justified in intervening without reference to short term economic costs. Under these circumstances there has been a noticeable increase in the reliance placed on the telecommunications industry and its determination of economically viable telecommunications services. The use of other criteria in the decision process that would result in monetary contributions that would lead to more effective policy implementation is reduced.

Under existing institutional arrangements, some aspects of telecommunica-

tions policy have been implemented. However, 'economic limitations' or decisions based on traditional economic criteria have limited the availability of subsidies for telecommunications development. Use of these criteria has resulted in a process of decision-making in which insufficient financial resources have been allocated to encourage telecommunications development in areas characterized by high costs and isolation.

The structure of the telecommunications industry in Northwest Canada and Alaska and the governments' emphasis on subsidy policy and methods of implementation has illustrated differences in the role of private markets in Canada and the United States. Despite the exceptional circumstances in which national telecommunications policy must be implemented in Alaska, private carriers have been relied on to provide telecommunications services. Government intervention has been intended to modify the allocation of financial resources to meet policy objectives that have not been met by carriers operating according to traditional economic criteria.

The telecommunications industry structure and subsidy policies in Northwest Canada demonstrate the Canadian government's willingness to over-ride market criteria as a basis for decisions affecting telecommunications development. Government ownership and a more widespread use of direct subsidies has ensured that services needed to implement broader national economic policy objectives would be provided despite short term cost considerations. In both cases government subsidy methods have changed the nature of the criteria used as a basis for allocating financial resources. Telecommunications development has been 'regulated' in order to ensure that services have developed in accordance with changing national and, less frequently, regional priorities. In neither Northwest Canada nor Alaska has the development of telecommunications systems occurred on the basis of strict adherence to economic criteria

reflecting private market conditions. Decisions as to the development of telecommunications services have always been based on a consideration of other than traditional economic criteria. This supports the argument as to legitimacy of incorporating social policy objectives in the decision-making process through the use of subsidy methods that are designed to implement these objectives.

C. The Impact of Subsidies on Telecommunications Development  
in Remote Areas

The following discussion provides a more detailed analysis of specific methods of subsidy that have been used in Northwest Canada and Alaska. Factors in the existing institutional arrangement of the telecommunications industries and government agencies that affect the form and effectiveness of subsidies are examined. In Canada and the United States, statements of national telecommunications policy give a priority to reducing existing disparities between the level and quality of services. This section provides an analysis of how effective subsidy methods have been in implementing these objectives.

1. Alternative Subsidy Methods in the Canadian Institutional Context

In Canada, the federal government's reliance on internal subsidies has played a less significant role in influencing telecommunications development than has its use of direct subsidies and government ownership. However, none of these methods have been particularly effective in promoting service development in remote areas.

The inactivity of federal regulatory agencies throughout most of the history of Canadian National Telecommunications (CNT) in the Northwest has



enabled the company to pursue its own corporate objectives. This has been the case despite the fact that this is a public (crown) corporation. As a division, and now a subsidiary, of the crown-owned Canadian Railways System, management decisions have not been subject to government review under the terms of the Financial Administration Act. CNT's use of internal subsidies has been considered to be outside the boundaries of regulatory authority. Successive regulatory agencies have not obtained sufficient financial information to permit review of the company's investment policies, or the basis on which financial resources are allocated to cover the costs of different services. The extent and direction of internal subsidies is almost impossible to assess. For example, there is no evidence as to whether basic telecommunications services have subsidized competitive data services or whether and to what extent existing services in rural areas are being subsidized.

The CRTC's recent concern over financial reporting requirements may eventually enable it to examine subsidy issues. Its current policy that internal subsidies should be implemented on the basis of 'sound public policy' will have little impact on telecommunications development in the Northwest until CNT's policies and practices are opened to more detailed regulatory scrutiny. The effectiveness of regulatory procedures will also depend on the priority that the CRTC and other government agencies give to implementing subsidy policy. The larger political and economic problem as to whether internal subsidies can be extended to implement social policy objectives under costly northern conditions remains unresolved.

