

AN EVALUATION OF THE PERCEPTION OF QUALITY
OF LIFE IN NORTHWEST BRITISH COLUMBIA

by

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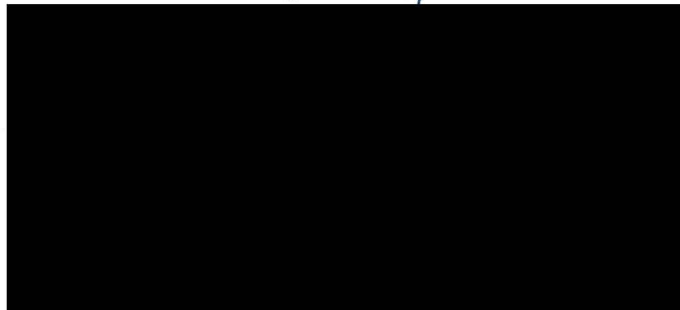
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ABSTRACT

This study identifies criteria and evaluates the perception of satisfaction which residents of the northwest of British Columbia hold regarding the quality of life. Since 1971, a series of development proposals have been put forth, of which only a few have been successfully implemented. Direct federal and provincial involvement in the region has been mainly concerned with the provision of highway, railway and port facilities, and the economic support for an existing pulp mill-sawmill complex together with the construction of new sawmills. Stated objectives of all levels of government have included not only the orderly and rational extraction of resources, but also the provision and maintenance of a high standard of quality of life. To date little analysis has been performed regarding the effectiveness of this involvement in influencing resident perceptions of satisfactory and unsatisfactory components of quality of life within the region.

In this study in order to assess the perception of satisfaction by residents within the region, subjective measures of quality of life were utilized. Participant observations and interviews were conducted and questionnaires to households were administered during the summer of

1975. Within the northwest, the communities of Terrace and Smithers were used as case studies, and Squamish in southern British Columbia was utilized for comparative purposes. An holistic approach to the provision of quality of life was stressed, incorporating data relating to the resource base, government and industry, as well as community infrastructures.

Three sets of conclusions were reached. First, it was concluded that disproportionate levels of satisfaction do not exist between communities in the northwest of British Columbia and Squamish in southern British Columbia, and that demographic characteristics of the sample population do not play a significant role in the determination of satisfaction. Second, it was concluded that certain identified components of quality of life provide dissatisfaction, and that specific measures should be undertaken to minimize their impact. Third, it was concluded that resource development within the northwest has been poorly co-ordinated, with little liaison between participants. Recommendations are made for the establishment of a Northwest Development Authority to co-ordinate and control development and for the establishment of an ongoing commission of public enquiry to provide public input to the decision process.

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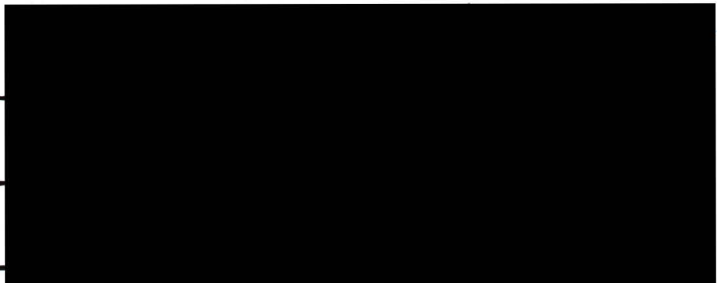


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Special appreciation is extended to Wendy, my wife, who was patient.

Geography studies are not descriptions of the real world, but rather perceptions passed through the double filter of the author's mind and his available tools of arguments and representation.

—Ian Burton.

*The Quantitative Revolution and
Theoretical Geography*, p. 158.

services, while ignoring "bads" and "disservices,"⁴ thus distorting the impact of development.

Since the early 1960's efforts have been made to evaluate social conditions in relation to economic development policies. Social indicators^{5,6,7} and associated quality of life measurements⁸ have been proposed as means of assessing the social impact of various public and private projects. Most investigations of social conditions have related to major urban areas and problems associated with disparities within and between large cities. With the exception of the Centre for Settlement Studies at the University of Manitoba, little comprehensive investigation has been performed relating to Canada's frontier, resource communities.

Since 1950 the development of previously unexploited resources in Canada's northern areas has become increasingly more frequent.⁹ New settlements have been constructed adjacent to resource points, while existing communities have frequently found themselves undergoing rapid growth. New residents seeking improved opportunities have arrived in these outlying areas, while long term residents have frequently experienced dramatic changes in the composition of their community.

Frequently communities have experienced disproportionate incidences of social problems, leading to dissatisfaction and outmigration.^{10,11} Problems associated with

alcoholism and drug abuse, violence, social stratification, isolation, boredom, mental illness, and family breakdown as well as other factors have been identified as detrimental attributes of frontier communities.¹² Unfortunately, most studies have recognized these problems in isolation and have not attempted to relate them to either regional development policies or to overall resident expectations. Public policy at the federal, provincial and local levels as well as the actions of private firms can determine quality of life within frontier communities and in turn resident satisfaction or dissatisfaction.

Measurement of Quality of Life

The principal method used for the measurement of social conditions is social indicators. Definition of the term social indicators is varied, depending upon the emphasis placed upon either quantitative or qualitative attributes. The following definition, put forth by Carlisle, recognizes social indicators in a general context as consisting of:

. . . any one of the concepts central to the generation of an information system descriptive of the social system.¹³

Henderson has recognized social indicators as consisting of four categories: social statistics; social accounting; subsystem variables; and "quality of life" measures.¹⁴ Social statistics are recognized as consisting of the collection of time series statistics which are considered to portray aspects of particular goal areas. The

secondary category, social accounting, assumes a holistic interrelated approach to the social system, within which goals are related to socio-economic objectives. Subsystem variables embrace output measures related to specific objectives or systems.

The fourth category of social indicators as identified by Henderson, relates to "quality of life" measures. This category of social indicator, which is the research technique used for this thesis, consists of the subjective or qualitative perceptions which individuals hold of their level of satisfaction attainment within a particular social system. Quality of life indicators of this category are seen as occurring on a time-series basis and being a direct measure taken from individuals.

Quality of life has been recognized in a more specific context relating to resource towns. Riffel, although not recognizing social indicators per se, has defined quality of life in resource towns as referring to:

. . . the level of well-being of the residents and to the suitability of the town environment created by the development of the natural resource industry for the work force and the other inhabitants of the town.¹⁵

In this definition of quality of life, Riffel implies an important hierarchical ordering. Natural resource industry is seen as being the determining factor of both resident well-being and the suitability of the town environment. Industry in this case is taken in a broad context, encompassing both private and public corporations as well as

their necessary support structures.

Riffel further recognizes that information regarding quality of life within resource communities in Canada is fragmented. Comprehensive studies are few, if any, while little comparative analysis has been performed.

Quality of Life and Resource Development

Decision makers involved in resource development planning are faced with increasingly more and more complex decisions. Analysis of the social effects of planning has been recognized as passing beyond a cause-effect model, requiring rather an interactive model based upon a holistic approach.¹⁶ Total systems must be analyzed not only in terms of themselves, but also of other systems. O'Riordan has noted that utilization of such a comprehensive approach is not without dangers, since the total view is difficult to comprehend and awkward to make operational.¹⁷ On the other hand, it is imperative that social and environmental problems be recognized as an integral part of resource development planning process, since residents of frontier resource communities reap most directly the economies or diseconomies of development policies.

Quality of life measurement can serve as a measure of the relative success or failure of development policies in meeting the needs and expectations of residents. Through continuous monitoring of satisfaction and dissatisfaction, solutions can be sought to problems before they become

disproportionate in size and scale. Problems associated with major development programmes can be anticipated and examined. Local objectives can be better understood, with community sensitivities incorporated into projects. On an individual level, planners can be better informed of the shortcomings of services and areas of dissatisfaction before they cause individual frustration and alienation.

Comprehensive planning which incorporates all components of quality of life to the satisfaction of all residents of a community is probably never possible. O'Riordan has recognized that even optimal decisions, in which "the largest net social benefits over a given investment period" are achieved, are not possible.¹⁸ Public interest cannot be consistently gauged, since it is multi-faceted, conflicting, and shifting. Planning must therefore be flexible and sensitive, yet have an ultimate objective upon which there is a general consensus.

*Resource Development and the Quality
of Life in Northwest British Columbia*

Current resource development activity in northwest British Columbia has centered upon initiatives by the government of Canada and the province of British Columbia. Since 1970 development by private industry has been minimal. Due to a seeming lack of co-operation between the two levels of government and political motivations associated with development proposals, integrated planning has been

minimal (Appendix A).

Northwest development has not followed the traditional regional planning approach in which a particular region is designated for development assistance. Rather, as federal and provincial transportation proposals evolved and extractive industries were promoted, northwest development has been generally accepted as encompassing the Skeena-Queen Charlotte, the Kitimat-Stikine, and the Bulkley-Nechako Regional Districts, as well as the unincorporated district of Stikine (Figure 1.1).

Although federal concern over development in northwest British Columbia has been acknowledged as commencing in 1970,¹⁹ the first major policy statement by the federal government came in 1972. *The Northwest Transportation Plan 1972*, prepared by Transport Canada,²⁰ recognized the need for adequate transportation systems and economic infrastructure (Appendix A, Item 7).

Provincial government involvement has focused primarily upon development of transportation facilities (Appendix A, Items 5, 6, 8) and support and operation of forest products mills (Appendix A, Items 19, 21, 24, 26). The acknowledged objectives have been to facilitate economic development, preserve environmental quality and to stabilize and enhance community living.²¹ It has been recognized that these objectives cannot be satisfied independently, since without integral planning, costly mistakes and social

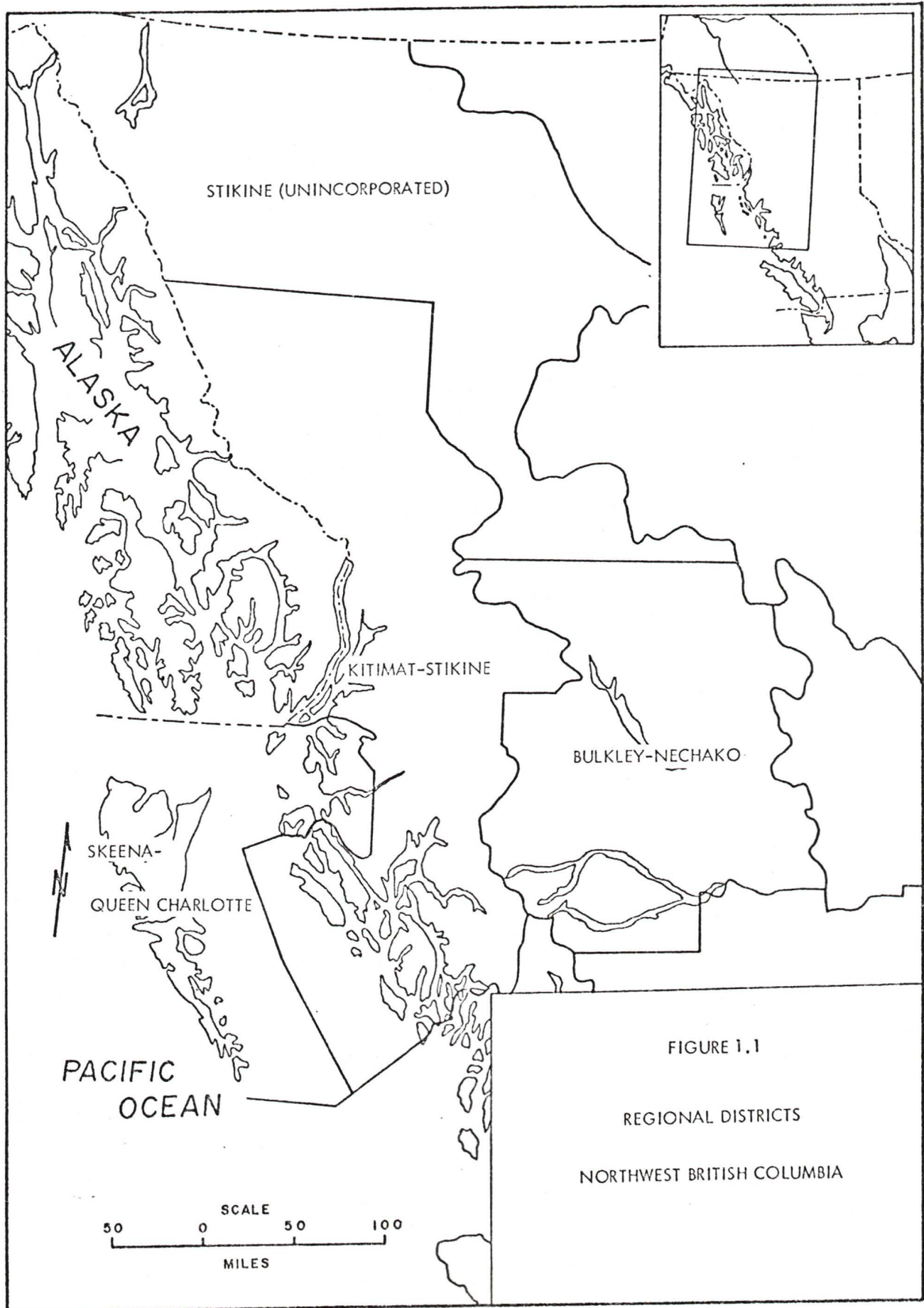


FIGURE 1.1
REGIONAL DISTRICTS
NORTHWEST BRITISH COLUMBIA

CHAPTER I

RATIONALE FOR THE STUDY

The evaluation and improvement of quality of life in Canada's northern frontier communities has become the subject of increasing attention by various groups and agencies. Federal, provincial, regional and municipal levels of government as well as industry, academicians and public interest groups have become increasingly aware of the need for a reasonable level of quality of life so as to maintain and satisfy the expectations of frontier community residents. With continuing development of frontier resources and associated community growth, living conditions which are both stimulating and rewarding will be essential to future community development.

In the past frontier development has consisted primarily of resource exploitation and extraction, with improved living conditions considered to be inherent to economic growth. The last decade has seen a public questioning of the roles of economic¹ and technological development,² with increasing attention paid to social factors. Economic growth has been recognized as a mixed blessing, with Gross National Product and per capita income providing a poor measure of social services.³ Measures of development performance have tended to evaluate only an economy's goods and

penalties may occur.²²

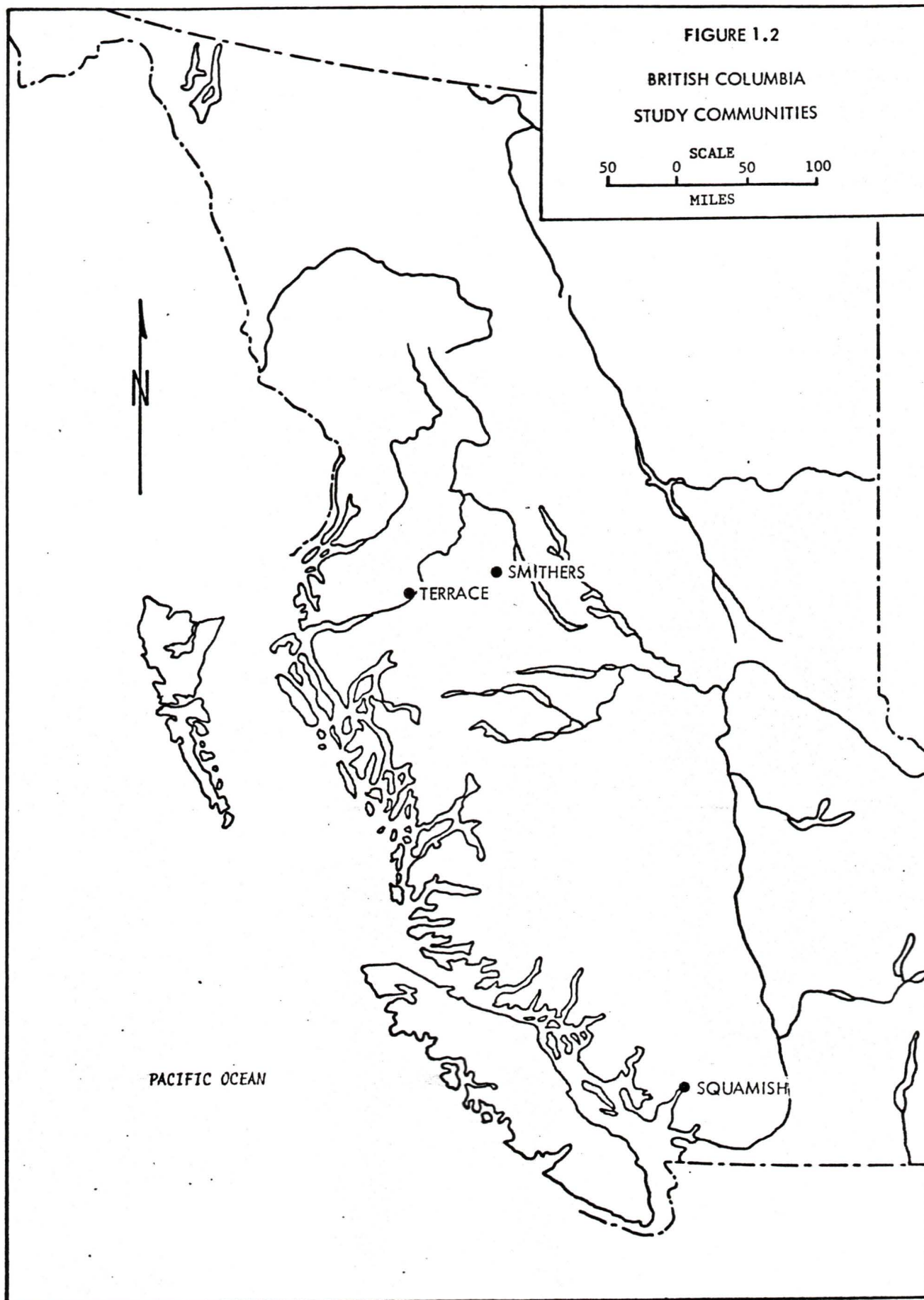
The close relationship between economic development and quality of life was recognized by the past Minister for Economic Development, Gary Lauk, in the following statement:

. . . one of the best ways to encourage economic development in the more remote regions of the province is to ensure that community services consistent with the expectations of people are provided.²³

Identification of shortfalls in community services as well as individual residents' levels of satisfaction attainment are crucial to maintaining a stable population. With such information both long and short term regional and community planning can be performed which provides for satisfaction of economic, environmental, and social goals.

It is the purpose of this thesis to isolate and analyze residents' perceptions of satisfaction or dissatisfaction relating to selected quality of life components in the frontier resource communities of Terrace and Smithers in northwestern British Columbia. For comparative purposes, analysis of satisfaction levels in the community of Squamish in southern British Columbia will be made (Figure 1.2).

Three methods of analysis were utilized to ascertain satisfaction levels. Participant observations were performed, prominent citizens were identified and interviewed and questionnaires were administered to households on a random basis. From this data base it is anticipated that areas of satisfaction or dissatisfaction can be identified



and that recommendations can be made relating to resource development and the provision of quality of life components.

Footnotes

¹David M. Smith, *The Geography of Well-Being in the United States* (Toronto: McGraw-Hill Book Co., 1973), p. 52.

²Organization for Economic Co-operation and Development, *Science, Growth and Society* (Paris: OECD Publication, 1971), p. 104.

³Smith, op. cit., p. 1.

⁴Government of Canada, Minister of State for Urban Affairs, *Human Settlements: Crisis and Opportunity*, by Barbara Ward (Ottawa: Information Canada, 1975), p. 6.

⁵Government of Canada, Economic Council of Canada, *Social Indicators: A Rationale and Research Framework*, by D. W. Henderson (Ottawa: Information Canada, 1974). This work consists of an excellent review and discussion of the evaluation of social indicators and their application to the situation in a Canadian context.

⁶Smith, op. cit. In this work, Smith discusses the development and spread of social indicators, with a particular focus upon the spatial relationships between social indicators in the United States of America.

⁷Andrew Shonfield and Stella Shaw, eds., *Social Indicators and Social Policy* (London: Heinemann Educational Books, 1974). This book discusses social indicator development in a European context as well as the American, presenting various author's views regarding social indicator measures for specific indicators.

⁸Government of Canada, Ministry of State and Urban Affairs, *Quality of Life in Resource Towns*, by J. A. Riffel (Ottawa: Information Canada, 1975). This work explores various measures of quality of life and their relevancy in the measurement of conditions within resource communities.

⁹Ira M. Robinson, *New Industrial Towns on Canada's Resource Frontier* (Chicago: The University of Illinois, 1962), p. 2.

¹⁰R. B. Horsfall, et al., *Parameters of Healthful Community and Individual Functioning in Resource Frontier Towns* (Burnaby, B.C.: Simon Fraser University, 1974). In this study, various components of community health were analyzed in the community of Port Alice on the British Columbia outer coast.

¹¹Rex A. Lucas, *Minetown, Milltown, Railtown: Life in Canadian Communities of Single Industry* (Toronto: University of Toronto Press, 1971). Various individuals living in scattered single-industry communities in Canada were asked to discuss their likes and dislikes about life in their community. Various problems, such as job satisfaction, stress, and isolation were acknowledged.

¹²Government of Canada, Ministry of State and Urban Affairs, op. cit., p. 9.

¹³Elaine Carlisle, "The Conceptual Structure of Social Indicators," in *Social Indicators and Social Policy*, ed. by Andrew Shonfield and Stella Shaw (London: Heinemann Educational Books, 1974), p. 25.

¹⁴Government of Canada, Economic Council of Canada, op. cit., pp. 32-43.

¹⁵Government of Canada, Ministry of State and Urban Affairs, op. cit., p. 4.

¹⁶E. Jackson Baur, *Assessing the Effects of Public Works Projects* (Fort Belvoir: Virginia, 1973), p. 2.

¹⁷T. O'Riordan, *Perspectives on Resource Management* (London: Pion Limited, 1971), p. 1.

¹⁸*Ibid.*, p. 109.

¹⁹Iona Campagnolo, M.P., "The Myth of the Great Northwest," 1975. (Mimeograph.) In this speech the role of the Government of Canada in the development of the northwest is presented and its success is questioned.

²⁰Government of Canada, Transport Canada, *Northwest Transportation Plan 1972* (February 1972). In this report, both means of travel and routes in the northwest of Canada were discussed in relation to the relative merits of goods both into and out of the region.

²¹Province of British Columbia, Honourable A. A. Nunweiler (Minister without portfolio, Northern Affairs), "International Conference of the Human Environment in Northern Regions." (Mimeograph.) In this statement, the minister outlined many of the provincial government's priorities and objectives in relation to the development of northwest British Columbia.

²²F. L. C. Reed and Associates Ltd., *The Development of Northern British Columbia* (Vancouver: 1972), p. 19.

²³Province of British Columbia, Minister for Economic Development, Honourable Gary Lauk, "Fort Nelson Gets Big Pay Day," in *Northern Affairs Newsletter*, 1, no. 4 (October 1975), p. 4.

CHAPTER II

PREVIOUS RESEARCH AND THEORIES RELATING TO FRONTIER COMMUNITIES

A recurrent theme in literature relating to habitation of Canada's mid and far north is the provision of a satisfactory level of quality of life.^{1,2,3} Although labour turnover, the provision of social and community services, and the cost of living have been recognized as problems, few studies have been conducted to qualify these findings, or to understand the overall process by which satisfaction with quality of life components evolves. The evaluation of satisfaction associated with quality of life requires the recognition of a host of factors, all of which are dynamically interrelated.