The combined use of government ownership and direct subsidies has also been relatively ineffective as a method of fully implementing national telecommunications policy in northern remote communities. CNT's policies are dictated largely by the CNR System which has required its subsidiary to operate

profitably. Corporate policy has provided little incentive to invest in telecommunications facilities in remote areas where extensive internal subsidies would be needed to cover the costs. CNT has met telecommunications policy objectives in areas which have been commercially viable because of demographic or geographic characteristics. It has also provided services where capital and operating costs have been subsidized by industrial users and the federal government.

CNT's performance does not appear to contradict the federal government's priorities. A review of historical developments suggests that CNT was encouraged to operate on a commercial basis. The fact that this policy resulted in a disparity in services in more isolated communities did not become a subject for concern to the federal government until recently. CNT obtained direct subsidies to promote the development of a telecommunications system that facilitated communication between the north and the south, and between northern intra-regional centres. Direct and internal subsidies allocated specifically for telecommunications development in remote areas have largely been absent.

Recent attempts by the federal government to introduce direct subsidies seem to have been short term solutions. They have reflected a temporary concern for the telecommunications problems in remote areas. This is illustrated by the subsidy programme introduced by the federal government in 1976 to cover the initial costs of providing service in remote areas. It was withdrawn before it had fulfilled its objective as soon as national fiscal spending restraints were imposed. The brief history of this programme suggests that it was a reflection of changes in the availability of excess capital within the federal department rather than an indication of a commitment to reduce the disparity in services in the long term. Remote communities that have not

met CNT's criteria for economic viability have received little benefit from the federal government's subsidy policies. Incentives have not been provided for the development of adequate telecommunications services in these areas.

Control and responsibility over subsidies for telecommunications development in the Canadian Northwest has rested with the federal government and the dominant telecommunications carriers. The opportunity for northern Territorial government representatives to participate in decisions affecting telecommunications development has been minimal. Territorial governments have been excluded because of the historical lack of power they have exercised in decisions relating to all aspects of political and economic development in the Northwest. Furthermore, they primarily represent the interests of the business and industrial community which has been the beneficiary of subsidies that the federal government has made available.

The federal government's subsidy policies have not been responsive to the telecommunications needs expressed by residents of remote northern communities. An example is provided by subsidies that were allocated for the development of Canada's domestic satellite system. Subsidies were partially justified by the potential of satellites to fulfill northern telecommunications needs. Stated policy objectives for satellite development in Canada indicated that the corporation, Telesat Canada (1969), which was created to provide domestic satellite services had a social responsibility to ensure that the benefits of satellite technology would become available to all Canadians and particularly to northerners.<sup>6</sup>

Policies stated that social objectives would be a factor in decisions to introduce satellite services. But in fact they weren't, as continuing disparities in the availability of basic telecommunications services indicate. Disparities point to the secondary importance that this objective received despite the availability of a cost-effective technology.

Provision of satellite services was institutionalized within the existing telecommunications industry structure. The dominant carriers, i.e., Trans Canada Telephone System, control the cost and design of the new technology. They have ensured that its advantages over more costly terrestrial telecommunications systems in northern areas are minimized. The economic viability of northern services continues to be evaluated on the basis of criteria that do not reflect the cost advantages of satellite technology. The result has been that remote northern service development has remained dependent on short term sporadic direct subsidy programmes. The needs of northern remote communities for adequate telecommunications services were expressed in stated government policy concerning the introduction of satellite services. However, factors inherent in the system of institutional relationships have effectively precluded many northern communities from benefitting. Criteria underlying decisions affecting telecommunications development in costly remote areas have not been modified to reflect changes in technology.

## 2. Alternative Subsidy Methods in Alaska/U.S. Institutional Context

In the United States, the regulatory process has been the major means of implementing subsidy policy. However, internal subsidy practices

have not been effective in providing sufficient revenues to promote telecommunications development in rural areas of Alaska. State and federal regulatory commissions have relied on internal subsidy practices developed in the Lower 48 States to implement policy. The regulatory agencies have been generally unwilling to extend subsidies to meet conditions in high cost areas. These agencies and the dominant carriers are not adverse to changes in methods of calculating the division of revenues between carriers. However, they are adverse to changes that would involve a transfer of additional revenues to Alaska. Full implementation of national telecommunications policy objectives in Alaska requires a larger subsidy than was needed in the Lower 48 States to implement the same policy objectives.