Problems associated with resource frontier communities may be further exacerbated by large scale development schemes. Communities may undergo rapid expansion, with not only residents native to the area, but also newcomers demanding the maintenance and improvement of levels of service.⁴ Development proposals, whether local or regional, should maintain not only existing standards, but also provide for improved conditions to satisfy and maintain new population levels. Without the presence and maintenance of a stable population, social as well as economic viability

may be limited.

The purpose of this chapter is to review selected literature relating to the perception of quality of life in resource frontier communities as well as regional and community viability. This review recognizes the following fields of literature: social indicator theory; satisfaction, perceptions, attitudes and goal structures; the metropolis-hinterland and center-periphery models; frontier theory; the classification of frontier communities and their phases of development; migration theory; and the threshold of services. It is intended that this review shall serve as a basis for a conceptual model of individual satisfaction attainment associated with quality of life variables in resource frontier communities. Although many other fields of analysis could be recognized in addition to the above, these are considered to be the main determinants of the provision and utilization of quality of life components.

Before embarking upon the literature review the concepts of region and regional planning require definition. Although these terms are frequently encountered, considerable variation in their meaning and interpretation exists.

Definition of Region. Several types of region are recognized, depending upon the criteria used and the purpose for their establishment. Elements of four types of region are considered to be pertinent to frontier regions.

Homogeneous regions are one of two major types of region distinguished by geographers. Brewis,⁵ Brook,⁶ and Friedmann⁷ have recognized homogeneous regions as being determined by the commonness or uniformity of one or more characteristics within an area. Boudeville⁸ has further qualified the definition of homogeneous regions by stating that common units must be contiguous. Due to elements of uniformity and contiguity, then, homogeneous regions are set off from other dissimilar areas. Characteristics typifying homogeneous regions include economic, social and physical determinants. Brewis has noted that the selection of determinants of homogeneity is largely a result of judgement.

The nomenclature used to distinguish the second major type, the nodal region, is varied. Brook has defined nodal regions in terms of spatial interaction based upon functional interdependence within an area. Brewis, in recognizing nodal regions, notes that they are sometimes known as "functional" or "polarized" regions. Brewis notes that nodal regions are ". . . based on focal points of economic activity and entail functional relationships."⁹ Boudeville, in recognizing polarized regions,¹⁰ has defined them in terms of interdependent and polarized groups which have an internal hierarchy. Particular stress is placed upon the notions of interdependency and hierarchy by Boude-

ville, since polarization entails flows between units in a hierarchy.

Friedmann has skirted the question of nodal or polar regions by proposing interdependency regions, based upon:

. . . areas that stand in an active relation to each other, whose futures are linked by the flows of people, information, goods, or financial investment among them. 11

Nodal and, by inference, polar regions, are viewed by Friedmann as being special cases of interdependency regions.

Numerous subcategories of region exist, incorporating either elements of homogeneous and nodal/polar regions, or to satisfy special cases. Two such types of region are administrative and potential growth regions.

Brewis has recognized administrative regions as being based upon units and boundaries determined by various agencies of government. A single all-encompassing boundary may be used, as in defining the Northwest Territories, or a series of lesser administrative units may be amalgamated to create a larger region. Administrative regions may be managerial or political in intent, but in most cases their boundaries are arbitrarily defined.

Potential growth regions, as recognized by Brewis, stand as a specialized subtype of region, and may incorporate elements of the foregoing types. Potential growth regions are centered upon areas which contain the resources necessary to facilitate major economic growth. This type of region usually centers on some natural feature such as a

watershed or series of urban centers.

Friedmann also recognizes a region centered upon increased utilization of natural resources, although they are termed "upward-transition areas."¹² Regions of this type are seen as being areas of net in-migration, focusing upon either a single dominant center or several cities, and portraying various problems associated with rapid economic growth.

Regional Planning. One of the main reasons for the delineation of a region is to plan its use. Of the numerous definitions of regional planning which exist, the definition proposed by Richards, recognizes several of the key elements. Richards defines regional planning as being:

. . . the formulation of policies, plans and programmes necessary to the achievements [sic] of predetermined and acceptable socio-economic objectives: as such, it will encompass all aspects of social and physical planning.¹³

Although acceptability is not defined, it is considered that public involvement would play a key role in its determination.

It should be noted that social as well as economic objectives are included by Richards. The inclusion of social objectives as a part of regional planning is a recent phenomenon. Previously, social benefits were seen as occurring as externalities of regional economic growth. Recent

regional planning has recognized the need to include social benefits and costs as integral components of resource allocation policies.

Branch has recognized three levels of planning: functional, project, and comprehensive.¹⁴ This typology is based upon a hierarchical order of complexity.

The simplest level consists of functional planning, which provides components or aspects of a larger endeavour. Functional planning is associated with projects involving a series of intricate parts, the results of which are predictable. An example of functional planning is the construction of a highway bridge.

The second level of planning consists of project planning which involves numerous and diverse parts. Planning of this type requires interdisciplinary action, with planning groups building upon the expertise of others. A total highway project, requiring several types of consultants and specialists, and drawing upon past experience and knowledge, is an example of project planning.

The final form of planning effort consists of comprehensive planning, which seeks to achieve major long term goals of a broad nature. It includes functional and project planning, but with greater scope and complexity. Comprehensive planning seeks to satisfy the needs and aspirations of not only all of the members of society, but also all institutions within society. Comprehensive regional planning

seeks to satisfy broader social and economic goals through the integrated planning of schemes involving projects such as highway, railway, and port construction, as well as industrial development.

Various groups participate with varying degrees of sophistication throughout the regional planning and development process. Czamanski has acknowledged three groups which affect the decision process. These groups are:

1. The elected policy makers and public administrators;
2. The experts acting as advisors to the decision makers and operating largely within specialized agencies of the central or regional government of which they are staff, not line, officers;
3. The scientists working in research institutes, universities, or private consulting firms.¹⁵

It should be noted that lobby groups and public opinion are not considered to be components of the decision process. This may be due to either doubts regarding their effectiveness or to the cyclical nature of public involvement.

Czamanski regards decision makers at various levels of government as not requiring or needing regional plans. Rather, decisions are based upon individual and political considerations.¹⁶ The main users of regional plans are considered to be the advisors to governmental decision makers, who seek a co-ordinating document so as to offer consistent advice.

The remainder of this chapter shall consist of a review of selected literature relating to determinants of quality of life based upon individual, social, economic and

political considerations. The following literature review is broad in nature, drawing upon divergent disciplines, in order to incorporate a holistic approach. Existing literature relating to frontier communities has tended to place little emphasis upon the role of individuals in relation to satisfaction of both personal as well as community goals in the context of regional planning. Through an interdisciplinary approach, it is anticipated that a holistic model of personal expectations and their satisfaction can be achieved.

*Social Indicators and the Perception
of Satisfaction with Quality of Life*

Social indicators or, as they are sometimes called, "social accounting," "social reporting," or "monitoring social change,"¹⁷ have evolved in response to the need for better methods of measuring the state of affairs in a society. Recent research has indicated that economic indicators must be complemented with the consideration of social priorities and goals. Henderson, in discussing the emergence of social indicators, has noted that the need for social indicators is based upon:

. . . the now apparent inadequacy of using economically oriented socio-economic indicators alone as the most important indicators of the state of a society.¹⁸

Smith has acknowledged the United States as being the forerunner in the development of social indicators.¹⁹ Great Britain and Canada, with recognition of the shortcomings of economic indicators, have also become involved in

research into the development and application of social indicators.

In the United States, social indicators are utilized in a relatively narrow context. Smith defines social indicators as being designed to:

. . . measure the state of the changes over time in major aspects or dimensions of social conditions that can be judged normatively, as part of a comprehensive and interrelated set of such measures embedded in a social model, and their compilation and use should be related to public policy goals.²⁰

Inherent difficulties associated with this definition are twofold. The first difficulty lies in the selection of conditions to be monitored and how they relate to each other. The second, and more troublesome difficulty, pertains to the lack of agreement upon a social model. Without such a model relevant or significant parameters of society cannot be isolated and measured.

Carlisle, in discussing the development of social indicators in the British context, defines them as:

. . . the operational definition or part of the operational definition of any one of the concepts central to the generation of an information system descriptive of the social system.²¹

Within the British context, it is recognized that social indicators should provide measurement of a system's performance, thereby monitoring potential social problems before they occur. In this manner social indicators can be used to measure the effectiveness of social policies.²²

In the Canadian context, Henderson has taken a multi-faceted approach to social indicators.²³ Social indicators are recognized as consisting of two types, quantitative and qualitative.

Quantitative social indicators are considered to be:

. . . the operative variables in the model of a particular socio-economic subsystem or specific aspects of this subsystem.²⁴

Within the context of this definition, operative variables are considered to be designated outputs and inputs. Outputs consist of measured performance in goal areas such as morbidity and mortality rates in health, or cognitive skill development in education. Inputs consist of goal area achievement, such as physical fitness or student-teacher ratios. Essentially, quantitative social indicators involve the recognition and measurement of social welfare within a subsystem of society, as well as an understanding of how the subsystem functions over time.

Quantitative measurement of social conditions can be misleading in relation to the state of a subsystem. Situations may arise where, although a particular indicator is improving, its overall effect is detrimental. For example, the incidence of crime may be decreasing, but if this is due to the relinquishment of basic civil liberties, then this indicator is misleading. Alternatively, indicators concerning the well-being of society may be improving, but if this is at the expense of a minority group, then the

improvement is merely short term. Also, conditions upon which normative measures are based may change to such an extent that measurement is no longer accurate. What is deemed as being "good" at one point in time may become "bad" at another.

Qualitative social indicators, as recognized by Henderson, consist of:

. . . subjective measures of how individuals or groups of individuals within the population view the functioning of, and changes within, the various subsystems.²⁵

Indicators of this type can be arrived at through the use of attitudinal surveys and psychological studies. Henderson views subjective social indicators as being an aid to the interpretation of quantitative indicators by indicating the appropriate level and direction of change. Qualitative indicators are a measure of society's views at a particular point in time, and it should be noted that these views may vary considerably over time.

Henderson has acknowledged that working definitions of social indicators consist of four overlapping categories: (1) social statistics, (2) social accounting measures, (3) subsystem variable measures, and (4) quality of life measures.²⁶

As defined by Henderson, social statistics consist of social indicators which are regarded as:

. . . certain collections of time-series statistics that are believed to reflect the important aspects of the situation in one or another of the goal areas.²⁷

Selection of pertinent data is not based upon a consistent theoretical framework, but rather upon practical experience and intuition. Social statistics run the danger of consisting of a nonsystematic group of statistics, some of which will consist of relevant inputs and outputs, and some of which will be superfluous.

The second category of social indicators, social accounting measures, seeks to identify the relationships between various goal areas and particular socio-economic objectives. Indicators of this type assume a holistic interrelated approach to the social system, although, as Henderson has noted, a "detailed general" theory of the social system is not available.²⁸

Subsystem variable measures consist of social indicators which measure output associated with a particular goal area or subsystem. Input may also be measured in some cases as input components of a quantitative model. Henderson has noted that subsystem variable measures can have considerable relevance to policy, since they will be:

. . . either the factors resulting from the functioning of a subsystem of those 'causing' (associated with) changes in the subsystem outputs.²⁹

Subsystem variables measure the degree of attainment associated with a particular goal. Unfortunately, measurement frequently consists of the number of dollars spent, rather than the quantity or quality of services provided.

"Quality of life" measures, the fourth category of social indicator definitions, consists of the subjective or qualitative perceptions which people themselves hold regarding the situation within a subsystem. Evaluation of quality of life consists of the measurement of the views which people hold regarding their own personal levels of satisfaction or fulfilment with regards to certain determined variables. Henderson's methodology for measuring quality of life is comprehensive, in that he is concerned not only with its identification, but also its measurement and utilization in a time series basis.

Quality of Life

Riffel, in discussing quality of life in frontier communities, has departed from some of the restraints imposed upon their definition in the context of social indicators.³⁰

Quality of life, as recognized by Riffel, refers to:

. . . the level of well-being of the resident and to the suitability of the town environment created by the development of the natural resource industry for the work force and the other inhabitants of the town.³¹

Riffel has recognized three distinct dimensions of quality of life, the individual or personal, the social, and the substantive.

Riffel describes the individual dimension as being the satisfaction of basic human needs or wants. This dimension consists of the total of goods, services and conditions which, as determined by an individual, are required to

fulfil the needs of life. Integral to the provision of services is their quality, in that an individual must be satisfied with the actual level of provision. Residents of resource frontier communities must not believe that they are being either deprived or penalized for living in a particular community. Interpretation of the composition and level of satisfaction is unique to each individual.

Riffel describes the social dimension as consisting of ". . . the achievement of community, group or social goals and values."³² Such goals are achieved through group action and may differ from the individual dimension goals of the member of a group. Social dimension goals are arrived at through group agreement and consist of the totality of goods, services and conditions of which a society is composed. Goals of this type are usually determined by public plebiscite, although they may also be decided by elected officials.

The third dimension of quality of life identified by Riffel is the substantive dimension, which refers to the real objects or actions which serve to satisfy the goals of the individual and social dimensions. Two broad categories of substantive elements, environmental conditions and individual attributes, are recognized, within which various specific elements occur. Environmental conditions are taken as consisting of factors such as housing, townsite, recreation, communications, access and transportation, while

individual attributes are taken as being characteristics such as income, education, employment, personal safety and physical and mental well-being.

A more specific definition of quality of life, proposed by Burke et al., recognizes quality of life as consisting of a person's:

. . . psychological and physical well-being (as he perceives it) in different contexts, such as work, family, community, and recreation.³³

In this definition perception of quality of life is dependent upon the individual and is recognized as consisting of both tangibles and intangibles. The mode in which quality of life factors are supplied is secondary, as opposed to Riffel, who acknowledges the role of natural resource development in supplying quality of life components.

Tunstall³⁴ has recognized quality of life as consisting of two distinct aspects. The first, similar to Riffel's substantive dimension, consists of objective components which are of a tangible nature and external to an individual. Conditions of the environment such as housing, roads, and recreational resources, as well as personal attributes such as health, educational achievement, and family stability are recognized as being objective dimensions of quality of life.

The second level, subjective components of quality of life, are recognized as consisting of less tangible and more personal factors such as frustration, satisfaction,

aspiration, and perception. Since objective factors are more readily recognized, they have been the main focus of study in relation to quality of life factors in resource frontier communities. Subjective factors, due to their intangible nature, have only recently been considered.

It should be noted that an alternate form of social measurement has been recognized by the Economic Council of Canada in its 1971 annual review. Social indicators were rejected by the Economic Council due to semantic confusion and differing interpretations of the term. Rather, goal indicators were proposed.³⁵ Goal indicators were defined as:

. . . quantitative-qualitative information that can be collected on a time series basis to measure a relevant and significant dimension of a specific goal area--for example, health, education, or public safety.³⁶

Although goal indicators do not appear to have been widely accepted, the reasons behind their proposal is of particular interest. In 1971 the Economic Council of Canada recognized that social indicators were measuring primarily expenditures and numbers of recipients, rather than "output."

The level and quality of services and their distribution was considered to be a better measure of social conditions than the number of dollars spent on services. The purpose of goal indicators was to measure not only the provision of services and satisfaction of life, but also their success in providing, on a broad spectrum, satisfaction and recognized social goals.

Although the concept of goal indicators as such has not become widely accepted, it has raised the important question of the value of measuring for the sake of measuring. Smith, Schonfield and Shaw,³⁷ and Henderson have come to grips with this problem with various degrees of success, but there is still some uncertainty regarding what is to be measured, how, and by what method.

Smith, in discussing the criteria used for measuring social well-being, has noted that since there is no generally accepted model of society, a "correct" set of measurement variables cannot be arrived at. Rather, measurement variables are based upon consensus regarding conditions which should be monitored and improved upon.³⁸

From the literature reviewed it is apparent that the criteria used for the selection of measurement of variables is dependent upon factors associated with the scale of measurement, the availability of data, the purpose associated with measurement, and the researcher's intuition and experience.

Most quality of life criteria are not specific to resource frontier communities, as such. Criteria such as income, education, housing, physical and mental well-being, to name but a few, are common concerns to residents of communities everywhere. Of the criteria of quality of life recognized by Riffel, communications, access and transportation are most specific to resource frontier communities.

Problems associated with this measure of quality of life center primarily upon factors relating to the degree of isolation and how it can be reduced.

Riffel has recognized two key questions relating to quality of life in frontier communities:

How, if at all, can people be attracted to resource towns and be encouraged to remain? How, if at all, can quality of living in these towns be enhanced?³⁹

These two questions become even more difficult to assess with the realization that society and its perceptions of quality are always changing. Also, value judgements are necessary to determine levels of quality.

Lotz, in recognizing the elusiveness of social change, has stated: "Social change is neither good nor bad. It is an inescapable fact of modern life."⁴⁰ What is certain though is that relative to the norms of the day, measurement of quality of life factors is a key component in evaluating overall community satisfaction.

Individuals living in resource frontier communities are aware of standards of living available in communities in southern Canada and expect similar levels of amenities. Matthiasson has found that although variations in expectations may occur between different personality types, residents of resource frontier communities expect compensation for areas of deprivation by increased services in other sectors.⁴¹ The availability and mix of quality of life factors will determine the amount of trade-off and in turn

compensation which an individual is willing to accept.

The quality of life attributes found within a developing region and its communities provide most, if not all, of the criteria through which individuals evaluate their level of satisfaction or dissatisfaction with resource frontier community life. Individuals who have migrated to, or are native to a community, have goals and aspirations concerning their life experience. With satisfaction, an individual is likely to become a long term resident, participating in and interacting with a community. With dissatisfaction, an individual's goals and aspirations may become frustrated, leading ultimately to out-migration.

Measurement of quality of life components in frontier resource communities in Canada is presently in the initial stages of development. Improved qualitative and quantitative measures of both society's performance and expectations can, and must, play roles complementary to the traditional economic evaluation of society and its subsystems. With continued refinement, difficulties associated with time series monitoring, definition of acceptable levels of service, and consensus concerning the type of monitoring to be performed will be resolved. Continuous monitoring of quality of life will serve to provide the basis for appropriate and timely action which can alleviate problems before they reach crisis proportions.

*Satisfaction, Perceptions,
Attitudes and Goals*

The satisfaction of people with their community and satisfaction with other aspects of life have been acknowledged as components of a broader concept relating to quality of life. Quality of life is ultimately judged by the quality of environment which is available for an individual to utilize. Between the availability of environmental attributes and acknowledgement of satisfaction by an individual lies a series of intervening psychological steps. Factors such as perceptions (whether or not an individual is aware of the options available to him), attitudes (whether or not available options are acceptable to established values), and goals (whether or not expectations regarding preconceived objectives are met), will serve as components in the evaluation of satisfaction and quality of life.

Satisfaction. The term satisfaction is frequently used in literature relating to quality of life⁴² and work fulfillment.⁴³ In most instances, little discussion is available regarding what constitutes satisfaction, or the process by which an individual achieves a state of satisfaction.

For the purposes of this discussion, satisfaction shall be taken to mean the fulfilment of needs or goals which an individual has pertaining to some aspect or series of aspects of his or her environment. Fulfilment in this

context is dependent upon value judgements which are made by the individual regarding a continuum of satisfaction spanning positive to negative. Satisfaction, then, is closely tied to both the value standards and the goals which an individual has, although satisfaction does not necessarily determine goals, since they are considered to be an antecedent of behavior.⁴⁴

Satisfaction is subjective. What to one individual is satisfactory may, to another, be completely unsatisfactory. Neither individual's assessment need be "right" or "wrong," since satisfaction may pertain to matters of personal choice, need or preference.

Satisfaction is also relative to the values which an individual holds at a particular point in time. Since satisfaction is closely tied to an individual's value standards and they are continually changing, an individual's interpretation of satisfaction may alter accordingly. For example, a young, unmarried, male adult may be very satisfied with a community providing several night clubs, apartment accommodation, and no schools, whereas the same person, once married with three children, may be very dissatisfied.

Satisfaction may relate to a single, isolated event or to complex occurrences dependent upon interrelated events. At the simplest level, satisfaction may involve momentary needs such as thirst and hunger. On a more complex level, satisfaction may go beyond immediate personal needs,

involving fulfilment of complex expectations. Hunger and thirst may also enter into such measures of satisfaction, since their provision on a continuing basis and in sufficient quantities may be an objective.

The satisfaction of people with their community consists of a complex relationship of variables which are evaluated by each individual according to his or her expectations. These expectations may vary considerably from person to person, and may also fluctuate over time. In recognizing the complex nature of multiple environment satisfaction, Marans and Rodgers have noted that ". . . community satisfaction has multiple determinants, some of which are associated with other levels of the environment."⁴⁵ In this context, community satisfaction is seen as depending upon a complex of satisfaction systems.

At least three intervening stages can be conceptualized as occurring between aspects of a person's environment and evaluation of satisfaction. These stages consist of perceptions, attitudes and goals.

Perceptions. Social perceptions, which relate to environmental attributes, have become a recognized facet of resource management analysis.⁴⁶ In this context, Schiff has defined social perception as being concerned with:

. . . the impression one has of a social stimulus or set of stimuli, as that impression is modified by the

perceiver's past experience in general, his previous experience with the same or similar stimuli and the individual's state at the moment he is viewing the stimulus of interest.⁴⁷

Perception in this context does not refer to the more traditional physiological interpretation, but rather to the perception of the social environment within which an individual functions.

Schiff has recognized four factors which may influence social perception. First, an individual's perception of a situation is dependent upon his past history and his state at the moment he is experiencing the stimulus. Since individual attributes from the past as well as the present may vary considerably from individual to individual, the response to the same stimulus may vary greatly. What is perceived as being reality may differ from individual to individual.

Second, Schiff has recognized that perception may be dependent upon how much value an individual places upon an object. If an individual has had previous experience with an object, thereby forming values regarding its worth, he or she is more likely to perceive it again.

The third factor affecting perception is habituation. Through continuous exposure to a stimulus, an individual may gradually become so conditioned that he or she is no longer aware of it. Gradually over a period of time initial response patterns may become so decreased that they disappear.

The fourth factor affecting perception consists of awareness. For perception to occur, an individual must be aware of a stimulus. Stimulus in this context refers to individual or sets of physical stimuli which are available to an individual, as opposed to abstract situations, such as beliefs or cognitions.

Perception allows individuals to act and react in response to the environment in which they exist. On the basis of perceived stimuli, both envisaged and present activities must take place. With perception of available attributes of the surrounding environment, decisions are made which lead to either the fulfilment or frustration of expectations and goals, and ultimately to satisfaction or dissatisfaction with various aspects of the surrounding environment.

Attitudes. Definition of the term attitude varies from author to author. One of the more comprehensive definitions encountered is put forth by Rokeach, who defines an attitude as:

. . . a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner.⁴⁸

This definition recognizes that attitudes are changeable and that they relate to both tangible as well as abstract elements of an individual's environment. It should be noted that a

certain amount of ambiguity exists relating to the use of the term attitude, in that "opinion" and "belief" are frequently used interchangeably with attitude.

The attitudes which are held by an individual are developed as a result of past experience. Attitudes may be arrived at through conditioning, observation, or by being taught.⁴⁹ Attitudes, then, are a product of a person's value and belief systems working in conjunction with his or her past experience.