Representatives of government and the telecommunications industry in the Lower 48 States oppose the extension of Lower 48 States telecommunications policy to Alaska if extra subsidies are involved. They have argued that existing internal subsidies permit the industry to operate efficiently. Any departure from these practices is regarded as inefficient and detrimental to both the industry and the majority of its customers.

Alternative methods of providing sufficient revenues for rural telecommunications development in Alaska depend on whether regulatory commissions find it acceptable to argue for social policy implementation over and above a certain level. Internal subsidies in the Lower 48 States are effective because they average across varying conditions that do not deviate to the extreme that conditions in Alaska do. Revenues are

distributed throughout the telecommunications system to ensure that, despite regional differences, access to adequate basic telecommunications services is maintained. The likelihood that the regulatory agencies will be in a position to require extensions of internal subsidy policy will depend on the weight given in the decision-making process to social criteria rather than accepted economic criteria.

The question as to whether internal subsidies provide a viable method of implementing national telecommunications policy has been raised in the context of the possible de-regulation of the competitive telecommunications market. The U.S. Congress is presently considering several proposals.<sup>7</sup> The Communications Act rewrites advocate significant changes in existing telecommunications policies and regulatory practices. The Bills encompass a range of options for de-regulation. Each would have an impact on the allocation of revenues that permit basic exchange and long distance services to be universally available at reasonable rates. All the proposals assume that basic telecommunications services are available now, and that services are adequately provided throughout the United States. New institutional arrangements are designed to maintain these services at their present levels with some allowance for growth.

Revenue contributions for local exchange development are viewed as subsidies that should be reduced wherever possible.

From the perspective of continued telecommunications development in Alaska, none of the proposals recognize the inadequacy of current internal subsidies or the need for substantially increased revenues to

promote policy implementation. The essence of the debate over subsidy policy centres on the location of responsibility for the costs of fully implementing costly policy objectives at existing levels of development. The Alaskan telecommunications industry's access to sufficient revenues is likely to continue to be restricted if the dominant interests of the telecommunications industry and government are reflected in revisions to the Communications Act.

The rural telecommunications carriers in the Lower 48 States can be expected to argue for legislative protection for the continuing economic viability of rural services. However, the interests of this group of carriers do not parallel those of Alaskan carriers. The Rural Telephone Coalition has argued that:

The development and expansion of long distance services and the associated revenues used to maintain reasonable local exchange rates, are essential to the financial integrity of rural telecommunications. 8

These carriers are concerned with ensuring that further technological innovations in the form of cable and broadband interactive services find their way into legislated classifications of 'essential services'. This would increase their eligibility for revenues from internal subsidies.

Direct subsidies have played a role in telecommunications development in Alaska. However, the lending policies of the Rural Electrification Administration (REA) are conservative and have not been modified to reflect Alaskan conditions. Criteria used to assess borrower eligibility are based on judgements as to economic viability drawn from the private sector.

The REA requires evidence of economic viability that presupposes regional economic growth to generate revenues to maintain a carrier's economic self-sufficiency. Historically, the majority of recipients of REA capital in Alaska have been carriers that provide service in more lucrative markets.

Although the form of the subsidy, i.e., government subsidized loans, differs from the direct grant methods used by the Canadian government, the result has been similar. Subsidies have benefitted those regions that are able to provide revenues, in aggregate, sufficient to cover operating costs. Since 1975, the REA has increased the flexibility of its lending criteria and several Alaskan telephone companies serving small isolated communities have qualified. However, remote communities that do not experience economic growth are not likely to meet REA standards that require that revenues at least cover operating costs.

The REA does not represent a long-term solution to the need for subsidies in Alaska. Its recent activities can be attributed to the interests of the independent rural telecommunications carriers in the Lower 48 States. These carriers influence REA policy and investment practices through their representation on the agency's Board of Directors. By maintaining an active role for the agency, the fact that it has largely fulfilled its original mandate has been overlooked and access to low interest capital has been curtailed. These companies are seeking additional subsidized capital to assist in their entry into the lucrative rural cable market in the Lower 48 States.

The REA's activity in Alaska can be expected to continue until legislative changes permit investment in costly innovative telecommunications services in rural areas of the Lower 48 States. The proposed Communications Act revisions



may affect the availability of direct subsidies. The Bills contain provisions for involving the REA more closely in telecommunications development in rural areas of the Lower 48 States. The proposals do not address the disparity between basic services and rates available in Alaska as compared to the Lower 48 States.

The federal government's commitment to provide subsidies for Alaska telecommunications development seems to be in a precarious position. Regulatory procedures and institutional arrangements that are emerging out of legislative proposals have not given consideration to the special needs of Alaska or to the need for continuing and expanded subsidies. The question of subsidies between levels within the telecommunications industry and between industry and federal/State governments remains unresolved.

The political organization of Alaska as a State with equivalent, if isolated, powers to other States in the Lower 48 has had implications for subsidy policy implementation in Alaska. Alaska has been able to make its position known to the federal and State regulatory agencies, to Congressional committees, etc. The Alaska Governor's Office of Telecommunications was structurally located to permit some autonomy from dominant corporate/government interests. It was able to bring pressure to bear on the decision process. A series of decisions resulted that contributed additional financial resources to promote policy implementation in rural areas. Unfortunately, there were problems. Subsidies that were introduced were essentially short term answers. The long-term problem continues to be embedded in factors inherent in institutional arrangements that reflect the interests of dominant telecommunications carriers. Resistance to providing sufficient subsidies has been apparent in many ways. The most visible has been that Alaska's advocacy agency is no longer in existence (terminated July 1979). The agency's effect-

iveness in arguing for a re-distribution of the State's financial resources to support costly rural telecommunications development, and within the industry between AT&T, Alascom and the local exchange carriers, was not consistent with dominant economic interests.

The removal of a central telecommunications agency which had advocated the necessity of allocating financial resources on the basis of social policy has made it easier for other government representatives, i.e, the State Legislature and State and federal regulatory agencies to employ traditional economic criteria as a basis for decision-making. Thus, a structural change in institutional relationships has had important consequences for the future availability of subsidies for Alaska telecommunications development.

#### D. Conclusion: Implications for Subsidy Policy Implementation

Subsidy methods have been used successfully to promote telecommunications system development in southern Canada and the Lower 48 States. However, in rural and remote regions of Northwest Canada and Alaska, similar subsidy methods have been relatively ineffective. Problems have stemmed from failures to modify these methods to account for northern conditions. Subsidies have been implemented without consideration of the specific characteristics of institutional systems of relationships. Subsidies can be expected to be more effective in implementing telecommunications policy objectives to the extent that their design reflects an understanding of the complexity of these relationships and an adequate assessment of the reasons for the problem of disparities in telecommunications services.

The analysis of issues related to subsidy policy should not be isolated from the institutional systems where it is expected to have an impact. The telecommunications industries allocate financial resources on the basis of

criteria that reflect their interests. Depending on their objectives, internal subsidies may or may not be implemented and they may or may not provide the financial resources required to promote service development in high cost areas. The same reasoning applies to other subsidy methods that are intended to modify the allocation of financial resources to meet telecommunications policy priorities established by government agencies. Decisions to implement subsidies are defined in relation to changes in the context of the system of institutional relationships. The decision-making process that affects subsidy implementation cannot be understood if it is arbitrarily segmented on the basis of divisions between government agencies and the telecommunications carriers that participate.

There are many factors that determine whether sufficient financial resources will be allocated to promote telecommunications system development that meets stated national telecommunications policy objectives. The preceding analysis has illustrated some of the key factors that have influenced the role of subsidies. These factors affect incentives to implement subsidies and the criteria that are used as a basis for allocating financial resources. Existing relationships between and within the telecommunications industry and government agencies have tended to provide incentives to base decisions on traditional economic criteria. Given the cost conditions in rural and remote communities in Northwest Canada and Alaska, these have been inappropriate. If adequate basic telecommunications services are to be provided, decisions as to subsidy policy must reflect criteria that give some weight to the need to implement social objectives.