Schiff has noted that attitudes have the properties of direction and magnitude. Direction consists of an attitude having either a negative or positive context. A negative attitude toward a stimulus will solicit a particular response, whereas a positive attitude may result in a completely different response.

The magnitude of an attitude refers to the strength or "degree" with which an attitude is held. A strongly held attitude will likely dispose an individual to respond to stimuli in a more definite manner than one which is weakly held. Schiff notes that:

. . . variations in the strength, as well as the magnitude of an attitude will account for variation in human behavior.⁵⁰

In discussing the role of attitudes in decision making, White has acknowledged that attitudes enter into the decision process in three ways.⁵¹ First, individuals sharing in the decision process have personal attitudes which

they wish to see utilized. Second, individuals have attitudes regarding what others prefer. Third, individuals have attitudes regarding what others should prefer. These three levels of attitudes may have far-reaching effects upon community satisfaction and quality of life. Decisions are made at various points within the structure of a community and the incorporation of these three levels of attitude will greatly affect levels of community satisfaction which can be achieved.

An attitude serves as a standard with which to measure perceived circumstances. Depending upon the stimulus, as well as the goals of the individual, different responses will occur. Although attitudes do not directly determine satisfaction, they provide a part of the framework within which satisfaction or dissatisfaction takes place.

Goals. Understanding of the process by which goals are formulated and satisfaction is arrived at in relation to individuals and their surrounding environment is still in the stages of formulation. Psychologists have tended to treat goal formulation and satisfaction as parts of either motivation or behavior theory. Although in both fields of literature the term goal is frequently encountered, it is with uncertainty, since the terms ends, goals, objectives, foci, and purpose are often used synonymously.

Newcomb, in discussing motives, has recognized goals as contributing to the end results of behavior sequences. In this context a goal is defined as ". . . a state of affairs toward which behavior is directed, whether successfully or not."⁵² Newcomb recognizes goals as having long range, intermediate, and short range behavior sequences, depending upon the desired objectives. Crow has noted that the goals which an individual has are dependent upon inner motives and are related to objectives associated with personal maintenance or prestige.⁵³

The selection and ordering of the priorities towards which an individual directs behavior is a complex process.

Maslow has postulated a universal and hierarchically organized set of human needs which determine an individual's happiness and satisfaction.⁵⁴ Maslow's need hierarchy requires that lower order needs be fulfilled before higher level needs can be met. This "need hierarchy," as envisioned by Maslow, is as follows:

- (1) Physiological needs--hunger, thirst, rest, shelter and reproduction.
- (2) Safety needs--protection from harm, safety and security.
- (3) Belongingness and Love needs--love and affection, both from and towards others.
- (4) Esteem needs--the need for a stable, firmly based, high evaluation of oneself, including self-respect and the respect of others.

(5) Self-Actualization needs--these needs are the highest in Maslow's hierarchy, consisting of "growth" rather than "deficiency" needs. Self-actualization needs consist of personal maturity, in relation to such traits as self-acceptance, the ability to solve problems, autonomy from fads and social pressures, accurate perception of situations, appreciation of nature and people, and the ability to be at ease with unfamiliar and challenging situations.

Maslow's hierarchy of needs is not absolutely fixed, since higher order needs may be satisfied for short periods of time in lieu of lower order needs. Also, lower needs need not be completely gratified before higher order needs come into play.

The hierarchy of needs which Maslow proposed has been recognized as the basic goals of individuals in relation to the measurement of satisfaction and quality of life. Henderson, in discussing the basic goals of society in relation to social indicators, has noted that Maslow's five classes of needs can be characterized as ". . . the basic goals of the individuals in a society."⁵⁵

Burns, in presenting data relating to satisfaction in isolated fishing communities along the coast of British Columbia, has utilized Maslow's need hierarchy as an indication of individual satisfaction within such communities.⁵⁶

Four distinct levels of goals have been recognized within which an individual functions. Jackson and Poushinsky, in discussing migration trends in relation to northern mining communities, have recognized three separate levels of goals.⁵⁷

Individual goals consist of the set of priorities which individuals place on various objectives. These priorities may vary with such personal factors as age, sex, the point in life cycle, occupation, and cultural and social background. Individual goals are a part of a person's values and, although they may be paramount to one individual, they may be meaningless to another.

Corporate goals within a frontier community are considered by Jackson and Poushinsky to be of a single purpose, that is, ". . . an attempt, over time, to extract profits from the operation of the corporation."⁵⁸ A reciprocating situation is implied by this statement of corporate goals, in that in order to extract profits over a lengthy period of time, a corporation may have to take a short term loss. Various provisions, such as housing and services, may have to be supplied by a corporation in order to attract and maintain a stable work force.

The third level of goals which Jackson and Poushinsky have recognized consist of community goals. This level of goals consists of a mix of individual interests and those of the collective. Community goals are seen as being the

provision of needed facilities such as education, medical, recreational, and service facilities, as well as acting as a buffer between personal and corporate goals.

Henderson, in discussing the relationship of goals to the decision making system, has identified a fourth level consisting of societal goals. Objectives associated with societal goals relate to material well-being, socio-cultural well-being and equality of distribution. This level of goals is similar to community goals, but of a much broader nature.

The goal framework within which an individual functions consists of a complex system of linkages between various objectives. A framework which delineates the relationship between individual goals and broader goals would serve to provide for improved evaluation of satisfaction and quality of life. At present, both the methods and the model for such a systems approach are lacking.

*The Metropolis-Hinterland Model
and the Center-Periphery Model*

Farstad, in discussing social conditions as they related to regional development in northwestern British Columbia, has recognized the metropolis-hinterland thesis as being a basic model for frontier development research.⁵⁹ This model alone, and in conjunction with the center-periphery model, serve as two basic approaches to understanding the relationship which exists between outlying,

developing areas and developed, urban centers.

The Metropolis-Hinterland Model. Based upon studies of the Twin Cities of Minneapolis and St. Paul, Gras⁶⁰ recognized the importance of metropolitan areas to hinterlands. The heart of a region was taken to be a major metropolitan city, while around it lay lesser tributary towns and villages. The economic life of a hinterland was seen as focusing upon peripheral towns, which in turn focused upon a metropolis, channelling resources into the center. Alternately, goods and services were thought to radiate outward from metropolitan centers to their hinterlands. Beyond the peripheral towns and villages lay ". . . primitive agriculture, lumber camps, and mining ranges."⁶¹

Gras recognized that hinterlands tended to be best developed nearest to their metropolis, shading into more primitive circumstances the further into the hinterland. The provision of transportation systems was seen as making possible not only rapid settlement, but also development. With the penetration of transportation infrastructure, the zone of control by a metropolis was extended and the metropolis-hinterland interaction was intensified.

Interdependency, as seen by Gras, consisted of a complementary interchange of goods and services. Businesses in hinterland communities relied upon their metropolis for not only general merchandise but also for financial leadership. In some cases concerns in outlying areas may bypass

their metropolis and deal directly with suppliers from higher order metropolises, but, as Gras observed:

Somewhere along the line of practically every concern's business there is an element of dependence on the metropolis, in purchase or in sale, in trade or in commerce.⁶²

The metropolis in turn relied upon the hinterland for a source of surplus products and raw materials. Gras considered that the more peripheral a producer was, the higher the likelihood that products would be shipped directly to distant markets.

Certain aspects of metropolis-hinterland relationships have changed since Gras's writings in 1921. Present-day resource hinterlands tend to cater to world markets rather than specific metropolises. Many specific functions, such as administration or finance, may be associated with particular dominant centers, but markets, especially for resources, are global. Hinterland areas have also become more sophisticated in their ability to provide functions. Improved transportation and communications, and diverse production points have meant that functions such as retailing and wholesaling are supplied directly to hinterland areas from production points.

The Center-Periphery Model. Friedmann has recognized the center-periphery model as being crucial to the understanding of regional development policy.⁶³ This model is based upon findings that industrial growth tends to be concentrated

upon certain metropolitan areas, or "growth poles." Development is considered to be most likely adjacent to urban centers and less promising in peripheral areas. A major difference between the metropolis-hinterland and the center-periphery concepts is that the latter is thought of as being "colonial," with exchange being displaced from the periphery to the center.

In this manner the relationship can be seen as parasitic rather than synergetic.

Of particular interest is the spatial dimensions assigned to the center-periphery model. Center-periphery relationships are seen as existing at global, continental, national and city levels of scale. On a global level, less developed areas contribute resources to more developed parts of the world, such as Europe and North America. From a continental perspective, countries which are peripheral to central industrial activity, such as southern Europe as opposed to central Europe, are considered to be tributary. Nationally, industrial heartlands, such as the Windsor-Quebec corridor in Canada, serve as centers which draw upon peripheries. Finally, at the city level, certain cities are considered to take on central functions and to dominate their peripheries.

The hierarchical structuring of reciprocal service areas is a necessary consideration in understanding the relationship between core areas and hinterlands. Although

Gras did not directly recognize this characteristic in his metropolis-hinterland model, its inclusion is implied. Gras noted that concerns may bypass their metropolis for certain goods, going beyond to other, outside locations. In the complex interactive economic and social systems of western society, linkages occur simultaneously between several levels of dominance. The hierarchical ordering of these linkages is not necessarily continuous, since peripheral areas may trade with any dominant level for certain goods, while bypassing others.

Farstad,⁶⁴ in an analysis of social conditions in a region of British Columbia, includes political domination as one of the functions of the metropolis. Vancouver and, to a lesser extent, Victoria are seen as being centers of economic development, investment and pricing decisions, as well as political leadership. Resource processing and manufacturing, although of a primary nature, are seen as occurring in the lower mainland metropolitan area. The remainder of British Columbia is considered to be an exporter of raw and semi-processed materials to domestic and foreign markets. Goods, skilled labour and managerial services are imported to hinterland areas. Vancouver is in turn taken as being a hinterland community to markets in eastern Canada as well as the United States and Asia.

Appreciation of the basic concepts of the metropolis-hinterland and core-periphery models serve as a base for

analysis of residents' satisfaction within resource frontier communities. The success and sensitivity of economic, social, cultural and political interaction which occurs both within a region and its communities as well as supra-regionally will help to determine the degree of satisfaction with quality of life factors within a region or hinterland.

Provision of community maintaining functions such as employment opportunities and job security, as well as municipal, educational and health services are dependent upon a complementary relationship between metropolis and hinterland. Dominant structures must recognize hinterland interests and concerns relating to present and future needs for diversification and independence from external control. Individuals living in hinterland areas expect opportunities which are either comparable or nearly comparable to metropolitan areas.

Frontier Theory

The original proponent of frontier theory in North America was Frederick Jackson Turner. From a paper presented in 1893 the Turner thesis evolved, which sought to relate the frontier development of the United States to the American pioneer, who had ". . . his distinctive individualism and his own variant of democracy."⁶⁵ During the 1930's and 1940's, much of Turner's work was questioned. Present-day acceptance of Turner's thesis is varied, with some

researchers contending that it is no longer valid, with others recognizing certain merits. Portions of Turner's work are applicable to the understanding of the development of resource frontier communities and the attitudes of people who live in them.

Of the original propositions put forth by Turner concerning frontier settlement, two are considered to be pertinent to present resource development frontiers.

Turner saw the frontier as being a record of social evolution, passing through the following steps: the Indian and the hunter, the entrance of traders and precursors of white society, pastoral ranch life, sparsely settled farm communities, intensive denser farm settlement, and finally the city, with its manufacturing systems.⁶⁶ It should be acknowledged that frontier areas pass through this evolutionary process with varying degrees of speed and completeness. Some frontiers may pass rapidly through the initial stages and never reach the final stage, while others may bypass several steps of the process. In some instances, as in the case of communities which are forced to close down, frontier areas may revert to more initial stages of evolution.

Turner recognized the work of Peck who identified three categories of settlers. The first of these was the subsistence pioneer. The present-day parallel to subsistence pioneers may be seen in two types of individuals who

are attracted to existing frontier development areas. The first type consists of those who wish to live on a subsistence level, squatting in relatively isolated areas. The second type of subsistence pioneer is an abstraction from that originally proposed by Peck. These individuals move to a developing area with no intention of settling permanently, but rather only for the purpose of finding employment. They work for a short time, and then move on to a new area.

The next category of frontier migrant identified by Peck was those who purchase lands, clear fields and build roads, with the intention of staying indefinitely. Under present circumstances, individuals similar to those described by Peck do not move to frontier areas to develop farms, but rather to experience a semi-rural life style and act as urban pioneers. These individuals take up full-time jobs, but their main intention in moving to a developing area is to experience a slower paced, small community life style.

The third category of individuals recognized were the men of capital and enterprise who see potential for manufacturing and economic growth in outlying areas. With the coming of these individuals, Peck saw small villages and towns being transformed into large urban centers. This type of individual can be seen in those who move permanently to frontier resource communities to either establish their own businesses, or for the purpose of increasing their own material assets through involvement in the economic process

of the community.

Individuals from the first two categories are content to aspire towards the third, although some may be satisfied with their existing life style, or aspire to move in the opposite direction. In outlying areas, due to the opportunities for divergent life styles, all three can exist simultaneously. It should be noted that some individuals may not aspire to any of the above categories, but rather wish to move elsewhere. Due to a lack of financial ability or family commitments they may be forced to stay.

Interpretation of the term frontier is often clouded by sentimental ideas of far away places and adventure. Leyburn has taken a more realistic approach by stating that the frontier is:

. . . that region on the outer edge of settlement where pioneers are forced, for the sake of survival, to make new adjustments to a new environment. It is a region, it is a process, it is even a state of mind.⁶⁷

Although this definition recognizes the spatial and psychological parameters of frontiers, it tends to accept frontier environments as being deterministic. In the purest sense of frontier, where individuals must work with only what materials are available, this may be the case. Present-day frontier development consists of a planned process which involves the establishment of man-made environments modelled after existing urban centers designed by architects and engineers. Mobile bunkhouses and prefabricated ancilliary

structures provide accommodation and working space in outlying camp situations, while frontier communities are, in most cases, limited copies of metropolitan suburbs.

The concept of frontier is also contextual. What to one individual may appear as being a frontier situation, may to another be settled. A person who has lived in a small, isolated settlement may not think of himself as living on a frontier, whereas a person from a large urban area may think of a small community as being on the "frontier." Frontiers may also be thought of as more than just physical, in that deviation from accepted norms of cultural or social interaction may be viewed as part of a frontier.

Elements of frontier theory and the concept of frontier may play a role in the levels of satisfaction attainment of both new arrivals and long term residents in frontier resource communities. Frontier environments are areas in transition, offering a wide range of options and challenges to their residents. Individuals living in newly developing areas may become a part of the frontier process, identifying with its activities, or they may be dissatisfied and migrate elsewhere.

*Frontier Community Classification
and Phases of Development*

Frontier communities are recognized as being of various types, depending upon their function and community life styles. The nomenclature for designating outlying

communities is varied, usually depending upon some dominant attribute of the community being considered. In the Canadian context, four basic types of community are recognized.

Moss⁶⁸ and Lucas⁶⁹ have recognized the "company town." This type of town is owned and administered by a single industrial employer, with the purpose being to extract and/or process a resource. This type of community is becoming less frequent, since it is considered to be dictatorial, infringing upon personal rights.

Robinson has recognized recently constructed settlements in Canada as typifying "new towns."⁷⁰ These communities are located beyond the settled parts of southern Canada and usually, although not always, consist of a single industry. Economic development is focused upon extraction and/or primary processing. Robinson's new towns are similar to Moss's single enterprise open communities.⁷¹ These communities are "open" in that the community infrastructure is municipally owned and operated, with freedom to come and go as well as buy property and establish business left to the individual.

Moss recognizes multi-enterprise open communities as being a type of frontier resource community. These communities are similar to single enterprise communities, except that they have a broader industrial base. Communities of this type offer a selection of goods and services to the adjacent region. Costs for establishing and maintaining

these communities are borne by resource industries as well as various levels of government, including a functional municipal government. Communities of this type may evolve from company or new towns.

The fourth type of frontier community consists of the regional resource center, as defined by Moss.⁷² Regional resource centers are planned and developed to varying degrees by provincial government agencies and resource extraction industries, as well as local levels of government. These centers serve not only as processing points for various resources which are being exploited from a region, but also as distribution points for the movement of goods into a region. Regional resource centers attract regional offices for government agencies as well as those of primary, secondary and service industries, thereby having a more diversified base. Also, several types of resource utilization, such as forestry, mining and agriculture may center upon a regional resource community.

Frontier resource communities have been recognized as developing through a series of stages.⁷³ The stage to which a community has developed will determine not only environmental attributes such as commercial and service facilities, but also the make-up of its population.

Of the classifications of community development encountered in reviewing frontier community literature, Riffel presents the most comprehensive. This system of

seven stages of community development incorporates social, demographic, economic and quality of life considerations⁷⁴ (Table 2.1).

Riffel recognizes three qualifying conditions concerning the stages of frontier community evolution. First, resource towns do not necessarily develop in a linear fashion, moving through all seven stages. Towns may become "frozen" at one stage or, due to the effects of economic cycles, they may regress.

Second, communities may be either planned so as to move through the various stages of development, or progress may occur in a fortuitous manner. The reasons for the initial construction of the community may change, or its role in regional affairs may be altered.

Third, the final stage, which Riffel defines as maturity, takes the longest to achieve. Of the stages of development, this stage is the most crucial, for it is here that feelings of community and of belongingness emerge. In the case of resource extraction communities, this stage may not be reached until late in the life expectancy of the resource, causing severe hardship with resource depletion.

It should also be noted that communities may cease to function at any one of the stages of development and disappear completely. This has been the case with many communities in British Columbia's past.

TABLE 2.1

STAGES AND CHARACTERISTICS OF RESOURCE TOWN DEVELOPMENT

Stage	Economic Characteristics	Demographic Characteristics	Social Characteristics
Natural or pre-discovery	No economic activity or only hunting and fishing by native peoples.	No population or only small bands of native peoples.	Unpopulated or small, isolated native communities in limited contact with white society.
Prospecting to survey	Short term activity. Money spent "outside". Traditional native economy persists, with some trade with whites.	Short term, summer residents. Young men, no women. If there originally, native people in the majority.	Isolated. Usually, access by air only. Shack towns without amenities. Some contact with native peoples.
Industrial and town construction	The first boom period. Mushrooming economic activity. Natives may be employed.	Mostly single men. Some young workers with families. Very high turnover rates. Native in minority; only stable group in population.	Isolated, but easier access to outside. Trailer towns with basic amenities, and "pub." Signs of social problems among native peoples.
Industrial operation and community improvement	Shift in construction from industrial to residential and commercial. More money spent in town. Falling off in employment of natives.	Slowing rate of turnover. Increasing number of married workers. Native peoples a small minority.	Improvement of housing and community facilities. Completion of roads and communications services. Reduced social problems among whites; increased among natives.
Industrial and community operation	Construction over. Services established. Much of labour skilled. Few natives employed.	Turnover rates reduced to 60%. Young married workers in majority.	Amenities well developed. Few social problems among whites, but boredom among wives. Natives on welfare. Marked stratification.

TABLE 2.1 Continued

Stage	Economic Characteristics	Demographic Characteristics	Social Characteristics
Community diversification	Stabilization of industry. Expansion of other services, especially government. Small manufacturing.	Labour turnover stabilizes at 35%. Young marrieds in majority.	Employment for wives available. Special programs created, largely for native people.
Community maturity	Diversified economic base. Limited opportunities for expansion.	Balanced population structure in terms of age and sex. Low rates of turnover.	Sense of community and belongingness. Whites and natives on welfare. Less racial tension.

Government of Canada, Ministry of State and Urban Affairs, *Quality of Life in Resource Towns*, by J. A. Riffel, (Ottawa, Information Canada, 1975), pp. 12-13.

An additional criticism of the stages of community development relates to the implied discreteness of stages of development. In most instances, communities do not systematically advance through the stages outlined. Rather, they combine characteristics from various stages, developing certain characteristics rapidly, while being retarded in other areas.

The rate at which a community grows can have an impact upon its viability. If a community experiences rapid growth, moving quickly through the stages of development, it may not have time to develop the necessary infrastructure to support the expectations of its residents. Community services, employment opportunities, age distribution, social organizations, religious services, and a host of other provisions may be out of phase with the expectations of an increased population.

Not only may community services become out of phase, but political development may become hindered as well. Clelland and Forms have recognized that as a community progresses from being isolated and self-contained to urbanized its socio-political power structure changes from being monolithic to bifurcated.⁷⁵ In the initial stages of community development, socio-political power is generally dependent on economic forces. In the latter stages of development the power structure may be split by the entrance of public leaders with altruistic goals. The division of

socio-political power is considered beneficial for a community, since it provides for better representation of diverse goals.

The stalling of a community at any of its stages of development, or lack of ability for a community to diversify itself, may hinder attempts to provide a broad range of goods and services. This in turn can lead to alienation from and frustration with local living conditions.

A dominant characteristic of resource frontier communities, which is closely associated with an individual's interpretation of his surrounding environment, is isolation. The degree of isolation associated with an undertaking, whether it be economic in the form of resource extraction and problems of service and infrastructure, or social, relating to individual and group perceptions of isolation, can greatly affect quality of life and satisfaction.

Isolation is a relative term, implying various conditions to different individuals. What one person perceives as being a positive aspect of isolation (wilderness, outdoor recreation, absence of automobiles) another may perceive as being negative (lack of services or little shopping choice).

Bancroft has defined isolation as existing ". . . where services and facilities are limited locally, and are otherwise available only through unreasonable expenditure of time and energy, usually because of lack of accessibility to

larger centres."⁷⁶ Although this definition recognizes the spatial dimension of isolation, psychological factors, such as boredom and stress, are not considered. Also the simple provision of services and facilities does not alleviate isolation, since they must be of a comparable quality and price to those found elsewhere.

Isolation can occur at four levels, being typified by physical, social, cultural and economic characteristics. An individual may perceive one or more characteristics as constituting isolation, although these characteristics may differ in type and intensity from those of another individual in the same environment.

Physical isolation consists of spatial components, relating to distance and accessibility. Situations which require the expenditure of inordinate quantities of travel time, or where travel facilities are not available, serve to create physical isolation.