This study has addressed those factors that directly concern institutional structural relationships and their impact on decisions affecting subsidy implementation. Failure to implement policy objectives are attributed to

factors beyond the institutional relationships which have been discussed. The extent of the political power exercised by the State of Alaska, the Yukon and Northwest Territories governments, and other northern organizations, is an important factor that affects decision-making changes in the effectiveness with which subsidy policies are implemented must depend in part on changes in the political power exercised by northern groups. However, future opportunities to influence decisions require an adequate understanding of the institutional relationships addressed in this study.

Changes in institutional arrangements and the criteria underlying the decision-making process are necessary if subsidies are to become more compatible with statements of telecommunications policy intent. If changes are not made, existing subsidies will continue to be ineffective in fully implementing telecommunications policy objectives. The pattern observed in this study, whereby internal subsidies have been insufficient and direct subsidies have been short-term solutions to an ongoing problem, will continue to result in disparities in service development in remote and rural areas. The government agencies and carriers that participate in the policy implementation process have failed to recognize that existing subsidy methods do not reflect northern conditions.

Constraints to effective subsidy policy implementation in Northwest Canada and Alaska are related to the nature of the existing structure of institutional arrangements. The telecommunications industries and government agencies have placed a higher priority on implementing subsidies to promote service development that fulfills dominant national economic and political objectives. The interests of northern residents in rural and remote communities have not been reflected adequately in existing subsidy methods.

The holding company corporate structure of the telecommunications

industry in Northwest Canada and Alaska has been a major factor that has affected subsidy policy and methods. CNT and Alascom are both subsidiaries of large holding companies. Management decisions have tended to be more responsive to parent company priorities and objectives than to the need for expanded telecommunications services. Incentives to operate according to traditional economic criteria have affected the availability of financial resources for service development especially in high cost areas. Both companies are primarily concerned with the profitability of telecommunications services. Few incentives to extend internal subsidies beyond levels that have been typical for privately-owned carriers operating in southern areas have existed. The holding company structure has also increased the difficulty experienced by government agencies in ascertaining the extent of existing internal subsidies. Financial information and criteria underlying management investment decisions also have been difficult to obtain.

The availability of internal subsidies has also been affected by the location of northern carriers within the larger telecommunications industry structure. Decisions affecting the allocation of revenues have been dominated by carriers operating in southern Canada and the Lower 38 States. It has been in the interest of these carriers to restrict the flow of revenues to CNT and Alascom to levels that have been successful in promoting the development and maintenance of adequate basic services in the south.

In Canada, the methods of dividing revenues that result in internal subsidies have been developed by the Trans Canada Telephone System (TCTS), largely in response to Bell Canada priorities. Until recently, this decision-making process was not investigated by Canadian regulatory authorities. Consequently, the extent to which internal subsidies could be extended if decisions were based on criteria that reflected the need to implement

telecommunications policy in Northwest Canada remains unknown.

The CRTC has recently undertaken a study of revenue separation methods between members of the Trans Canada Telephone System. Attention should be focused on the ramifications of existing methods for northern service development. If criteria reflecting policy considerations were given greater priority relative to criteria reflecting the interests of Bell Canada and other TCTS members, it is conceivable that a significantly larger portion of revenues could be allocated to promote service development in Northwest Canada.

In the United States, regulatory commissions have attempted to ensure that internal subsidies are implemented with some attention to telecommunications policy objectives. However, the interests of Alaskan carriers have tended to be merged with southern carriers. Existing subsidy methods do not promote objectives under Alaskan conditions. To date, dominant carrier interests, i.e., AT&T, have successfully resisted modifications to existing subsidy methods. They have argued that the present system is economically justified, and that changes would result in inefficiencies in the operation of the nationwide telecommunications network. Presumably, dominant carriers in Canada will use the same argument to justify the continuation of internal subsidies that are to their benefit.

The dominant carriers in the telecommunications industry in Canada and the United States have an interest in resisting changes in inter-industry subsidy practices. Further, both CNT and Alascom's objectives, as defined by their parent companies, have increased their resistance to allocating revenues to promote service development in remote areas. In Alaska, the problem is aggravated further by the separation of responsibility for operating the long distance and local exchange portions of the telecommunications system. Alascom has resisted modifications to subsidy practices that

would provide additional revenues to the existing local exchange carriers. Insufficient subsidies at the intrastate level have restricted incentives to new or expanding local carriers to provide telecommunications services in remote areas.