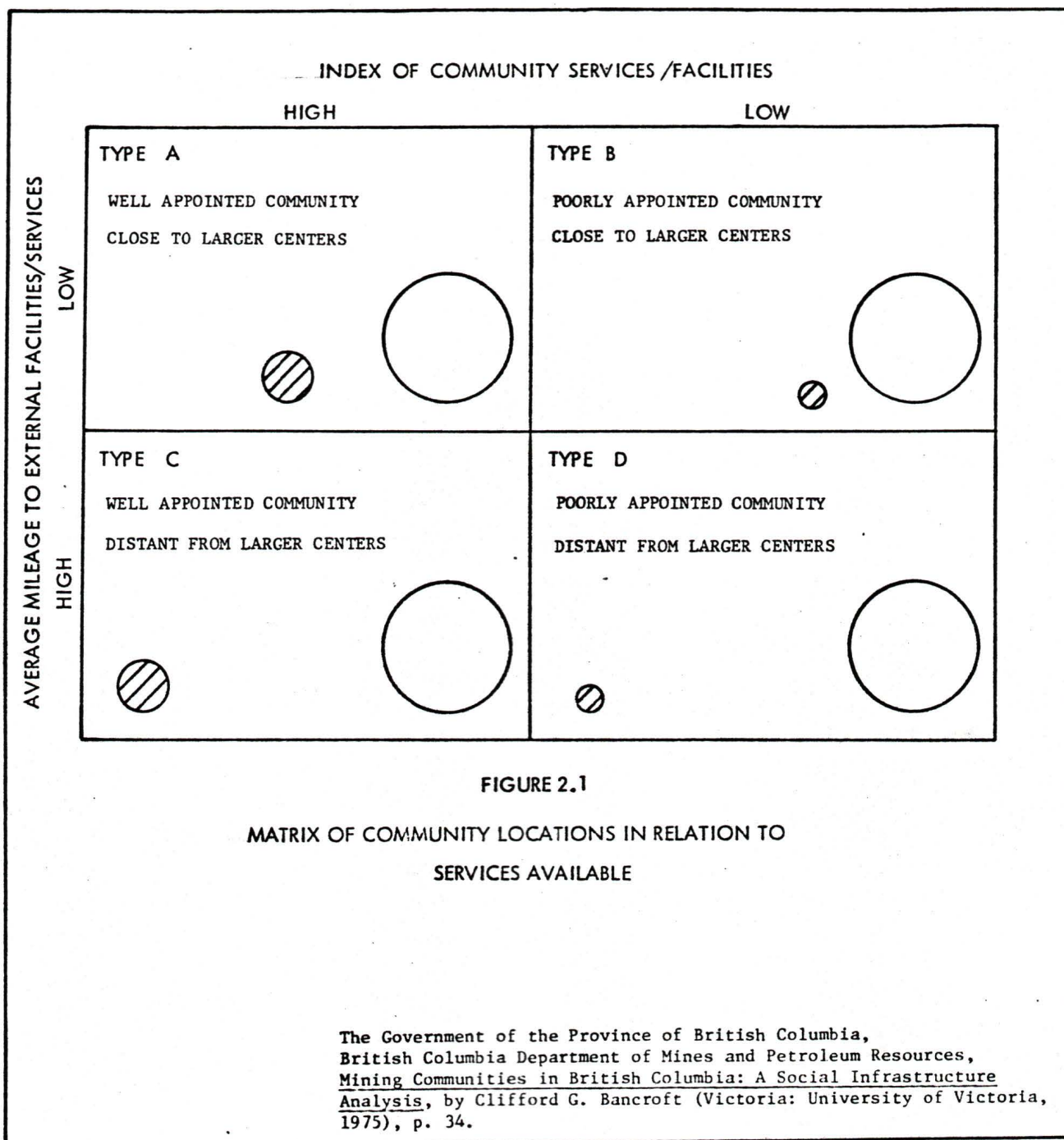
Social isolation can occur at two levels. First, and most immediately felt by an individual, may be isolation from relatives and friends. Separation from family members such as children and spouses typify the most direct form of social isolation. A less personal form of social isolation consists of separation from established social contacts, such as clubs and organizations, as well as peer groups. Under such circumstances, an individual may not be able to continue patterns of social contact which have been estab-

lished in the past.

Cultural isolation refers to situations in which various facilities which provide for cultural milieu, such as theaters, museums, libraries, and art galleries, are not available. Basic cultural norms of personal behavior may also differ in isolated communities, leading individuals, especially recent arrivals, to perceive cultural isolation.

The final type of isolation, economic, refers to opportunities which are foregone due to costs within a community, as well as economic opportunities which may be missed outside of a community. Economic isolation within a community may occur where, due to various circumstances, an individual does not have the means to partake of various services available. In frontier situations this may combine with physical factors of isolation where costs of travel to and from a community are prohibitive. Individuals may be isolated from economic opportunities external to their community. Employment opportunities and opportunities for career improvement may be restricted to occurring in large urban centers.

Bancroft has suggested a matrix of community isolation types, which is based upon an index of community services/facilities and the distance to external services/facilities (Figure 2.1). In this matrix communities of type A are least isolated, while type D are most isolated. Types B and C provide the options of either better choice at



a short distance or of being more urban and self-contained.

Riffel has recognized the concept of "friction of space" as being integral to isolation.⁷⁷ Space is seen as being an intervening barrier to the various forms of goods, services and social diversities which people desire. Riffel has stated that friction of space and associated isolation are determined by the following six factors: (1) distance, (2) time, (3) money, (4) convenience, (5) safety, and (6) side-effects, such as the effects of transportation systems on the environment. Major difficulties exist in providing the technological innovations which will satisfy the above factors as well as deciding who should pay for their provision.

Isolation has been recognized as affecting resource frontier communities in several ways. Symptoms such as boredom and frustration, especially amongst women, have been found to occur at high levels in isolated communities.⁷⁸ Adjustment to isolation is especially difficult for those who move from large urban centers to small, isolated communities. Due to the lack of diversity of places in which to spend money, individuals often save their earnings, with the intent of retiring elsewhere and buying a house. This causes resource communities to have age profiles which are skewed towards younger age groups.⁷⁹ Also, beer parlours tend to become a common center of social interaction, from which problems associated with excessive drinking and

alcoholism evolve.

Communication can play an important role in relieving isolation. The provision of radio, television, newspaper, telegraph, telephone and postal services can provide not only for information regarding world events, but also contact with friends and relatives. If any of these services are either poor in quality or availability, or high in relative price, frustration will occur.

Access not only to and from metropolitan areas, but also to other communities in the immediate area provides for relief from isolation. Maintained roads which are open to the public, railway, aircraft and in some cases ferry services must be provided. Transportation services must be of such a level that not only are they frequent and convenient, but also are not prohibitive in cost. Spending by various levels of government for construction and subsidies can serve to provide and maintain necessary services.

Migration Theory

Migration has been recognized as a key variable in the understanding of regional development and social change. Shaw, in discussing the repercussions of migration to regional planning, has acknowledged the importance of migration studies by stating:

Migration, especially in the process of regional economic development, urbanization, and industrialization, is both an important cause and effect of social and economic change. 80

Shaw goes on to recognize the impact of migration by stating:

Policy makers have become increasingly aware of the role of migration in balanced economic growth and the innumerable social, psychological, ecological, and political ramifications of present and projected patterns of population redistribution.⁸¹

Migration, then, is one of the major determining factors which either maintains or dissipates a region's development.

Migration is recognized as varying in scope and intensity. Lee has defined migration as consisting of ". . . a permanent or semipermanent change of address."⁸² This definition recognizes primarily the spatial component of migration, although migration distance as well as internal and external parameters of migration are ignored.⁸³

Behavior motives associated with migrants are also ignored.

Mangalam has proposed a more comprehensive definition which recognizes both spatial and behavior components.

Migration is defined as being:

. . . a relatively permanent moving away of a collectivity, called migrants, from one geographic location to another, preceded by decision making on the part of the migrant on the basis of a hierarchically ordered set of values or valued ends and resulting in changes in the interactional system of the migrants.⁸⁴

Migration in the context of this definition is recognized as being a group, rather than individual, occurrence. Group migration of this type is usually associated with the movement of major groups of people from nation to nation.

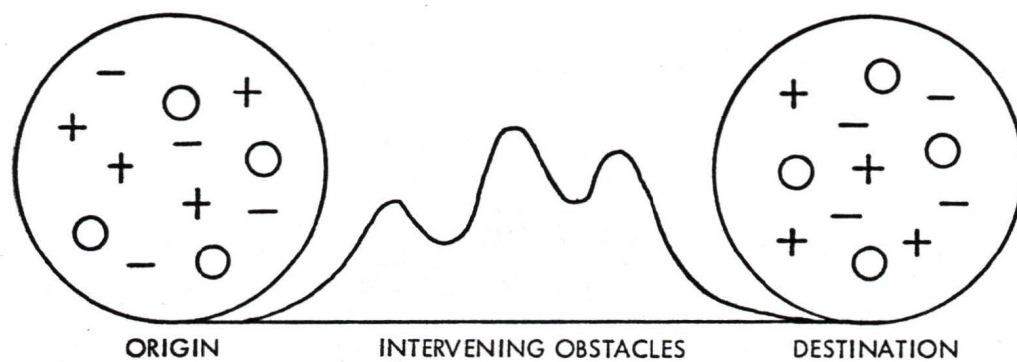
For the purposes of this thesis, the following definition is proposed. Migration is the act of individuals or

groups of individuals changing their place of residence as a response to perceived stimuli. Stimuli may be either of a negative nature, pushing an individual away from his place of residence, or positive, pulling an individual to a new location.

Jansen, in reviewing theories of migration, has acknowledged the "push-pull" concept as being one of the most important theories relating to migration.⁸⁵ As defined by Kosinski and Prothero, push factors consist of psychological strain placed upon an individual due to a perceived lack of satisfaction associated with personal needs. Examples of push factors include stress such as loss of employment, social or natural disasters, alienation from the community and racial, religious or political persecution.⁸⁶

Kosinski and Prothero recognize pull factors as those which attract an individual to move elsewhere so as to take advantage of new and more attractive opportunities. Variables such as better social, economic and political opportunities are examples of pull factors.

Closely related to the push-pull theory, Lee has proposed four factors which enter into the decision to migrate. They are: "(1) Factors associated with the area of origin. (2) Factors associated with the area of destination. (3) Intervening obstacles. (4) Personal factors."⁸⁷ The first three factors are indicated in Figure 2.2.



- + FACTORS ATTRACTING
- FACTORS REPELLING
- O FACTORS OF INDIFFERENCE

FIGURE 2.2

ORIGIN AND DESTINATION FACTORS AND INTERVENING
OBSTACLES IN MIGRATION

Everett S. Lee, "A Theory of Migration",
Population Geography: A Reader, ed. by J. Demko
(New York: McGraw-Hill Book Company, 1970), p. 291.

Every location is considered to have countless factors which either attract (+) or repel (-), as well as those to which people are indifferent (0). Some factors are thought to affect people similarly, such as opposition to hostile climates. Other factors are thought to influence individuals differently. A parent with young children looks for a location which has a good school system, while an individual with no children may consider educational facilities to be detrimental, due to higher tax costs.

Features which attract and repel are unique to each origin and destination of migration. Although certain features may be common to certain groups of people, other variables are unique to each migrant. Lee has noted that the factors which hold, attract, or repel people are not totally understood by either the individuals themselves, or social scientists. Understanding of positive and repellent characteristics at both origin and destination is always inexact.⁸⁸

Simple comparison of attracting and repelling features between origin and destination does not alone decide migration. Intervening obstacles such as distance, physical barriers, and immigration laws may act to hinder or stop migration. The impact of obstacles varies considerably between individuals, depending upon factors such as the strength of migration motivation and personal acceptance of hardship.

The fourth factor recognized by Lee as determining migration consists of personal factors. Lee notes that it is not the actual factors at origin and destination which determine migration, but rather their perception by potential migrants.

Personal sensitivities, intelligence, and awareness of conditions elsewhere enter into the evaluation of the situation at origin, and knowledge of the situation at destination depends upon personal contacts or upon sources of information which are not universally available.⁸⁹

Certain personalities are considered to be resistant to change, while others welcome change. Also, some individuals may require compelling reasons to migrate, while others may be willing to move for little reason.

The propensity to migrate has been found to be selective. Lee⁹⁰ has recognized that migrants tend to be young adults, with males predominant. Within this group, those who have achieved higher education levels and who are either single or in the early stages of establishing a family tend to migrate most frequently. Depending upon the direction of migration, this characteristic can tend to either deplete or infuse into a region adults who are at the age of both their greatest productivity and reproductivity. Depending upon the needs of a region, the composition of migrants can determine its viability, since the quality of migrants immigrating or emigrating may help to determine both short and long term community structure.

Matthiasson⁹¹ has recognized a historical factor relating to the tendency to migrate. Individuals with past histories of mobility were found to be the most likely to remigrate. Matthiasson also found that these individuals tended to be unprepared to make long term community commitments.

Migration is a reciprocating process. As one individual leaves an area, others may be attracted by different factors. Gross migration⁹² can serve to disrupt the infrastructure of a community, although no appreciable change in total numbers of residents may occur. Net migration, on the other hand, may serve to either overburden existing facilities, or impose the tax burden of paying for underused facilities upon the remaining residents.

Robinson has recognized three distinct categories of migrants moving to resource frontier communities.⁹³ The first of these consists of individuals who move for purposes of making quick money or who are seeking a form of temporary escape. These individuals are considered to be sojourners, moving in and out of communities on a fairly rapid basis. It should be noted that migrants of this type are similar to subsistence pioneers who are discussed in relation to frontier theory.

The second type of migrant recognized by Robinson consists of those who take production jobs or establish businesses. Migrants of this type plan on settling and

bring their families and households with them. This type of migrant is similar to the men of capital discussed in relation to frontier theory.

The third category of migrant consists of those who approach a town in a tentative and uncertain fashion, yet may become permanent citizens. These individuals are seeking to ascertain working and living conditions and base their decision to settle permanently upon push factors as measured against their perception of pull factors from a new community. Robinson points out that planning in frontier resource communities is most often tailored to satisfy migrants of the second and third categories, although the actions, wants and behavior of the first group may greatly affect the character of a town.

More specific to resource frontier communities, Robinson has related occupation types to sources of migrants. Metropolitan areas, towns and cities have been recognized as supplying managers, technicians and "white collar" workers. This source of migrants may be related to the hinterland relationship of outlying regions, since head offices send personnel into the field in supervisory and training capacities. Production workers, on the other hand, are recognized as consisting of either recent immigrants or of migrants from other resource development areas within Canada.

The implication of migration theory to regional development and community satisfaction are many and varied.

Hawley has stated that: ". . . migration flows from areas of low rates of capital investment to areas of high rates of capital investment."⁹⁴ During periods of intensive capital investment in regional development projects large numbers of migrants will be attracted, placing strains upon existing facilities. During periods of declining investment, residents may be attracted to other areas of high investment, thereby creating problems associated with out-migration.

Unfortunately, most studies have related to either a specific factor of community satisfaction, or have regarded population dynamics only at a point in time. Little understanding of causal relationships between components of push and pull factors of migration in resource frontier communities exists. Which factors, in how great an intensity and in which combinations cause individuals to migrate? Understanding these questions is crucial to an appreciation of social stability within resource frontier communities, for without a sense of place, individuals and their families cannot develop community cohesiveness and stability.

Economic Viability

Economic activity based upon extraction and primary processing provides not only the reason for the existence of resource communities, but also serves to maintain their continuing growth and viability. Without a reserve of resources to draw upon and markets to sell to, and failing

the establishment of secondary industries, resource communities soon become ghost towns.

Regional Development. Hilhorst has stated that regional growth and development is preconditioned by five propositions.⁹⁵ In summary they are:

- (1) Regional growth is the result of interregional trade which is conditioned by decisions made inside and outside the region. Self-sustaining growth is depending upon the ability of a region to diversify its economic structure and to gain limited self-realization. Exports dominate the first phases of regional development.
- (2) Regional growth is accelerated by specialization and economies of scale, leading to a spatial structure of centers.
- (3) Centers will become organized into a hierarchical structure determined by administrative capabilities and transportation costs. Natural conditions and political factors may play a role in the selection of centers.
- (4) Regional development reaches culmination when regional activities become an integral part of a larger whole, such as a national economy.
- (5) A region may cease developing or start to decline due to various factors, the most important being depletion of natural resources, a change in the demand for resources, or an inadequate socio-political structure.

In an earlier work, Hilhorst⁹⁶ acknowledged that the five

propositions which he proposed to explain regional development were similar to those put forth by Friedmann.⁹⁷

As a part of Hilhorst's prepositions, the initial stages of development were seen as being characterized by economic colonialism. The five dominant characteristics of a colonial relationship were expressed as being:

1. the majority of the investments in the export sector of the region originate from the dominant region;
2. the exports of the region consist of primary commodities;
3. there exists a transport network which allows goods to be exported, but which scarcely serves other purposes;
4. profits are re-invested elsewhere;
5. attempts are made to maintain a socio-political structure that does not allow for change.⁹⁸

The preceding propositions and qualifying statements regarding economic colonialism recognize not only the importance of economic considerations in regional development, but also the complexity of interrelationships which exist within a developing region. A complex system of economic, political and social variables, expressing itself from the global to local level, serves to facilitate regional growth.

Hilhorst notes that efforts to retain a developing region on a colonial basis are bound to fail. The systems of communications and educational institutions which are brought into a region to serve its population will ultimately lead to the emergence of a new intelligentsia. Residents of the region will ultimately identify with regional interests and form a new socio-political structure, thereby more

accurately representing regional interests.

Hilhorst's observations regarding regional development suffer from a lack of empiricism, in that they are based upon a synthesis of writings of other regional scientists. The propositions and conditions of colonialism may have been apparent in past development programmes, but more recent development efforts have seen an increased awareness not only on behalf of the citizens within and without a developing region, but also by levels of government. This is not to say that responsible regional development is occurring, rather that the appearance of responsive planning has become more prevalent.

Related to Hilhorst's fifth proposition concerning the supply of natural resources, Czamanski has recognized that natural resources play a prominent role in affecting regional growth. Czamanski regards the abundance of resources as affecting regional development in two ways.⁹⁹ First, the productivity of both capital and labour will be determined by the relative abundance or scarcity of resources. Second, both entrepreneurs and individuals contemplating moving into a region will be influenced by the resource base available. Without a sufficient resource base, economic activities cannot become viable, leading to stymied regional and community growth.

Community Growth. Yeates and Garner have stated that the basis for cities is economic and that their population

size is determined in part by the functions they perform.¹⁰⁰ Based upon work by Myrdal, who recognized a key factor of the growth process as being the "principle of circular and cumulative causation,"¹⁰¹ Yeates and Garner have defined economic growth in cities as being ". . . cumulative and often gathers speed at an accelerating rate; in short, growth breeds growth."¹⁰²

As a part of the cumulative process, two simultaneously occurring circular reactions to growth are seen as happening (Figure 2.3).

The first reaction is a "multiplier effect," which consists of new local demands created by industrial growth and the increased purchasing power of workers. In order to satisfy increased demands the population size of the city increases, as new business, service, trade, construction, transportation, professional and other classes of workers move in. The new population threshold which results, in turn, is able to support a second round of growth. The process of multiplying continues with diminishing impact until, due to some set of circumstances, it is either stopped or impeded.

Not only do individuals realize economic benefits from economic expansion, but, up to a certain level, social benefits are realized. As the population size of a community increases economies of scale allow for various additional services to become available. Beyond a point, size may

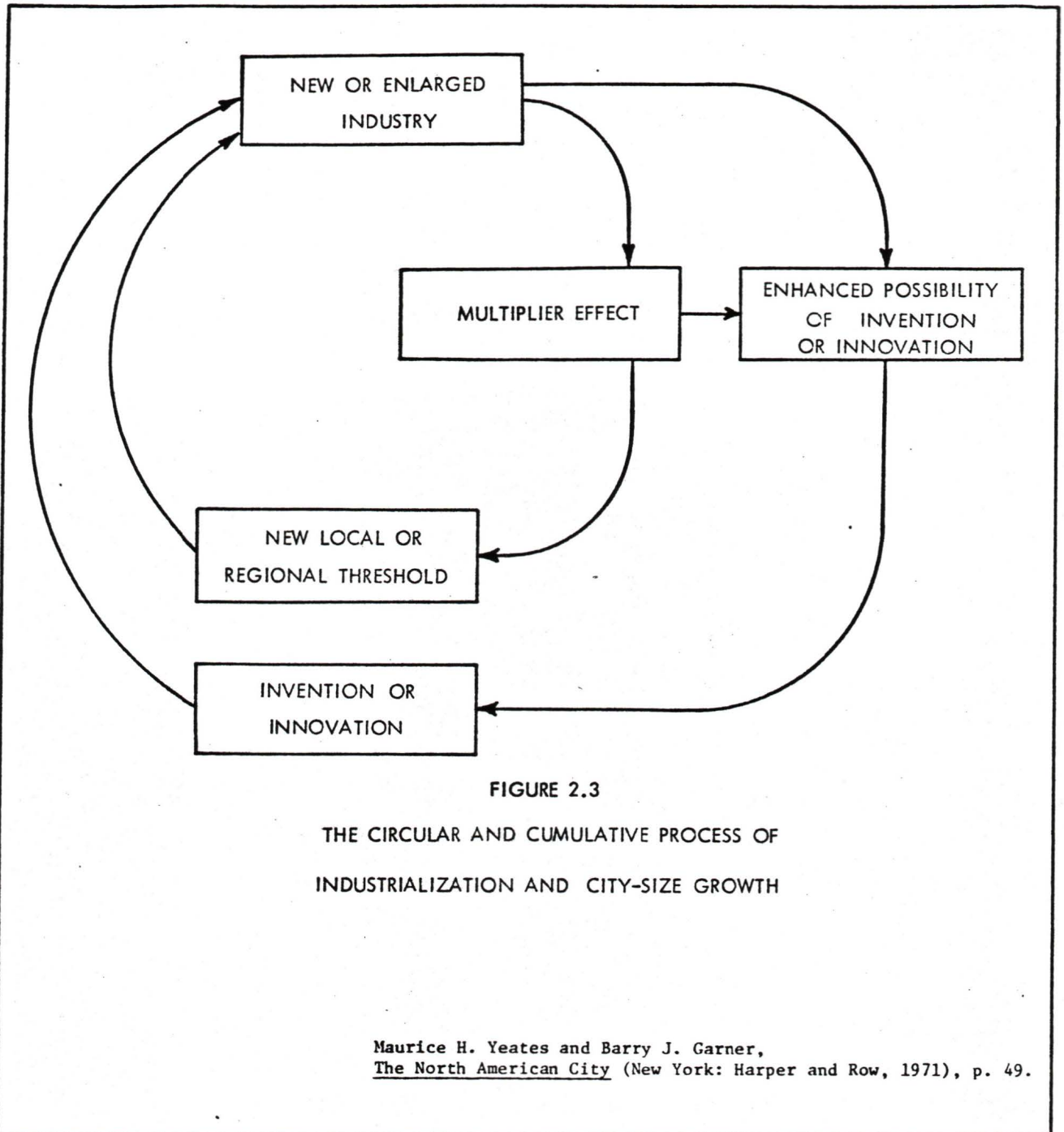


FIGURE 2.3

THE CIRCULAR AND CUMULATIVE PROCESS OF
INDUSTRIALIZATION AND CITY-SIZE GROWTH

Maurice H. Yeates and Barry J. Garner,
The North American City (New York: Harper and Row, 1971), p. 49.

become a hindrance, bringing into effect negative economies.

A second reaction to growth, which occurs simultaneously, consists of an enhanced possibility for invention or innovation. Pred sees expanding city population leading to increased amounts of interpersonal interaction, which:

. . . enhances the possibilities of technological improvements and innovations, enlarges the likelihood of the adoption of more efficient managerial and financial institutions, increases the speed with which locally originated ideas are disseminated, and eases the diffusion of skill and knowledge brought in by migrants from other areas.¹⁰³

Adoption of various inventions and innovations are seen as acting as inducements to attract additional industry into an area.

The above two processes are seen as working simultaneously and continuously together, passing through stages of refinement, building upon themselves as they occur.

Disruption of growth, either through lack of investment capital or through depressed markets, can stall or undo both types of growth reaction, reversing the multiplier effect. This is particularly so when industrial diversification is limited and technology is largely imported, as in the case of resource frontier communities and their regions.

The Threshold Concept. Integral to the concept of industrial and city growth is the threshold at which various goods and services become available to support and encourage existing and future populations. The threshold concept is also inherent to quality of life and community satisfaction,

since various additional goods and services become available with increasing population size.

Threshold refers to the minimum sales which are required for an establishment to remain viable. Yeats and Garner have provided an operational definition of threshold as being ". . . the minimum population needed to support a given type of central function."¹⁰⁴ Yeates and Garner state that ideally sales provide a better measure of thresholds, but due to practical difficulties of measurement, population size is usually substituted. Threshold measurement, using either value of sales or population numbers, relates to the level at which various goods and services become available at a given location. Below that level, a particular service is not viable, above a given level, it is more likely to be provided.

Yeates and Garner have recognized that threshold levels vary with various goods and services. This variation may be due to either the degree of speciality associated with an item or function of location. Frequently required goods or services, such as filling stations, food stores, churches, restaurants, elementary schools and physicians require only small population levels to become operative. Specialty services, on the other hand, such as sheet metal shops, optometrists, undertakers, and accountants, have much higher threshold levels. In the case of higher order services which are not available, they must be either imported

into the region or services must be sought through travel to other locations.

Thresholds for goods and services are also affected by their range. The distance which consumers are willing to travel to acquire a particular product will help to determine its viability. For less specialized products, the propensity to travel decreases, while for more specialized goods, it increases. The degree of specialty of a product can thereby either increase or decrease its range in relation to its threshold. For example, a corner food store will require not only a low population level, but also have its patrons located fairly close to it. On the other hand, a specialty service, such as an optometrist, requires a large population level, which may be widely scattered.

The threshold point, then, consists of the minimum number of sales or activities required to maintain profitability. For services to be provided at a sub-optimal point, either some form of subsidy is required or losses must be accepted.

Threshold studies have not differentiated between services which are supplied exclusively to a community, as opposed to a region. Interaction between a dominant community and its hinterland will serve to create a regional threshold for service which may be greater than that required solely by the community. Ultimately a community may pass beyond the supply of threshold functions, particu-

larly in intercity commerce, thereby entering into sustained self-generating growth.

The threshold at which various goods and services become available in resource frontier communities is considered to be skewed toward higher population numbers. Outside entrepreneurs, with the exception of major corporations which carry out market research and can accept short term losses, will likely have a poor understanding of conditions within a community. For this reason they will likely wait until a high demand is thought to exist for a service. Factors such as isolation, climate and transportation costs may mean that services are not provided, although a latent demand exists. Also, smaller communities may provide a large enough population to support only one outlet of a particular type, thereby frustrating an aggressive, expanding business.

Regional economic viability and associated growth are the stimuli which help to maintain various quality of life components within a region and its communities. With the extraction and primary processing of resources, both jobs within a region are made available, and demands for resources are met. As a part of this process, each round of investment creates opportunities for expanded goods and services. Not all economic growth may be considered beneficial. Externalities such as crowding, pollution, disruption of existing life styles and despoilment associated with

extraction may be deemed undesirable.

From the literature reviewed, it is apparent that theory relating to quality of life and the level of satisfaction of residents within resource frontier communities is limited, both in depth and in scope. The literature has tended to concern itself primarily with single components of the total mosaic of interaction which occurs at either regional, subregional or personal levels of activity. Studies relating to specific resource frontier communities have tended to be limited in scope, since in most cases only a few components of quality of life are considered and on a noncomparative basis. Shortcomings of this nature are likely due to a lack of understanding of resource frontier community residents' expectations concerning the quality of life in both their communities and region.

Footnotes

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²² *Ibid.*, pp. 25-26.

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²⁵ *Ibid.*, p. 40.

²⁶ *Ibid.*, pp. 32-38.

²⁷ *Ibid.*, p. 32.

²⁸ *Ibid.*, p. 34.

²⁹ *Ibid.*

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34 *Developing a Social Statistics Publication*, cited by The Government of Canada, Economic Council of Canada, *Social Indicators: A Rationale and Research Framework*, by D. W. Henderson (Ottawa: Information Canada, 1974), p. 37.

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⁸⁷Les, *op. cit.*, pp. 290-292.

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⁹⁴Amos H. Hawley, *The Changing Shape of Metropolitan America: Deconcentration Since 1920* (Glencoe, Ill.: The Free Press, 1956), p. 165.

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⁹⁸Hilhorst, *Regional Development Theory*, op. cit., pp. 30-31.

⁹⁹Czamanski, op. cit., p. 61.

¹⁰⁰Maurice H. Yeates and Barry J. Garner, *The North American City* (New York: Harper and Row, 1971), pp. 48-50. In addition to economic factors, cities may also be based upon administration functions, traditional settlement patterns, and the social needs of residents.

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¹⁰³Allan Pred, "Industrialization, Initial Advantage and American Metropolitan Growth," *The Geographical Review*, 55, (1965), 166.

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CHAPTER III

CONCEPTUAL MODEL AND HYPOTHESES

Several different theories and models exist which relate, either directly or indirectly, to the functioning of resource frontier communities. Sufficient empirical data have been provided to make these theories tenable, and as such they may be utilized to support a comprehensive model of personal satisfaction associated with quality of life components in resource frontier communities. The following conceptual model was developed in an attempt to integrate these fragmentary theories into a general, holistic model which provides for understanding of the process by which satisfaction or dissatisfaction occurs. This model is considered to be a means of coping with a highly complex situation in both a comprehensible and comprehensive manner.

The model consists of three distinct parts, relating to personal factors, development policy and quality of life components and their relationship to the attainment of either satisfaction or dissatisfaction in resource frontier communities. These three concepts are melded into the broader, conceptual model, which relates to developing regions and the provision of quality of life components within a region (Figure 3.1).

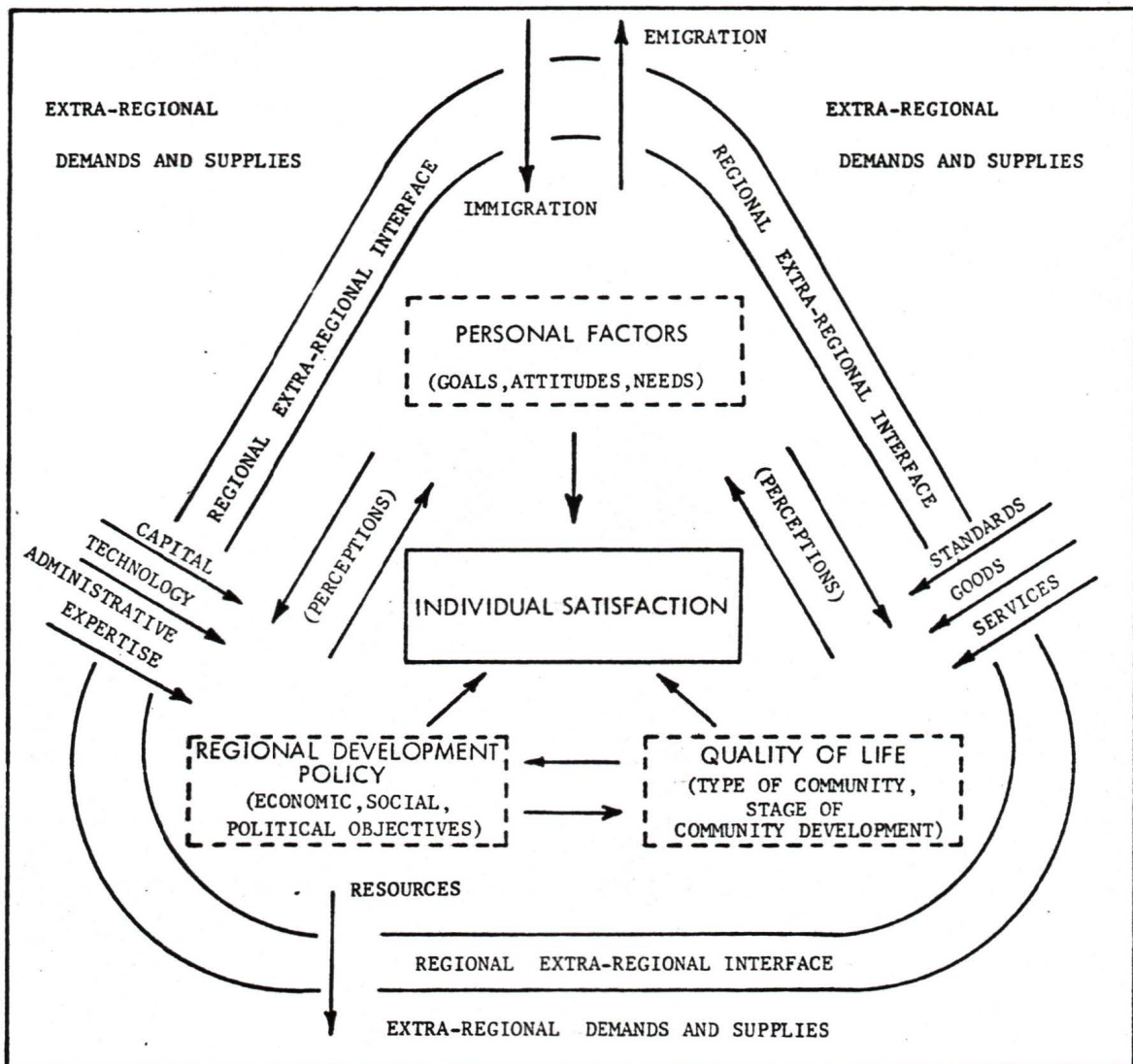


FIGURE 3.1

A CONCEPTUAL MODEL OF SATISFACTION ATTAINMENT
 BY INDIVIDUALS WITHIN RESOURCE FRONTIER COMMUNITIES

At the present stage of refinement the model is intended to be a conceptualization of a complex, interactive process which is ongoing through time. Individuals, policies and provisions within a region are continually changing and evolving. With each successive change in the mosaic of satisfaction attainment variables, new levels of both personal satisfaction achievement and of satisfying mechanisms may become available.

The model is limited in that no attempt has been made to weigh the relative importance of variables, rather their roles in a total process are stressed. Also, at this stage of refinement, only the primary variables affecting the three core units of the model have been identified.

Personal Factors Affecting Satisfaction

Each individual has his or her own set of personal attributes which determine the perception of satisfaction with a situation. Characteristics such as needs, motives, and attitudes, in conjunction with past experience and perceived future opportunities, will determine, to a large extent, the goals of an individual. Satisfaction of these goals once they are formulated, will be sought through the utilization of options provided by regional development policy and quality of life components.

Personal factors associated with goals, either on an individual basis, or as a collection, may affect both regional development policy and the provision of quality of

life components. Individuals, through the political process or the use of pressure group tactics, may alter or amend development policies to better suit their personal goals. Development policies may be altered in relation to specific plans affecting the provision of quality of life components, or in relation to the overall development plan. Personal factors may affect quality of life components through efforts to have services altered, as well as by the very existence of an individual as a user of quality of life provisions.

The complexity of the process by which individual needs and goals are arrived at has been demonstrated by studies in other disciplines, especially psychology. It is not the intent of the model to either analyze or to define the process of goal formulation, but to accept personal needs and goals as being parameters in the process by which either satisfaction or dissatisfaction is achieved.

Quality of Life

The stock of quality of life components which are available to an individual serve as the main physical input to his or her perception of satisfaction. The single as well as the complex of components of quality of life to which an individual relates are unique to each individual. In addition, the set of quality of life components to which an individual relates is changing over time. In this context, the provision of quality of life components within a community requires trade-offs and sub-optimal levels of

service for some individuals, since it is unlikely that all of the residents of a community can be provided with satisfactory services simultaneously.

Quality of life components have an impact upon development policy in that in addition to objectives associated with the extraction of resources, acceptable standards of quality of life are desirable social and political objectives. In this context, both standards of living external to a region, as well as the standards held by individuals within a region, will have an input upon development policy.

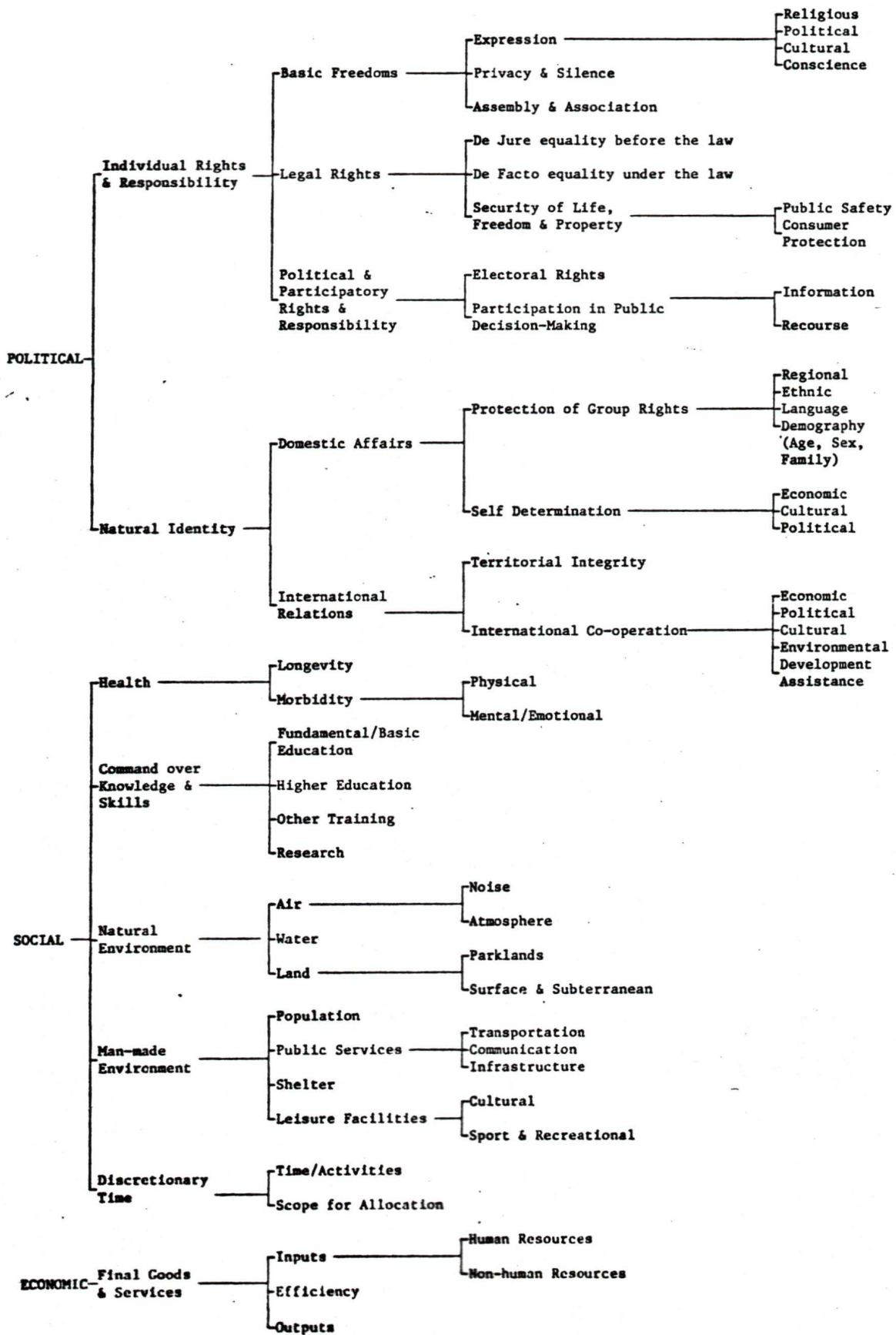
The variables recognized as being indicative of quality of life are many and varied, depending upon the sources utilized. In the context of this model, quality of life is considered to consist of three broad types: political, social and economic factors (Figure 3.2). Each of these is composed of more specific attributes, which in turn relate to specific components of an environment.

Regional and Sub-Regional Development Policy

Regional and sub-regional development policy is the enabling force which provides for quality of life and the satisfaction of individual goals. As a means of extracting resources, capital, technology, administrative expertise and political input are imported into a region. These inputs may be initiated from any extra-regional point of dominance, such as a superior level of government or a corporate concern. Whatever the source or rationale for development, it will

FIGURE 3.2

POLITICAL, SOCIAL AND ECONOMIC GOAL AREAS OF SOCIETY



have an impact upon the availability of quality of life components, either injecting new and additional services with related opportunities, or causing the further sharing of existing opportunities.

Regional development policies may affect the supply of quality of life components available within a region, since the responsiveness of development policies will determine the services which are made available. In some instances, development policies may focus exclusively upon economic benefits associated with resource extraction, leaving the provision of services to occur spontaneously. In comprehensive development situations, the provision of adequate quality of life components may be recognized as an integral part of regional development, with the provision and quality of services becoming a major development concern.

Regional development policies may be perceived as either beneficial or detrimental by an individual. Although development may provide improved services and employment opportunities, despoilment of the landscape and disruption of life styles may be considered to be detrimental.

Immigration and emigration are considered to be personal responses to the mix of quality of life variables available within a region and its communities. If an individual perceives opportunities for the attainment of personal satisfaction, then he or she will remain within a region. As a response to perceived opportunities, individ-

uals may migrate into a region seeking the satisfaction of personal goals. If, on the other hand, conditions do not provide for satisfaction of goals, then emigration will occur to areas where opportunities are perceived to be better.

Social perceptions are the mechanism by which an individual is made aware of opportunities which exist within his or her environment. Without an awareness of the various components of the surrounding environment, the process of satisfaction evaluation cannot be initiated. The perception of variables leading to satisfaction may occur over either a short or a long period of time, and may involve single or groups of variables.

From the preceding model of personal satisfaction attainment in resource frontier communities, a mathematical abstraction of satisfaction attainment has been developed (Figure 3.3). This equation seeks to incorporate the major variables which serve to determine satisfaction. Many of these variables are not directly quantifiable, but rather consist of abstract values. The purpose of the mathematical model is not to provide a testable formula into which values can be inserted, but rather to provide a logical abstraction of a complex, multi-faceted process. From this equation the relationship between diverse and complex variables can be better understood.

FIGURE 3.3

A MATHEMATICAL ABSTRACTION OF INDIVIDUAL SATISFACTION
ATTAINMENT WITHIN RESOURCE FRONTIER COMMUNITIES

$$P_s = (f)T \left\{ \frac{Q_f (I_g^{k!})}{\left(\frac{O_p}{P_t}\right) (C^{st})} \right\}$$

P_s = perception of satisfaction by an individual

T = time

Q_f = quality of life components available

I_g = individual goals

$k!$ = available mix of goal formulations held by individual

O_p = opportunity factors within a region and its subsystems

P_t = population of region

C = type of community

st = stage of community development

The model and associated equation are intended as a means of better understanding the process by which the goals of individuals living within resource frontier communities are either met or frustrated. Through an understanding of the process by which an individual experiences satisfaction or dissatisfaction, and its intensity, regional and sub-regional planning objectives seeking to improve the quality of life within a region can be better formulated. Policies may be developed which maintain components which provide satisfaction and improve those causing dissatisfaction. Although plans cannot be responsive to the goals of each individual within a region and its communities, consensus can be sought in order to achieve an optimal level of responsiveness. Due to the changing values of both individuals and society, development policies must be adaptable over time.

An additional use of the model is for the analysis of the causal relationship between population instability and satisfaction. Although resource frontier communities have been characterized as having a disproportionate population turnover rate and unsatisfactory living conditions, analysis has not been conducted to establish causal relationships. Do high rates of population turnover cause decreased quality of life resulting in dissatisfaction, or do poor quality of life provisions lead to population instability? Feedback mechanisms within resource frontier

communities have been poorly understood. The proposed model, through identifying the relationships leading to satisfaction determination, can serve as a useful framework in the analysis of quality of life in resource frontier communities.

Hypotheses

Individual attainment of satisfaction associated with quality of life components available in a resource frontier community are the product of the goal structure of an individual interacting with various perceived opportunities. The provision of sub-optimal or inferior quality of life components may be perceived as detrimental to the attainment of satisfaction. With chronic frustration of goals, personal symptoms such as apathy, emotional breakdown, and stress as well as migration may result.

The primary purpose of this study is to identify components of quality of life with which residents of frontier communities are either satisfied or dissatisfied. With the identification of these components comments can be made regarding the objectives of regional development policies as well as the composition of personality traits associated with satisfaction and dissatisfaction.

As a means of exploring satisfaction associated with the quality of life in resource frontier communities, two general questions were posed in the form of hypotheses. The use of hypotheses allows for analysis of expected discrete

relationships between variables, as well as analysis of relationships which are not anticipated. The hypotheses are general, thereby precluding strict methods of hypothesis testing. The use of general hypotheses is considered to be a useful research technique, since little is known of the relationship between the provision of quality of life components and goal fulfilment in resource frontier communities.

Hypothesis I. It is hypothesized that quality of life components in resource frontier communities of small town size are of a lower calibre than those provided in communities adjacent to major metropolitan areas, thereby contributing to increased resident dissatisfaction.

Two outcomes are dependent upon the proof of this hypothesis. First, it is generally believed that the quality of life in resource frontier communities is of a lower standard than that which is found in southern, more densely populated areas. Based upon this belief, individuals are frequently apprehensive of moving to resource frontier communities and residents of such communities feel penalized. This hypothesis is designed to test the validity of this statement.

Second, through the identification and measurement of various quality of life components, the variables which provide either satisfaction or dissatisfaction can be identified. Development policies frequently assume which variables are in need of improvement, without confirming these

suppositions. With the identification of quality of life components providing satisfaction and those providing dissatisfaction, regional policy recommendations which are more sensitive to the real needs of a region's population can be made.

Hypothesis II. It is hypothesized that the satisfaction attainment, with components of quality of life, in resource frontier communities is influenced by the demographic characteristics of the population.

Various demographic characteristics of a population, such as sex, age, income, and educational attainment, may be related to the mix of quality of life components which are required. If a population, due to its demographic characteristics, has need of certain goods and services which are not provided, then dissatisfaction is a likely response. It is the intent of this hypothesis to ascertain the relationship between quality of life components and the perception of satisfaction as influenced by various demographic features of the study population.

CHAPTER IV

METHODS AND PROCEDURES

Data were collected in order to analyze satisfaction associated with quality of life components in the study communities of Terrace, Smithers and Squamish through the use of participant observations,¹ interviews, and questionnaires. Participant observations provided an insight into the functioning of each community. Interview respondents provided information regarding agency and political planning related to northwest development, as well as economic, social and political conditions within each community. Questionnaire respondents provided data regarding satisfaction associated with various components of quality of life as perceived by residents of the three study communities. Data were analyzed through the use of both subjective and objective methods.

The Selection of Study Communities

The selection of three communities to study in relation to community and personal satisfaction associated with quality of life components and northwest development was determined by factors relating to representativeness and comparability.

Of the communities of the northwest, Terrace and Smithers were considered to be the two in which quality of life would be the most affected by northwest development. Both communities have been designated for major expansion. (See Appendix A, Items 2, 3, 4, 7, 9, 10, 17, 19, 20, 23, 24, 27, 28, 44, 56, 57.)

In 1975 both communities were emerging from a period of expansion based upon logging and forest operations as well as service functions. Terrace had evolved as a center for logging and distribution for an area incorporating much of the Regional District of Kitimat-Stikine. Smithers had taken on functions associated with sawmilling, farming, distribution, and mining exploration for the western portion of the Bulkley Valley and the area to the north.

Both Terrace and Smithers were considered to typify quality of life components found in other communities within the northwest. Although other communities may differ in population size and economic base, problems encountered in supplying an acceptable level of quality of life components are considered to be similar.