The effective use of subsidies to implement national telecommunications policy in Northwest Canada and Alaska has also been limited by several characteristics related to the structural arrangement of government agencies and the interests that have prevailed in the decision-making process. Regulatory agencies have exercised relatively little control over the telecommunications industries' use of internal subsidies for Northwest Canada and Alaska.

In the Alaskan context, both federal and State regulatory commissions have separated subsidy issues from other policy issues related to the regulation of industry performance. There have been no detailed analyses of the extent of the economic problems faced by northern carriers providing services under extreme northern conditions, initiated by regulatory agencies. A recognized need for subsidies has not precipitated an adequate assessment of the extent of additional financing that is required. The State regulatory agency has adopted internal subsidy methods based on procedures developed to meet financial requirements equivalent to those experienced by rural carriers in the Lower 48 States. There is an imminent danger that the Federal Communications Commission will accept the same procedures at the interstate level. There has been a tendency to emphasize the importance of uniformity of procedures and criteria used to allocate financial resources throughout the telecommunications industry. A sufficiently high priority has not been given to developing innovative subsidy methods needed to implement national and State telecommunications policy objectives.

In Northwest Canada, the inadequacy of the regulatory process in dealing with subsidy issues has been aggravated by several factors. The CRTC has only recently interpreted its mandate to include a responsibility for exercising control over telecommunications carrier policies and practices related to internal subsidies. Historically, the regulatory process has not been concerned with the impact of these policies on the development of telecommunications systems. In the particular instance of CNT, its corporate status as a public corporation also seems to have enabled it to escape the attention of the regulatory process to an even greater extent than other privately-owned carriers. Since the disparity in basic telecommunications services in the Northwest is less severe than in Alaska, it could well be that modifications to existing internal subsidies required to promote development in remote areas would be relatively minor. However, the CRTC currently does not have the information available to it to make this determination. The CRTC has also not expressed an interest in pursuing investigations of subsidy issues in sufficient depth to permit regulatory decisions to be based on innovative criteria reflecting northern needs for telecommunications services.

Regulatory agencies with jurisdiction over northern telecommunications carriers have made few active attempts to assess the need for subsidies. The predominate approach has been to take incremental steps toward providing additional revenues for telecommunications development. It must be recognized that minor changes in subsidy methods, while representing steps in the appropriate direction, continue to fall short of providing the financial resources needed to provide a long-term incentive for telecommunications development in remote areas. Steps have not been taken to ensure that the interests of northern communities are represented adequately in the decision-



making process. No comprehensive studies of the need for additional subsidies have been undertaken. No analyses of the weight that should be given to criteria that reflect northern conditions have been initiated. Instead, an acceptance of existing procedures and methods has prevailed. The seemingly self-evident admission that effective policy implementation requires the development of alternative subsidy methods has not been forthcoming.

In summary, the holding company structure of the telecommunications industry and the location of northern carriers within the larger industry structures must be recognized as a source of continuing problems in Northwest Canada and Alaska. This relationship affects the carriers' willingness to extend subsidies, and reduces the incentive to provide adequate telecommunications services under high cost conditions. Regulatory agencies must pay significantly more attention to the consequences of these relationships. The carriers must be required to provide information as to the extent of existing subsidies. Regulatory decisions concerning appropriate internal subsidy methods must be based on criteria that reflect the policies that these agencies have a mandate to implement. This study has indicated that resistance to changes on the part of dominant carriers are a reflection of their incentive to protect their own interests. It is not derived from economic principles that dictate the methods required for the efficient provision of telecommunications services. Regulatory agencies must base decisions on an assessment of the need for additional revenues and the actual impact shifts in the distribution of revenues would have on the carriers that provide services. Their primary concern should be to develop subsidy methods that achieve the level of services that are required.