For the preceding reasons, Terrace and Smithers were chosen for analysis as the communities representative of problems associated with regional expansion and the maintenance and improvement of quality of life.

Squamish was selected as a community to be used for comparative purposes due to two characteristics.

First, Squamish is located within 45 minutes driving time of Vancouver. Due to this, it is considered to be a "southern" community, having readily available many of the goods and services which are considered to be lacking in frontier communities.

Second, Squamish, like Terrace and Smithers, has a history of recent development which is dependent upon logging, mining, and service industries, although the BCR has acted to diversify the economy of the community. As a southern community, it was anticipated the expectations of quality of life would differ from those found in northwest British Columbia. Squamish is also affected by northwest development in that products from the area adjacent to the BCR in the northwest must pass through Squamish on their way to domestic or export markets.

The rationale for the selection of study communities representative of quality of life and satisfaction is, to a large extent, arbitrary and subjective. It is considered though, that the selected communities provide for a realistic evaluation of conditions at a point in time in communities in northwestern British Columbia, and Squamish serves as a valid source of comparison in southern British Columbia.

Data Collection

Data were collected through the use of participant observations within the study communities, interviews, and

questionnaires.

Participant Observations. During the months of June to August, 1975, each of the three study communities were visited for between three and four weeks. During this period an attempt was made to become immersed in the affairs of the community. Local newspapers were read, local radio stations listened to, public meetings attended, and whenever possible participation was sought in community recreation activities. During the course of this period, community leaders were identified and local issues discussed with various residents. Although formal records were not kept of the data gathered in this fashion, personal experience and understanding of local issues and views was gained.

Interview Sampling. Interviews were conducted utilizing two groups of respondents. The first group consisted of individuals who did not directly reside in the study communities, yet played a role in either regional development or the provision of various services to study communities. The second group of respondents consisted of individuals representing various services and organizations within the study communities.

Interview Respondents External to the Study Community. This group of interview respondents consisted of 29 representatives from private groups or industry, consulting and government agencies, as well as politicians. Individuals were identified and interviewed regarding aspects of north-

west development which were relevant to their interests. Whenever applicable, data were sought regarding the provision of components of quality of life.

An unstructured, informal interview technique was utilized, although certain pertinent questions were prepared to which responses were sought during interviews. Respondents were identified by way of newspaper articles and by referrals.

Interview Respondents Internal to the Study Communities. The second group of interview respondents consisted of representatives of community functions within Terrace, Smithers and Squamish (Table 4.1). Each respondent was administered a loosely structured interview schedule and responses were recorded. Questions focused on the impact of northwest development, the level of services available within the community, the role of the organization represented by the respondent in community affairs, and perceptions of community satisfaction. Different interview schedules were utilized with each of the seven classes of respondents.

Interview respondents consisted of representatives of organizations which were considered to have a major impact upon the economic, social or political life of the community. Due to limitations of time, only a representative sample was obtainable.

TABLE 4.1

REPRESENTATION OF INTERVIEW RESPONDENCES:

TERRACE, SMITHERS AND SQUAMISH 1975

	Terrace	Smithers	Squamish
<u>Community Functions:</u>			
Business Establishments	9	7	6
Community Services	10	10	6
Community Organizations	4	7	3
Municipal Government	2	3	3
Other Levels of Government	2	4	2
Religious Denomination	3	3	-
Professionals	3	2	3
TOTAL	33	36	23

Questionnaire Sample. Questionnaires were utilized in order to assess the levels of satisfaction which residents perceived regarding various components of quality of life. Of the various methods available for collecting data relating to personal preferences, such as participant observations, interviews, games and unobtrusive measures, questionnaires were considered to be most practical. It was anticipated that through the expenditure of a moderate amount of time, large numbers of individuals could be canvassed and their responses recorded in a relatively uniform manner which was amenable for automated analysis.

Development of the Questionnaire. The questionnaire was developed through several stages of modification and refinement.

The first stage consisted of the delineation of the data which were being sought in order to satisfy the hypotheses. It was recognized that questionnaire responses must supply information regarding personal levels of satisfaction associated with various components of quality of life in the study communities. To this end, 20 specific components of quality of life were identified in addition to a general concept of community satisfaction. Additional questions relating to push-pull factors of migration as a response to community satisfaction, political responsiveness within the community, and the perception of isolation associated with frontier communities, were also recognized. In addition, a

series of socio-economic questions were relevant to analysis of satisfaction in relation to demographic characteristics.

From a pool of previously administered questionnaires, various techniques for question presentation and wording were scrutinized. Ultimately a combination of open and closed, self-administered questions were formulated, with questions relating to quality of life utilizing a five-position Likert scale.¹ Questions were then combined into an order of presentation based upon the "funnel" approach,² in which questions proceed from the general to the specific.

After the circulation of the draft questionnaire amongst colleagues, a redrafted version was pilot tested on 25 households in Sooke, British Columbia. During the pilot testing, various methods for identifying and approaching respondents as well as retrieving completed questionnaires were appraised.

From the pilot test results, ambiguous questions were reworded and all socio-economic questions were moved to the last section of the questionnaire. The questionnaire was then recirculated amongst colleagues for comment. Final revisions were made and sampling was commenced. Appendix B consists of the completed questionnaire and an accompanying letter of introduction.

Questionnaire Administration. One hundred and eighteen questionnaires were randomly distributed to households in

each of the three study communities. This number of questionnaires was used in anticipation of a 63% response rate,³ which would provide for 75 respondents from each community. The response rates for Terrace, Smithers and Squamish were 109, 104, and 107 returned questionnaires, providing success rates of 92%, 88%, and 91%, respectively.

A high rate of response was considered to be essential to the study. Questionnaire samples with low return rates provide data regarding either respondents who are motivated regarding the subject matter of the questionnaire or who enjoy completing questionnaires. Questionnaires which go unanswered fail to express the views of a large percentage of a sample, although the subject being studied may greatly affect them and they may have valid views. In order to incorporate as broad a spectrum of responses as possible, considerable effort was made to have questionnaires completed and then retrieved.

Prior to the distribution of the questionnaires, advance contacts were made in each community. Local newspapers were contacted and a brief article, including a photograph of the researcher was published. The local RCMP detachment was contacted and advised of the questionnaires. During the distribution of questionnaires, both letters of introduction and personal identity documents were made available to those who requested identification.

A random sample was ensured within each community through the use of two procedures. A map of each study community was arbitrarily sectioned into six neighbourhoods within which 20 questionnaires were distributed. A point in each neighbourhood was randomly selected and sampling commenced on that block. Respondent households were selected through the use of a random numbers table, with each household counting as one unit. Units within multi-dwellings were counted as each representing a single dwelling.

Questionnaires were distributed on a personal basis to households between the hours of 6:00 PM and 10:00 PM on Monday and Tuesday evenings. Questionnaire recipients were advised the completed questionnaire would be retrieved two nights later. In the case of questionnaires which were not completed, a recall to the household was made on a designated evening. In the case of questionnaires which were not completed after three recalls, a letter stressing the need for the completion of the questionnaire was provided, as well as a self-addressed and stamped return envelope.

Sample Bias. Two groups of potential respondents within the study region and communities were largely ignored by the sampling methods utilized.

Native Indians, in northwest British Columbia as well as in Squamish, tend to live apart from white society on reserves. With the exception of a few Indians living

within the study communities and who were included in the random administration of the questionnaire, efforts were not made to solicit Indian satisfaction with quality of life components.⁴ Due to the unique circumstances in which Indian society finds itself, when compared to white society, it is anticipated that responses from Indian communities would differ substantially from those of most white communities. Evaluation of satisfaction associated with quality of life components in Indian communities would require different research methods.

Juveniles within the study communities were also, to a large extent, divorced from the study sample. Interview respondents were adults and were primarily concerned with "adult" held perceptions of their communities and the surrounding region. Questionnaire respondents tended to be adults. Children and young adults who received the questionnaire at households handed them to their parents. As in the case of Indian populations, analysis of satisfaction perceived by the youth of communities would require special research methods.

Analysis

Several different types of analysis were utilized to explore the hypotheses. Interview responses were analyzed through the use of subjective techniques of analysis. Questionnaire data were analyzed through the use of various

statistical procedures and computerized analysis.

Content Analysis. Interview respondents were analyzed through the use of a modified form of content analysis. Interview responses were scanned and frequently mentioned subjects of response were noted. Responses were recorded in relation to the impact of northwest development upon the study community and the region, components of quality of life, and perceived levels of resident and respondent satisfaction. Each class of responses were divided into more specific responses as concerns and issues within the study communities became evident. This analysis, in conjunction with insights gained through participant observations, provided data necessary for the development of community profiles and recognition of community issues.

Statistical Analysis. Statistical analysis of satisfaction focused upon five components of quality of life. These were health and education services, the cost of living, employment opportunities, and physical isolation. These components were considered to be key variables in the quality of life frame which determined satisfaction.

Adequate medical care is one of the basic human rights to which all citizens are entitled. Although national and provincial standards for medical delivery exist, medical personnel frequently do not wish to practice in frontier communities. For this reason, existing personnel are frequently overworked, specialists are not available,

or only on a visiting basis, and specialized services must be sought from hospitals elsewhere. For the above reasons, the supply of medical services is considered to be a key concern of frontier community residents.

Education services with regards to basic standards for curriculum and plant facilities are controlled by the provincial Department of Education. School districts are able to set policies regarding the implementation of courses and the construction and operation of facilities. The quality of educational service provided is a response to a complex of variables such as the quality of teaching staff available, the amount of funding provided, and the responsiveness of the educational system to the needs of a community. Frontier communities are characterized by families of above average size, increased population numbers associated with young families and lower educational attainment. For these reasons, an education system which provides a satisfactory level of services is considered to be essential.

Cost of living was chosen as a factor for analysis of satisfaction, since it serves to determine net economic gain. The cost of essential needs, such as food, shelter and transportation, when subtracted from an individual's net income, provides a measure of disposable income. If an individual's income for the same work is below average and if costs are above average, then he is penalized in relation to the rest of society. With continued discrimination, and

without compensation, dissatisfaction may become acute.

Employment opportunities within the study communities were considered to be an important variable of satisfaction. Without employment, or with employment which is not rewarding, an individual will be dissatisfied. In the case of families, employment must be provided for women seeking work, as well as offspring who are entering the job market. Without the availability of an adequate pool of diverse job types, dissatisfaction and out-migration will likely occur as economic, sociological and psychological pressures become too great.

Satisfaction associated with facilities to overcome isolation was chosen as the fifth and final component of quality of life to be analyzed. Isolation was considered to be a major determinant of stress, especially during winter months. Satisfactory transportation and communication facilities can serve to alleviate physical isolation. Analysis was limited to factors of physical isolation, which are considered to be the main determinants of isolation, although social, cultural and economic factors are also important.

Two methods of statistical analysis, consisting of crosstabulation and Spearman rank correlation, were utilized to evaluate the questionnaire data and to satisfy the two hypotheses. These methods were drawn from *Statistical Package for the Social Sciences* (SPSS).⁵

The first method of data analysis consisted of the crosstabulation of data for the three study communities and the preparation of chi square values. From the contingency table frequencies, demographic characteristics of the study communities were plotted and differences in population characteristics were elaborated upon.

From the contingency tables data indicating satisfaction, neutrality and dissatisfaction in relation to Likert scale questions exploring satisfaction with quality of life components were recorded.

In order to ascertain differences in perceived satisfaction between the northern communities and Squamish, the data for Terrace and Smithers were amalgamated and then crosstabulated with Squamish. The .05 level of significance was utilized, and chi square values which exceeded this value were considered to lack a systematic relationship between the variables.

Spearman rank-order correlation was utilized to test whether or not an association existed between various demographic characteristics of the sample population and the focus quality of life variables. Demographic characteristics were utilized as independent variables and quality of life components were utilized as dependent variables. Correlation coefficients were interpreted for both direction (positive or negative)⁶ and for statistical significance at the .05 level of significance.

From the preceding methods of statistical analysis, conclusions regarding both the hypotheses as well as perceived quality of life in the study communities were drawn.

The more complex methods of statistical analysis of crosstabulation and correlation were utilized in order to overcome one of the frequent shortcomings of past research into quality of life indicators in resource frontier communities. Many such studies have utilized mean values for the evaluation of collected data. The clustering of respondents about the neutral position or the even distribution of respondents between either extreme of the evaluation system used in collecting data, tends to be concealed in mean values. For this reason, more complex methods of data analysis were utilized in order to overcome these shortcomings.

An additional problem associated with data evaluation for small communities, especially those below 10,000 in population, is the lack of available base data. Statistics Canada, in most cases, does not supply data regarding communities below the predetermined size. Data are lumped into census units. Other government agencies, both federal and provincial, tend to follow suit. For this reason, comparison of sample communities with small populations to sample communities with large populations is not possible.

Footnotes

¹A. N. Oppenheim, *Questionnaire Design and Attitude Measurement* (London: Heineman Educational Books Ltd., 1973), pp. 137-142.

²Op. cit., p. 38.

³Donald S. Longsworth, "Use of a Mail Questionnaire," *American Sociological Review*, 18 (1953), 310-313. In this study Longsworth examined various methods of increasing response rates to mail questionnaires. It was found that the highest rate of return, consisting of 63%, was obtainable through the use of measures such as stamped and addressed return envelopes, advance newspaper coverage of sampling, a covering letter of information, and follow-up phone calls, as well as other intensive efforts.

⁴Data regarding the number of native Indians living in the three study communities are not available.

⁵Norman N. Nie et al., *SPSS--Statistical Package for the Social Sciences* (Montreal: McGraw-Hill Book Co., 1975).

⁶A positive correlation coefficient indicates that as X, the independent variable, becomes larger, Y, the dependent variable, becomes larger. A negative correlation coefficient indicates that as X, the independent variable, becomes larger, Y, the dependent variable, becomes smaller.

CHAPTER V

NORTHWEST BRITISH COLUMBIA: STUDY REGION

Introduction

Through a knowledge of the physical features of a region, man is better able to assess the possibilities for resource utilization and development. Cultural features, such as past and existing settlement patterns, also affect development, since they help to provide the necessary infrastructure for continued development.

In this chapter the following three features of the study area are presented. First, the study region is defined and a rationale given for its selection. Second, physical features in the form of landforms, climate, soils and vegetation are presented. Third, historic events and existing settlement patterns are summarized.

Northwest British Columbia

The area which constitutes northwest British Columbia is not rigidly defined. Depending upon the scale of analysis and intended utilization, northwest has implied anywhere from the whole of the northwest quarter of the province to relatively localized areas.

The term northwest has been used in two contexts. First, it has been used as a directional indicator of one of

several regions of the province. In this context, the northwest is used to distinguish between other regions such as the central interior, the lower mainland, the Kootenays, etc.

A second and more abstract utilization of the term has been to denote not only a region, but also a sense of activity. Northwest has taken on a meaning associated with construction activity, forest utilization, mining development and a way of life. The use of northwest as a delineating modifier in references such as Northwest Development Plan, Northwest Transportation Plan, and Northwest Study Conference has served to reinforce the identity of a concept as well as a spatial area.

For the purpose of analyzing levels of satisfaction within communities in northwest British Columbia and their relationship to northwest development, regional districts are used. The area bounded by the regional districts of Skeena-Queen Charlotte, Kitimat-Stikine and Bulkley-Nechako, as well as the unincorporated district of Stikine, are accepted as defining the study region (Figure 1.1).

It is recognized that these boundaries are arbitrary, depending upon administrative jurisdictions. The choice of regional districts to delineate the study areas is based upon: (1) the above noted districts coincide with the approximate boundaries of the area which is frequently noted as being the northwest; (2) regional districts act as local

planning units in the decision process concerning resource utilization; (3) regional districts act in a liaison capacity between municipal and provincial levels of government; (4) regional districts provide a usable data base, since other administrative jurisdictions, such as school districts and census tracts coincide with their boundaries. Also, the area bounded by the selected districts conform in part to the concept of resource development regions, as discussed in Chapter II.

The northwest, although consisting of one-third of the land mass of British Columbia, is sparsely populated, having less than 1.64 people per square mile (Table 5.1). (Appendix C contains metric conversion units.) Population tends to be centered in the southernmost portion of the study region, with the unincorporated district of Stikine having a few small pockets of settlement.

Physical Features

Landforms. The northwest consists entirely of the Cordillera physiographic features of North America. The Cordillera is divided into three main systems, consisting of the Coast Mountains, the Interior Uplands, and the Rocky Mountains, the latter occurring to the east of the study region and beyond its boundaries.

Although the detailed geological history of the region is extremely complex, certain major events have

TABLE 5.1

NORTHWEST STUDY REGION FEATURES BY REGIONAL DISTRICT

Regional District	Area in Square Miles ¹	Population (1971) ¹	Population Density (1971) ¹	Incorporation Date ²	Total Debt (1975) ²
Stikine (Unincorporated)	43,702	1,470	0.03	Unincorporated	-
Skeena - Queen Charlotte	6,232	22,299	3.58	Aug. 17, 1967	\$ 17,066,293
Kitimat - Stikine	36,987	37,326	1.01	Sept. 14, 1967	33,303,575
Bulkley - Nechako	<u>27,837</u>	<u>27,145</u>	<u>0.98</u>	Feb. 1, 1966	<u>28,369,546</u>
Total Northwest	114,758	88,240	1.64		\$ 78,739,414
Squamish - Lillooet	6,375	13,081	2.05	Oct. 3, 1968	\$ 10,862,662
Total British Columbia	344,817	2,184,621	6.34		-

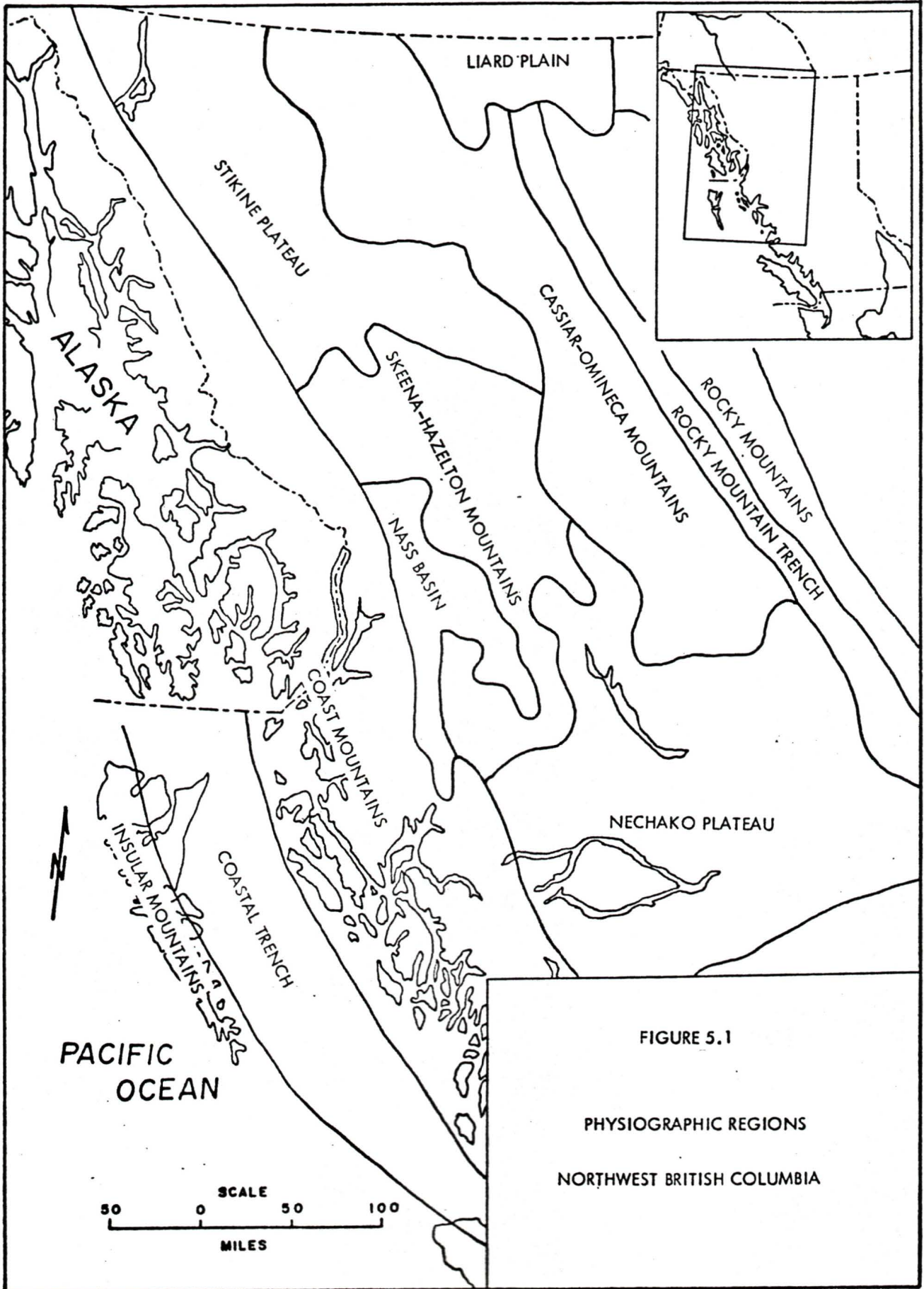
¹Statistics Canada, Special Bulletin, *Geography 1971, Land Area and Densities*. Cat. 98-701 (56-1).

²The Government of the Province of British Columbia, Department of Municipal Affairs, *Statistics Relating to Regional and Municipal Governments in British Columbia*, Victoria, 1976.

served to set the present day landform. During the Jurassic period of approximately 180 million years ago, the original uplifting of mountains occurred.¹ During the Tertiary period extensive flows of lava occurred, the traces of which are evident in deeply dissected valleys, such as the Stikine. The Pleistocene period between one million and ten million years ago, saw nearly continuous glaciation.² This last period, during which glacial ice was thousands of feet thick and the land was depressed several hundred feet, saw the sculpting of mountains and smoothing of valley floors. Retreating glaciers deposited thick layers of drift over large areas, providing for the existing shape of the land.

Putnam has recognized the northwest of British Columbia as consisting of six physiographic regions³ (Figure 5.1).

Coast Mountains. The Coast Mountains consist of two subgroups, the Boundary Range north of the Nass River, and the Kitimat Range to the south. The Coast Mountains consist primarily of intrusive granites, although isolated deposits of metamorphic, sedimentary and volcanic rocks occur.⁴ Pleistocene glaciation has smoothed the lower portions of valleys, creating trough-like cross sections. Above 6,500 feet Matterhorn peaks are common. The largest fiords of the coast are usually associated with structural weaknesses, which have been deeply eroded.



Stikine Plateau. The Stikine Plateau consists of several smaller identifiable plateaux, which range between 4,000 and 5,000 feet in elevation. Overall the plateaux vary from smooth to rolling and broken, with occasional peaks and extinct volcanic cones, such as Mount Adziza.

Cassiar-Omineca Mountains. This range consists of relatively low, flat-topped mountains which range between 5,500 feet to 6,000 feet.

Skeena-Hazelton Mountains. This group of mountains consist of several lesser ranges of mountains, such as the Kispiox, Nass, Bulkley and Tahtsa Ranges. They vary in elevation up to 9,000 feet, with rugged Matterhorn peaks above 6,000 feet. Valleys in the Skeena-Hazelton Mountains tend to have large deposits of terraced glacial material.

Nass Basin. This area consists of an irregularly shaped basin under 2,000 feet in elevation. It provides a major portion of the Nass drainage area, although it also extends down the Kispiox Valley to the Skeena Valley. Glaciation has gouged the valley floor, creating numerous lakes, which tend to be aligned with past glacial movements.

Nechako Plateau. The Nechako Plateau consists of the northern portion of the larger Interior Plateau. Moulded glacial till provides surface elevation, with relief varying between 3,000 and 4,000 feet.

Climate. Climate in northwest British Columbia consists primarily of two general types, maritime-west coast

and Boreal or Subarctic.⁵ Within these two climatic types local conditions may provide for pockets of unique weather.

Climate over the whole of the study region is dominated by cells of mild, moisture-laden maritime air which move onshore from the north Pacific. On encountering the Coast Mountains, orographic uplift causes extensive rain and snowfall. To the east of the coastal ranges a "rain shadow" provides for decreased precipitation, greater sunshine, and less wind, although greater temperature extremes occur (Table 5.2).

Under maritime-west coast climate conditions the seasons tend to blend, with little contrast. A gradual warming occurs from February until August, and then a gradual cooling sets in. Differences in temperature between the coldest and warmest months vary by only 8 to 13°C.⁶ In the interior the seasons are more pronounced, with a noticeable change in weather conditions occurring. The differences between winter and summer temperature may vary by between 19° to 33°C.

Maritime-west coast summers are characterized by less rainfall (5-15 cm in July and August) and moderate temperatures, between 10° and 21° Celsius. Fall is typified by heavy precipitation, with rainfall usually exceeding 25 cm per month from October to January.⁷ In the winter, Pacific storms usually bring high winds and heavy rains, although cold, dry, polar air occasionally invades coastal areas

TABLE 5.2

NORTHWEST BRITISH COLUMBIA CLIMATIC CONDITIONS

Location	Altitude (feet)	Monthly Mean Temperature (Jan.) 1973 ¹	Monthly Mean Temperature (July) 1973	Annual Mean Temperature 1973	Extreme Temperature Jan. 1973	Extreme Temperature July 1973	Absolute ² Temperature	Annual ³ Rainfall (cm)	Annual Snowfall (cm)
Atlin	2,240	-24	10	-	-8 -35	-	31 -50	-	-
Dease Lake	2,678	-18	7	-	5 35	25 -1	34 -51	-	245.8
Cassiar	3,535	-8	-	-	2 -35	23 -	29 -47	-	-
Stewart	25	-5	14	4	2 -20	27 6	- -	168.2	735.8
Prince Rupert (Airport)	110	1	12	6	9 -12	19 5	27 -24	254.5N ⁴	192.8
Kitimat (Townsite)	420	-3	14	6	5 -18	28 5	36 -25	214.6	606.8
Terrace (Airport)	719	-5	15	5	4 -19	29 6	36 -27	122.6N	432.0
Hazelton	400	-9	14	4	4 -31	29 2	36 -45	-	-
Smithers (Airport)	1,718	-9	13	3	4 -30	29 0	34 -44	44.0	237.7
Houston	1,925	-9	13	-	8 -32	30 -1	- -	-	149.9

TABLE 5.2 Continued

Location	Altitude (feet)	Monthly Mean Temperature (Jan.) 1973 ¹	Monthly Mean Temperature (July) 1973	Annual Mean Temperature 1973	Extreme Temperature Jan. 1973	Extreme Temperature July 1973	Absolute ² Temperature	Annual ³ Rainfall (cm)	Annual Snowfall (cm)
Burns Lake	2,308	-11	13	2	5 -34	27 0	- -	42.7N	149.3
Britannia ⁵ Beach	160	2	15	6	11 -8	28 8	39 -22	222.4	43.9

¹All temperatures in degrees Celsius.

²Highest and lowest temperatures ever regarded at station.

³Total precipitation is the sum of the rainfall plus the water equivalent of snow, which is snowfall divided by 10.

⁴N = Nipher snow gauge.

⁵Britannia Beach, which is 11 miles south of Squamish, was used as an indicator.

Government of the Province of British Columbia, Department of Agriculture, *Climate of British Columbia, Tables of Temperature, Precipitation and Sunshine*. (Victoria: Queen's Printer, 1973).

bringing snow and/or clear cold skies. Spring arrives gradually, with the growing season beginning about mid-April. A decrease in precipitation occurs and an increase in sunshine, with this season being the driest.

The boreal climate of the interior is characterized by seasons which are of a marked contrast to the coast. Summer is short, lasting for only 2 to 3 months, with occasional frost occurring. During the summer, long hours of sunlight encourage rapid plant growth and allow for pleasant days. Fall is short, providing a quick transition to winter conditions. Winters are long and cold. Polar air provides for long spells of cold, dry weather. Under extreme conditions temperatures may be as low as -50°C . During the winter maritime air occasionally penetrates, bringing heavy snowfalls. Spring is also short, occurring in May and June, with deciduous trees budding rapidly.

Climate within the study area shows a marked contrast between coastal and interior conditions. Both the maritime-west coast and boreal types are rigorous, providing both adverse conditions and challenge.

Soils. The soils of northwest British Columbia form a limited resource for agricultural purposes, although they provide for good forest growth. Due to slope, relief, complexity of parent materials and adverse climatic conditions, soils tend to be poorly developed, with shallow profiles.

The wet coastal region is characterized by Podzolic soils, which penetrate inland as far as the lower reaches of the Stikine, Nass, Kitimat, and Skeena Rivers. These soils have a thin layer of fresh organic material overlaying a stratum of poorly decomposed material which is leached of soluble minerals. Surface material is acidic, with the soil as a whole being deficient in nitrogen, phosphorus and calcium.⁸

Grey wooded soils typify the interior of the study area and are associated with areas of glacial drift and alluvium. Although these soils are leached less extensively than the Podzols, they still require careful crop management and fertilization to sustain agriculture. The natural vegetation cover consists of medium-density coniferous and deciduous forests.

Several other soil types are also found in small deposits. Degraded black soils, consisting of an acidic yet organic-rich surface layer, are found on the lower slopes of the Bulkley Valley.⁹ These soils are extensively used for grazing and forage crops. Alluvial soils are found on flood plains, and are found extensively in the area around Terrace. They are prone to flooding and problems are encountered with providing adequate drainage. Lithosols, consisting of weathered rock, are found in mountainous areas.

Due to their poor quality, the soils of northwest British Columbia provide for limited agriculture. In most

areas they are best suited for forest cover and tree farming.

Vegetation. The natural vegetation of the northwest is extremely varied, due to the wide range of site types. Of the five distinctive vegetation regions which Putnam has recognized in British Columbia, three are found in the northwest¹⁰ (Figure 5.2).

Coast Forest. The Coast Forest consists of dense stands of coniferous trees, with few deciduous trees, except in areas which have been logged or cleared. Yellow cedar, Red cedar and Western hemlock are the dominant species, with Amabilis fir and Sitka spruce occurring in lesser quantities. Logging occurs in the lower portions of valleys, since the treeline occurs at approximately 4,000 feet. The coast forests are extensively used for producing plywood and lumber, as well as pulp and paper.

Nechako Forest. The Nechako Forest consists of relatively dense stands of Lodgepole pine, Englemann spruce, and Alpine fir. Moderate levels of precipitation and temperate summers provide for excellent forest growth. This area has not been heavily exploited by logging, although areas adjacent to sawmills and road access have been utilized. Pulp mills which have been built in Prince George within the last ten years rely upon these stands of timber for their production.

Northern Forest. The Northern Forest is characterized by Aspen, White spruce and Lodgepole pine. Other

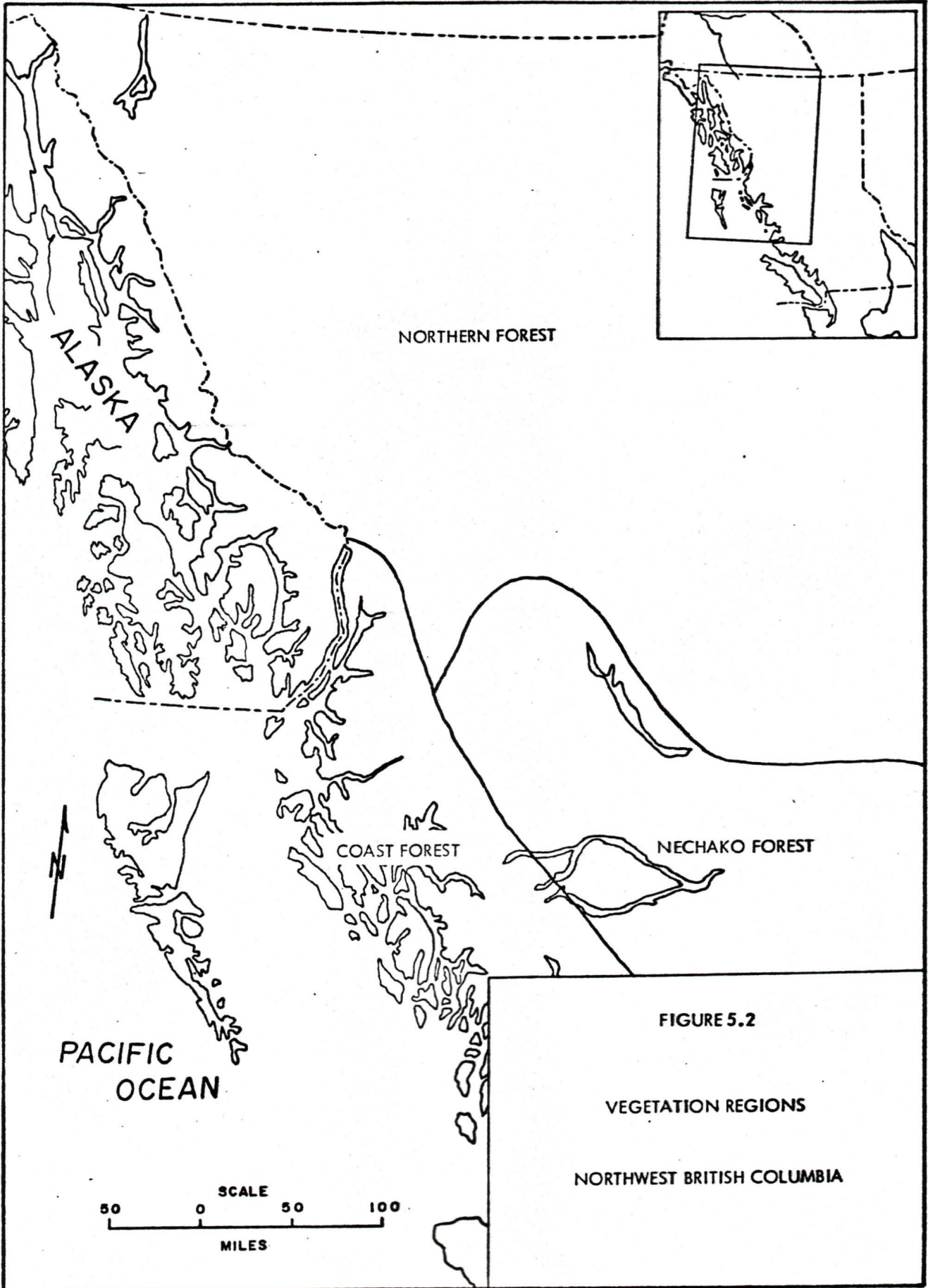


FIGURE 5.2

VEGETATION REGIONS

NORTHWEST BRITISH COLUMBIA

species include White birch, balsam, Black spruce and cottonwood. The treeline is low, being between 1,500 and 3,500 feet, causing mainly poor quality forest cover which is of little commercial value. Alpine meadows are common, with some areas having no vegetation, due to the recent retreat of glaciers. Muskeg is common on the valley floors and is utilized by wildlife, but has no value for livestock grazing.

Historical Development

Prior to the coming of European explorers and settlers, population in the northwest consisted of the many Indian tribes, such as the Haidas, Tsimpsians, Nishgas, and Carriers. Initial contact between Europeans and Indians occurred along the coast as seafarers laid claim to the new lands in the name of their sovereigns.

Absorption of native populations was peaceful yet steady, with disease decimating their numbers. Indian people either lived on reserves, which were granted to them, or were assimilated into white society. Many of the native tribes have not yet signed treaties forfeiting their lands, and legal actions such as the Nishga Land Claim are still being contested.

Euro-Canadian exploitation of the northwest has occurred in four distinct phases of boom activity.

Between 1871 and 1899 gold rushes occurred on the Omineca River, along Atlin Lake, at Cassiar, and at Atlin. These rushes resulted in short periods of feverish activity, with gold towns appearing and disappearing.

From 1907 until 1914 the Grand Trunk Pacific Railway was under construction. This period saw the construction of many of the present day communities of the area, such as Prince Rupert, Terrace, and Smithers. Communities which had relied upon river traffic such as Hazelton, began to decline.

With the declaration of World War II, the northwest was declared an area of strategic importance for the Pacific war theatre. Large military bases were built at Prince Rupert and Terrace, with construction of facilities such as the present day Highway 16

A post-war period of expansion, between 1948 and 1960, saw the construction of the Canadian Cellulose pulp mill at Prince Rupert and the Alcan aluminum refinery at Kitimat. During this period, Terrace and Smithers both became centers for sawmilling, mining exploration and distribution.

From the early 1960's until the beginning of the 1970's, the northwest was relatively stable, after twenty years of rapid growth and expansion. This period was characterized by consolidation of communities, with the provision of improved services and the formation of regional levels of government. Appendix D consists of a more detailed,

chronological presentation of development events.

Community Infrastructure

Settlement within the northwest is concentrated along an east-west corridor stretching between Prince George and Prince Rupert (Figure 5.3). This pattern was determined by the penetration of the Skeena River through the Coast Mountains, which provided for railway and highway access to the Pacific Ocean. Major communities along this axis are Burns Lake, Houston, Smithers, Hazelton, Terrace, Kitimat and Prince Rupert. To the north of this area lay scattered mining and distribution points such as Stewart, Dease Lake, Cassiar and Atlin.

Table 5.3 consists of a summary of administrative, demographic, economic and service functions found in these settlements. Although Terrace, Smithers and Squamish are included in this table, they will be discussed in more detail in Chapter VII.

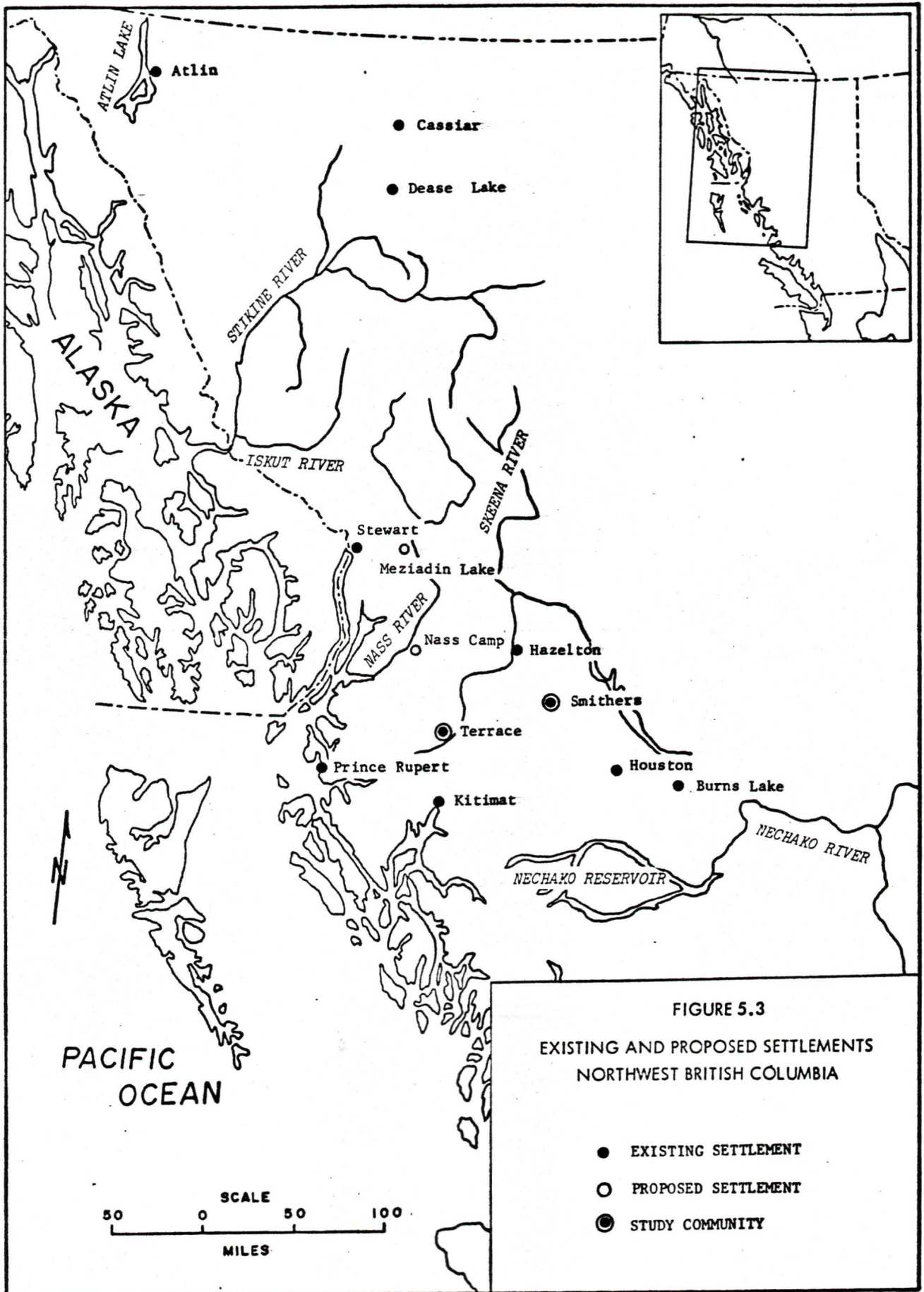


TABLE 5.3
COMMUNITY PROFILES: SELECTED COMMUNITIES

Regional District	Stikine (Unincorporated)		Skeena - Queen Charlotte
	Cassiar	Dease Lake	Prince Rupert
Community			
Incorporation Date	Unincorp.	Unincorp.	Aug. 10, 1910
Status	-	-	City
Population 1971	N/A	N/A	15,747
1966	N/A	N/A	14,677
1961	N/A	N/A	11,987
1956	N/A	N/A	10,498
Commerce:			
Trading Area Pop. (1975)	N/A	N/A	75,000
Retail Trade Vol. (1974)	N/A	N/A	\$50,000,000
No. of Indust. Plants (1975)	1	None	30
Manufacturing Value (1974)	N/A	N/A	\$200,000,000
Education:			
School District	87	87	52
Elementary Schools	Avail.	Avail.	Avail.
Junior Secondary	Avail.	None	Avail.
Senior Secondary	None	None	Avail.
Technical	None	None	None
College	None	None	None
Medical: Hospital	Private 7 Bed)	None	General (146 Bed)
Communications:			
Telephone	B.C. Tel.	B.C. Tel.	B.C. Tel.
Telecommunications	None	None	C.N.
Newspaper	None	None	None
Radio	N/A	N/A	CHTK, CFPR (CBC)
Television	N/A	N/A	CFTK-TV (Cable)
Transportation:			
Highway	Route 37	Route 37	Route 16
Airfield	N/A	Water	Asphalt, Water
Rail	None	BCR (const)	CNR
Bus	None	None	Twice daily

TABLE 5.3 Continued

Regional District	Kitimat - Stikine			
	Stewart	Kitimat	Terrace	Hazleton
Community				
Incorporation Date	May 16 1930	March 31 1953	Dec. 31 1927	Feb. 15 1956
Status	Town	District	District	Village
Population 1971	1,357	11,803	9,991	351
1966	N/A	9,792	8,637	403
1961	N/A	8,217	5,940	410
1956	N/A	9,676	1,473	279
Commerce:				
Trading Area Pop. (1975)	N/A	32,000	84,000	N/A
Retail Trade Vol. (1974)	N/A	\$40,002,000	\$37,850,000	N/A
No. of Indust. Plants (1975)	N/A	7	64	N/A
Manufacturing Value (1974)	N/A	\$139,200,000	\$19,200,000	N/A
Education:				
School District	88	80	88	88
Elementary Schools	Avail.	Avail.	Avail.	Avail.
Junior Secondary	Avail.	Avail.	Avail.	Avail.
Senior Secondary	Avail.	Avail.	Avail.	Avail.
Technical	None	None	Vocational	None
College	None	None	Regional College	None
Medical: Hospital	General (10 Bed)		General (54 Bed)	
Communications:				
Telephone	B.C. Tel.	B.C. Tel.	B.C. Tel.	B.C. Tel.
Telecommunications	None	C.N.T.	C.N.T.	C.N.T.
Newspaper	None	Weekly	Daily	None
Radio	CFPR (CBC)	CKTK, CFPR (CBC)	CFTK, CFPR (CBC)	CFBV, CFPR (CBC)
Television	CFTK-TV	CFTK-TV	CFTK-TV	CFTK-TV
Transportation:				
Highway	Route 37	Route 25	Route 16	Route 16
Airfield	Gravel Water	Asphalt	Asphalt Water	Gravel
Rail	None	CNR	CNR	CNR
Bus	Twice Weekly	Twice Daily	Twice Daily	Twice Daily

TABLE 5.3 Continued

Regional District	Bulkley - Nechako			Squamish Lillooet
	Smithers	Houston	Burns Lake	Squamish
Incorporation Date	Oct. 1 1921	April 3 1957	Dec. 6 1923	May 11 1948
Status	Town	District	Village	District
Population 1971	3,864	2,232	1,259	6,121
1966	3,135	N/A	1,290	4,240
1961	2,487	N/A	1,041	N/A
1956	1,962	N/A	1,016	N/A
Commerce:				
Trading Area Pop. (1975)	17,000	N/A	10,000	13,500
Retail Trade Vol. (1974)	\$20,000,000	N/A	\$10,360,000	N/A
No. of Indust. Plants (1975)	N/A	N/A	1	5
Manufacturing Value (1974)	N/A	N/A	N/A	N/A
Education:				
School District	54	54	55	
Elementary Schools	Avail.	Avail.	Avail.	Avail.
Junior Secondary	Avail.	Avail.	Avail.	Avail.
Senior Secondary	Avail.	Avail.	Avail.	Avail.
Technical	None	None	None	None
College	None	None	None	None
Medical: Hospital			General (56 Bed)	
Communications:				
Telephone	B.C. Tel.	B.C. Tel.	B.C. Tel.	B.C. Tel.
Telecommunications	C.N.	C.N.	C.N.	None
Newspaper	Tri-weekly	None	None	Weekly
Radio	CFBY, CFPR (CBC)	CFDR (CBC)	CFPR (CBC)	Several
Television	CKTY-TV	CKTY-TV	CKTY-TV	5 Chan.
Transportation:				
Highway	Route 16	Route 16	Route 16	Route 99
Airfield	Asphalt	Gravel	Water	Asphalt
Rail	CNR	CNR	CNR	BCR
Bus	Twice Daily	Twice Daily	Twice Daily	Once Daily

Footnotes

¹The Province of British Columbia, Department of Lands, Forests and Water Resources, Lands Service, *The Prince Rupert-Smithers Bulletin Area* (Victoria: Queen's Printer, 1974), p. 10.

²Ibid.

³Donald F. Putnam and Robert G. Putnam, *Canada: A Regional Analysis* J. M. Dent and Sons [Canada] Ltd., 1970), p. 309.