Other government agencies that have access to financial resources needed

to promote telecommunications service development have not sought to establish the extent of the need for subsidies or the most effective means of implementing them. In both the United States and Canada, the agencies or departments that have a mandate for telecommunications policy implementation and the capability of providing direct subsidies have a greater interest in allocating available funds for other purposes. For example, the Rural Electrification Administration (REA) has made only limited attempts to adjust its lending criteria to reflect Alaskan conditions. The carriers that control REA lending policy have a temporary interest in allocating investment capital to Alaskan carriers. In Canada, financing of research and development activities by the Department of Communications (DOC) has taken precedence over subsidies required to promote the ongoing development of northern telecommunications services. The DOC has implemented subsidies in the north to support commercial services in remote areas only as funds over and above its primary activities become available. Subsidies supporting the development of innovative technology have typically not benefitted northern remote communities. When technological advances, i.e., satellites, have been incorporated by the existing telecommunications industry, they have been too costly to be implemented without recourse to further direct subsidies that have only been sporadically available.

The lack of co-ordination between government agencies responsible for telecommunications development has been a contributing factor that has reduced the effectiveness of existing subsidy methods. Direct subsidies that have been available have been implemented in isolation from an analysis of the impact of internal subsidies. They have tended to be implemented without investigation as to whether disparities in telecommunications services could best be reduced by providing subsidized investment capital, financial

assistance to cover operating costs, or both.

In Northwest Canada and Alaska, direct subsidies have been oriented to ameliorating short-term shortages in capital and/or operating revenues experienced at particular periods in time by the carriers. In Alaska, the majority of REA capital has been allocated for the expansion of existing facilities in more populous areas. In those remote areas where funds have been allocated, subsidies have not been available to cover operating costs. In Northwest Canada, direct subsidies have supported, in all but a few cases, the expansion of existing facilities between communities of economic or political importance to southern corporate and government interests.

The approach to subsidy issues taken by government agencies provides little indication of any serious attempt to resolve the problem. There has been an implicit acceptance of the status quo. Existing subsidy policies and methods are condoned by regulatory commissions and other government agencies because of their failure to confront the problem. Government agencies in both Canada and the United States have only a peripheral interest in subsidy issues as they apply to telecommunications system development in remote and rural northern regions. For a variety of reasons that have been indicated in this study, other concerns have taken priority. The result has been that neither regulatory nor funding agencies have maintained an effective or continuing interest in implementing subsidies in the north.

If government statements as to national telecommunications policy objectives are to be more than rhetoric as far as remote communities in Northwest Canada and Alaska are concerned, there must be a recognition on the part of government agencies that the structure of the telecommunications industries does not provide incentives for telecommunications development in remote areas. Therefore, there must be an acceptance of the fact that

subsidies are as necessary to ensure policy implementation under these conditions as they have been historically for the development of basic telecommunications services in other areas of both Canada and the United States.

Attention must be actively focused on subsidy issues. Carrier performance and decisions should be subjected to continuing review as to their effect on the telecommunications development process in remote and rural areas. The extent of existing financial deficiencies related to both operating costs and the cost of providing expanded facilities must be determined. Subsidies must be allocated on the basis of criteria established to reflect the nature of the context in which they are to be implemented. It should be clear what the objectives are and who the beneficiaries are to be.

Existing government agencies are unlikely to devote sufficient time and resources to developing the information required to implement effective subsidy programmes. In both Northwest Canada and Alaska there is a need for an agency with a specific mandate to review and implement subsidy programmes. This concept could be extended to include a responsibility for investigating problems associated with subsidies for the development of other essential services in rural and remote areas, i.e., electricity. If access to information required to determine effective subsidy methods and industry practices was ensured, recommendations to regulatory agencies and other government sources of financing could be made on the basis of a clear understanding of the nature of the problem.

An analysis of telecommunications subsidy policy has illustrated factors that prevent existing subsidies from promoting telecommunications development under remote and rural northern conditions. Existing institutional relationships create incentives for the continuation of subsidies that allocate insufficient financial resources for telecommunications development in high

cost areas. This analysis has provided a comprehensive basis for recommendations that are founded on an assessment of where areas of concern lie. A discussion of changes in institutional arrangements and subsidy policies is provided which recognizes the context in which the decision-making process occurs.

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