⁴The Province of British Columbia, Department of Lands, Forests and Water Resources, Land Service, op. cit., p. 10.

⁵Putnam and Putnam, op. cit., pp. 311-316.

⁶The Province of British Columbia, Department of Lands, Forests and Water Resources, Land Service, op. cit., p. 13.

⁷Ibid., p. 14.

⁸Ibid., p. 15.

⁹Ibid., p. 16.

¹⁰Putnam and Putnam, op. cit., p. 316.

CHAPTER VI

RESOURCE BASE AND DEVELOPMENT POTENTIAL

Introduction

Federal and provincial government proposals to improve economic and social conditions within the northwest have focused upon schemes to provide for either resource extraction infrastructure or resource extraction itself. Due to its dependence on export markets and global economic conditions, the northwest has been characterized by cyclical periods of either "boom or bust." The provision of improved transportation services and the attraction of both expanded resource exploitation and increased primary processing capability has been proposed as a means of stabilizing the local economy. (See Appendix A for a chronological sequence of development proposals and government responses to depressed world markets.) In this fashion, it has been anticipated that not only will existing living standards be maintained and/or improved upon, but also increased population levels would be maintained.

The importance placed upon natural resources in encouraging regional economic growth and development has varied. Hirshman¹ has noted that until the beginning of the 1930's, natural resources were considered to be the main

stimulant to economic development. The availability of sufficient quantities of capital then became accepted as the main stimulant to regional economic development. Capital was seen as being the enabling force which allowed resource utilization to occur. Over the last twenty-five years the sole importance of capital has been challenged, with the supply of entrepreneurial and managerial abilities being accepted as playing a complementary role.

More specifically related to resource frontier regions, Friedmann² has acknowledged that "the presence of large-scale and economically attractive natural resources is a basic condition of frontier development." Friedmann does not preclude the need for capital or commercial skills, but rather acknowledges that a sufficient resource base serves as an initial attractant for regional economic development. Capital and human resources are seen as requiring a pool of resources to manipulate in order to justify their expenditure.

The northwest has an ample endowment of natural resources. Due to their remoteness from world markets and difficult terrain, private industry has, in most cases, chosen to develop resources elsewhere which are better located. Unless resource deposits are high grade or in high demand, the additional costs of providing access cannot be defrayed.

Consequently, a major component of both federal and provincial initiatives in the northwest has consisted of indirect subsidies to industry. Through the construction of transportation facilities by government agencies, extraction costs are decreased, thereby encouraging private investment in resource utilization. The provincial government has also responded with direct capital investment by maintaining existing industrial plants as well as by providing tax benefits in the forest industry.

Managerial direction has come primarily from outside of the region in the form of policy planning carried out by the two senior levels of government. Federal development proposals have focused upon projects initiated by the Department of Transport, such as the general cargo facility at Prince Rupert. Provincial input has been directed primarily by the Environment and Land Use Committee Secretariat, which provides recommendations to various cabinet ministers. It should be noted that federal-provincial co-operation has been minimal, frequently working at cross purposes. Planning has been disjointed and lacking in cohesion, functioning in a "bandwagon" approach from project to project. Also many decisions have been political, designed to placate voters rather than facilitate regional goals (Appendix A, Items 3, 6, 7, 9, 13, 19, 22, 23, 24, 37, 44, 58, 61).

Northwest economic and community development and associated quality of life is recognized as being strongly

influenced by the following nine factors: (1) human resources; (2) transportation facilities; (3) forest reserves; (4) mineral reserves; (5) recreation potential; (6) hydroelectric potential; (7) agricultural potential; (8) construction activity; and (9) secondary manufacturing. Of these, the human resources and transportation facilities are seen as being enabling agents which help to provide for natural resource exploitation. Construction activity and secondary manufacturing are seen as being results of the process of resource exploitation.

Human Resources

The availability of sufficient human resources is a major determinant of physical resource development. Workers who are sufficiently trained and willing to make long term commitments to an area help enable resource extraction and processing to occur. Planning for economic growth, and related social growth, requires the availability of sufficient manpower to facilitate the completion of various projects.

Associated with human resources and regional and community development is the concept of circular and cumulative growth, as discussed in Chapter II. Not only do human resources provide the labour force to enable economic growth, but they also provide the stimulus for the satisfaction of threshold requirements associated with a broader

range of services. As the population within a region grows, opportunities for the satisfaction of a broader range of goods and services become viable. Mitigating circumstances, such as an unstable economy, inertia to penetrate new markets and lower profitability may retard the provision of expected and needed services.

Seven attributes of human resources have been identified which are considered to relate to regional and community development. These attributes are population growth, age distribution, sex profile, educational attainment, income level, unemployment and employment turnover.

Population Growth. Population growth in the northwest has been closely linked with the development of the forest industry. The Regional District of Kitimat-Stikine, with the development of aluminum smelting and logging, has gradually emerged as having the largest percentage of population (Figure 6.1).

Between 1956 and 1961 depressed markets for primary resources led to limited expansion within the northwest.³ Population growth was minimal, with the Regional District of Kitimat-Stikine maintaining its population dominance.

Between 1961 and 1971 another growth cycle occurred, with population increasing by 33%. Mines were opened at Stewart, Granisle, and Houston; small bush mills were replaced by larger, integrated mills, and pulp mills were

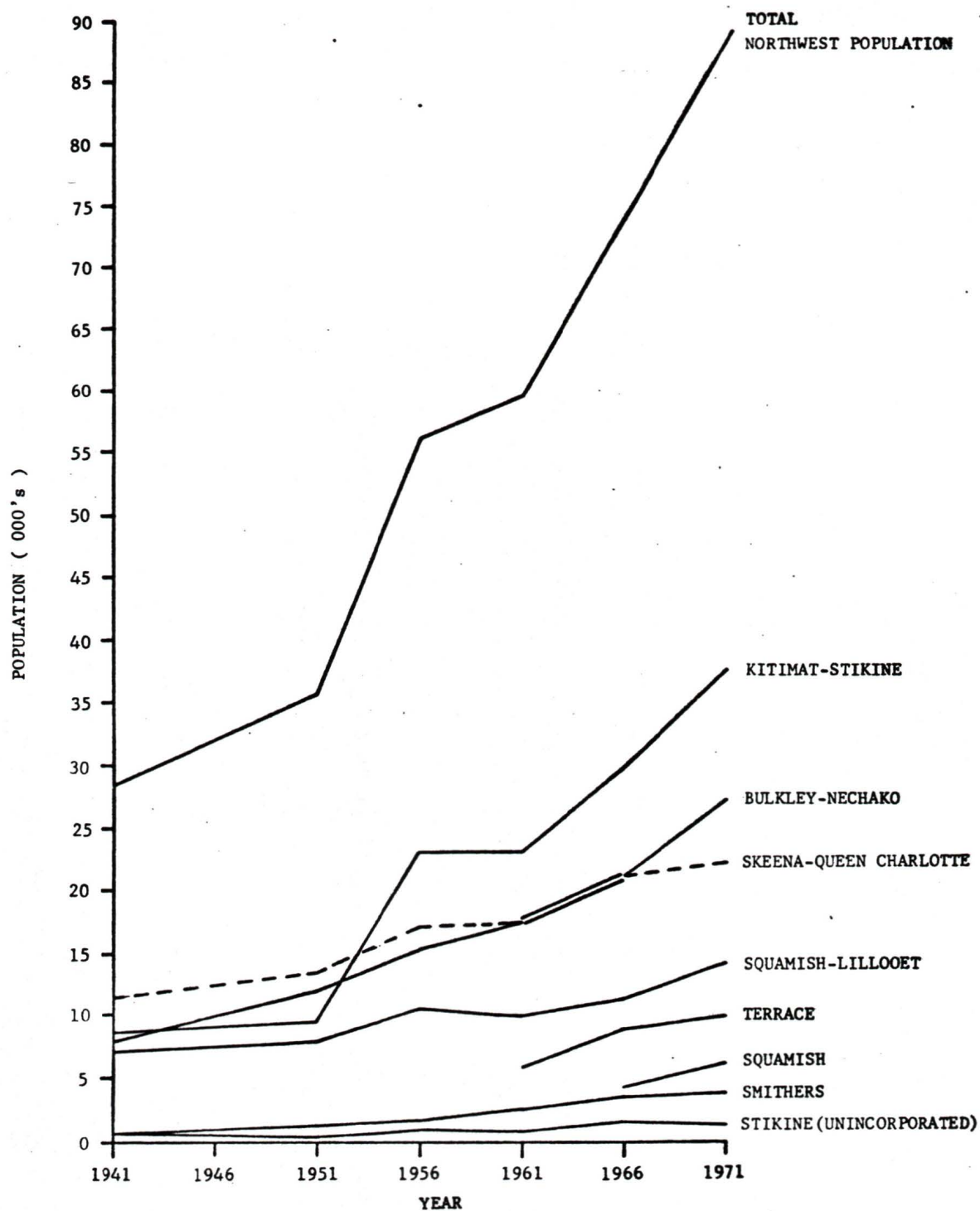


FIGURE 6.1
POPULATION GROWTH BY REGIONAL DISTRICT AND STUDY COMMUNITY

Statistics Canada, 1971 Census of Canada,
Catalogue 92-701 Vol:1 Part 1.

opened at Prince Rupert and Kitimat, despite a drop in demand for forest and mineral products in 1974.⁴

Age Distribution. Age distribution in the northwest is skewed towards a young population (Table 6.1). Numbers in the age interval 0 to 14 years were considerably greater than the provincial average in 1971. The implications of this are twofold. First, a large number of young people will be entering the local job market in years to come. In order to accommodate these individuals, jobs must be available. Second, due to a larger percentage of young people, youth-oriented services and facilities are in high demand. Representation in the age interval 20 to 39 years also exceeded the provincial average. This could be a response by young workers to the opportunity to make potentially large incomes. Numbers in the age interval 40 to 59 years were lower than the provincial average. This may be an indication of out-migration by financially established individuals who are seeking improved living conditions. The percentage of individuals beyond the age of 60 was considerably below the provincial average, possibly as a result of migration to more temperate climates.

Sex Profile. Compared to the provincial ratio of 101 males to 100 females, the northwest showed a strong imbalance towards men (Table 6.2). Due to the nature of the work available, men are attracted to frontier job opportunities. As discussed in relation to employment turnover, the ratio

TABLE 6.1

AGE DISTRIBUTION BY REGIONAL DISTRICT

Regional District	Total Population 1971	Under 20 Years		20 - 29 Years		30 - 39 Years		40 - 49 Years		50 - 59 Years		60 Years +	
		Population	%	Population	%	Population	%	Population	%	Population	%	Population	%
Bulkley - Nechako	27,145	13,175	48.5	4,365	16.0	3,330	12.3	2,785	10.3	1,870	6.8	1,610	5.9
Kitimat - Stikine	37,326	17,665	47.3	6,925	18.6	5,170	13.8	3,850	10.3	2,140	5.7	1,584	4.2
Skeena - Queen Charlotte	22,299	9,540	42.8	4,260	19.1	2,980	13.4	2,425	10.9	1,630	7.3	1,465	6.6
Stikine (Unincorporated)	1,419	560	39.5	335	23.6	225	15.8	140	9.8	90	6.3	85	6.0
Squamish - Lillooet	13,080	5,910	45.2	2,140	16.4	1,665	12.7	1,430	10.9	1,030	7.9	900	6.9
Total British Columbia	2,184,621	811,090	37.1	345,275	15.8	260,170	11.9	257,710	11.8	220,805	10.2	289,620	13.2

Statistics Canada, 1971 Census of Canada, Pop. 92-712, Vol. 1, Part 1 (Bulletin 1.1-2).

TABLE 6.2
POPULATION BY SEX: MALE TO FEMALE RATIOS

Regional District	Males	Females	Males to 100 Females
Bulkley - Nechako	14,463	12,682	114
Kitimat - Stikine	19,922	17,404	115
Skeena - Queen Charlotte	12,033	10,266	117
Squamish - Lillooet	7,004	6,077	115
British Columbia	1,100,375	1,084,246	101
Terrace	1,992	1,872	106
Smithers	5,260	4,731	111
Squamish	3,280	2,841	115

Statistics Canada. *1971 Census of Canada*. Population 92-707.
Vol. 1, Part 1, Bulletin 1.1-7.

of males to females may have some bearing on turnover rates.

Educational Attainment. Educational attainment in the northwest, with the exception of grades 9 and 10, is lower than provincial norms (Table 6.3). This is especially so in relation to individuals with less than grade 9 education. They may be due to an attraction for students to leave school in lower grades and work in extractive industries. Also, senior grades may not be available in rural settings. Participation by these individuals in future employment and job retraining opportunities may be handicapped by their lack of educational attainment.

Attainment levels for grades 11 to 13, university attendance, and university graduation were lower than the provincial average, reflecting lower educational levels required for employment in resource extraction industries. Historical factors associated with the lack of provision of vocational schools and regional colleges within the northwest may also have a bearing on levels of higher education. No explanation can be given for the slightly higher level of attainment of grades 9 and 10.

Income. Higher wages and the ability to accumulate savings have been proposed as reasons for migration into northern communities.⁵ Unfortunately for both permanent residents and migrants, wages and savings are often not as excessive as anticipated, due to increased living costs (Tables 6.4 and 6.5).

TABLE 6.3

EDUCATION ATTAINMENT (POPULATION 15 YEARS AND OVER)

Regional District	Less Than Grade 9	% of Total	Grades 9 and 10	% of Total	Grades 11 - 13	% of Total	Some University	% of Total	University Degree	% of Total	Total
Bulkley - Nechako	5,640	34	4,130	25	5,495	32	1,020	6	415	2	16,695
Kitimat - Stikine	7,020	31	6,180	26	7,730	33	1,380	6	740	3	23,065
Skeena - Queen Charlotte	4,265	29	3,895	26	5,200	35	1,005	7	455	3	14,820
Stikine (Unincorporated)	275	27	240	24	340	33	115	11	40	4	1,015
Squamish - Lillooet	2,360	28	2,330	27	3,105	36	520	6	260	3	8,475
British Columbia	376,600	23	371,155	23	624,830	40	125,390	8	77,535	5	1,525,055

Statistics Canada, 1971 Census of Canada. 94-707, Vol. III, Part 1 (Bulletin 3.1-7).

TABLE 6.4
 AVERAGE INCOMES FROM ALL TAX RETURNS BY
 REGIONAL DISTRICT: 1974

Regional District	Average Income*	% Above or Below Provincial Average
Kitimat - Stikine	\$9,153.00	+1.6
Bulkley - Nechako	8,223.00	-8.6
Skeena - Queen Charlotte	8,333.00	-7.4
Stikine (Unincorporated)	8,785.00	-2.4
Squamish - Lillooet	9,041.00	+ .4
Vancouver	9,356.00	+3.9
British Columbia	9,003.00	

*Based upon all Tax Returns filed in the reporting year of 1974.

The Government of Canada, Revenue Canada, Taxation, *Taxation Statistics 1976 Edition*. (Ottawa, Printing and Publishing, Supply and Services, 1976), p. 102.

TABLE 6.5
 COST OF LIVING - PRINCE RUPERT AND
 KITIMAT VERSUS VANCOUVER

Item	Prince Rupert	Kitimat
<u>Food:</u>		
Dairy Products	+14%	+14%
Cereal Products	+ 8%	+ 8%
Miscellaneous Groceries	+17%	+17%
Fats and Oils	+ 7%	+ 7%
Eggs	+11%	+11%
Meat, Fish, Poultry	+ 9%	+ 9%
Fruits and Vegetables	+25%	+25%
<u>Food Composite</u>	+13%	+13%
<u>Shelter:</u>		
Residential Construction	+24%	+35%
Building Lots	-50%	-50%
Resale Value	-10%	-10%
Rent	+15%	+ 5%
Heating	+36%	+47%
Repairs	+24%	+35%
Taxes	+10%	-
<u>Composite Estimate</u>	+11%	+10%
Personal Transportation	+ 8%	+ 8%

The Government of the Province of British Columbia, British Columbia Research, "Intercity Consumer Price Differentials, Prince Rupert and Kitimat Versus Vancouver." Division of Management Services, 1972. (Mimeograph).

Incomes for 1974 in the northwest varied from 8.6% below to 1.6% above the provincial average of \$9,003.00. Wide variations occurred between regional districts, with those having larger industrial bases reporting the highest above average incomes. Although average income does serve as an indicator of remuneration within the study area, limitations are recognized in that factors such as male and female wage parity, wage discrimination based upon race, and individual wage rates are not recognized.

The true value of income is only apparent when compared with the cost of living and purchasing power. Detailed information concerning cost of living is only available for the communities of Prince Rupert and Kitimat (Table 6.5), although it is considered that other communities in the northwest would have similar costs. In the discussion of individual study communities, comparison will be made between selected cost of living values.

Comparison between Tables 6.4 and 6.5 shows that tangible costs exceed or closely parallel increased earnings. Increased costs of food, shelter and transportation serve to negate income gains. Less tangible gains, such as a feeling of personal security and attributes of small communities may serve to offset higher living costs. Increased salaries or cost of living subsidies may be necessary to compensate for above average living costs in the northwest.

Unemployment. Unemployment in the northwest has generally been low (Table 6.6), although recent depressed world markets for forest and mineral products have acted to raise unemployment rates. Prior to 1974, world markets for lumber and pulp products, as well as minerals, were expanding. This made available employment opportunities, especially for skilled and semi-skilled workers. Part of the northwest's population growth (Figure 6.1) has occurred in response to employment opportunities and in-migration.⁶

Since the latter half of 1974, the overall unemployment rate in the northwest has risen steeply. Unemployment was projected at 11.3% for the Prince Rupert-Terrace area and 12.4% for the Smithers-Burns Lake area during the winter of 1974-1975.⁷

Prior to 1974, those unemployed consisted mainly of individuals who were habitually unemployed, transients, those who were seasonally unemployed, as well as native Indians and women. Since 1974, with a decline in lumber exports to the United States, unemployment has been more general, affecting a greater proportion of white, male residents of the area.

Labour Turnover. The ramification of high labour turnover rates can be broad and far-reaching. Employers face problems associated with decreased productivity, higher accident rates, and increased separation and recruitment costs. Workers experience costs associated with the move-

TABLE 6.6
 EMPLOYMENT - UNEMPLOYMENT RATES BY
 REGIONAL DISTRICT (1971)

Regional District		Labour Force	Employed	Unemployed	% of Labour Force Unemployed
Bulkley - Nechako	Total	10,010	9,145	860	-
	Male	7,280	6,600	680	9.3
	Female	2,730	2,545	180	6.6
Kitimat - Stikine	Total	14,350	13,285	1,070	-
	Male	10,355	9,690	670	6.4
	Female	3,995	3,595	400	9.9
Skeena - Queen Charlotte	Total	9,610	8,795	820	-
	Male	6,725	6,215	515	7.6
	Female	2,885	2,580	305	10.7
Stikine (Unincorporated)	Total	725	705	25	-
	Male	565	550	15	2.8
	Female	160	155	10	4.9
Squamish - Lillooet	Total	5,180	4,715	465	-
	Male	3,835	3,500	335	8.6
	Female	1,345	1,215	130	9.8
British Columbia	Total	930,030	846,370	83,655	-
	Male	612,570	561,635	50,935	8.3
	Female	317,460	284,735	32,720	10.3

Statistics Canada, *1971 Census of Canada*. Catalogue 94-703, Vol. III, Part 1. Bulletin 3.1-3.

ment of their household (assuming they move to a different community to seek employment), loss of wages, and personal anxiety concerning re-employment. Public costs associated with labour turnover have been recognized in the areas of mental illness, crime, alcohol and drug abuse, loss of community leadership, and social dysfunction.⁸

Labour turnover rates vary considerably within the northwest and between industries (Table 6.7). Both the highest and lowest rates are to be found within sawmilling. Such variation is likely due to seasonal employment and varying union and management policies.⁹

Farstad¹⁰ has noted correlations between certain community traits and high labour turnover in northwest British Columbia. Communities with rapid population growth have higher turnover rates than those with low growth rates. Also, Farstad considers an association to exist between sex imbalances and turnover rates, with communities having the highest proportion of males recording the greatest turnover rates. This is confirmed in a study by MacMillan et al. of Canadian mining towns, in which it was found that a 1% increase in the proportion of male hourly employees to female was associated with a 7.8% increase in worker turnover.¹¹

Research conducted by the Aluminum Company of Canada, Kitimat operations, has recognized several factors contributing to high labour turnover. Factors such as the physical

TABLE 6.7
 LABOUR TURNOVER RATES IN NORTHWEST
 BRITISH COLUMBIA 1973-1974*

Company	Location	Industry	Labour Force	Annual Turnover Rate
Pacific Inland Resources	Smithers	Sawmill	150	30 - 36%
Groot Logging	Smithers	Sawmill	45	24 - 36%
Bulkley Valley Forest Resources	Houston	Sawmill	500	225%
Decker Lake Forest Resources	Decker Lake	Sawmill	500	225%
CanCel	Prince Rupert	Pulp Mills	1,045	70%
Eurocan	Kitimat	Pulp Mill	732	62%
Alcan	Kitimat	Aluminum Smelter	1,300	62%
Granduc	Stewart	Copper Mine	759	120 - 160%
Granisle Copper Ltd.	Granisle	Copper Mine	294	125%

*The criteria used for the selection and determination of turnover rates was not cited.

Graham Farstad, *Northwest British Columbia: A Social Perspective*. 1975, p. 74.

aspects of heavy manufacturing work, shift rotation, opportunities for advancement elsewhere, lack of entertainment (especially for young, single employees) and the lack of public transportation have affected turnover rates at Alcan.¹² Of interest is the conclusion that climate and isolation are of little significance in the decision to terminate, since many terminated employees remain in the Kitimat area.

The costs to employers, and ultimately consumers, for labour turnover are great. In 1972 the average separation cost for a mine worker in Canada was calculated at \$584, while recruitment costs were \$428 per employee.¹³ Alcan (Kitimat) and Granduc Mining (Stewart) incurred costs which exceeded \$2 million each in 1973.¹⁴ Community and regional costs, as well as personal costs within the northwest, have not been calculated. It is recognized that excessive labour turnover exists, and various provincial and federal agencies, as well as private industry, are engaged in studies relating to causes and solutions.¹⁵

The preceding characteristics of human resources in the northwest are intended as an overview of the total regional situation. More specific data will be presented in relation to the individual study communities.

As a conclusion to each of the nine sections describing the resource base of northwest British Columbia, a brief prescriptive comment will be included.

Due to various inhibiting circumstances, human resources in the northwest have not been fully utilized. The lack of educational and cultural facilities may have served to suppress talent which is natural to residents of the region. Also, due to the dominance of jobs requiring relatively low educational attainment, many residents who have achieved higher education may not be utilizing their skills.

Given opportunities which are acceptable to the residents of the region, and the means of developing and utilizing their skills, the population of the northwest can play a satisfying and rewarding role in the future development of the region.

Transportation

The provision of a comprehensive transportation infrastructure has been viewed as the main means of encouraging and facilitating economic development in the northwest.¹⁶ Development proposals have hinged upon utilization of the area's tremendous forest and mineral wealth, as well as its recreation potential. Established transportation routes have provided an east-west corridor, along which forest and, to a lesser degree, mining activity have developed.

It has been anticipated that, through the provision of road and rail access to isolated resource points, such as

the forest reserves of the upper Nass basin and copper deposits along the lower Stikine River, development activity can be encouraged, providing relief from ". . . a restrained rate of economic progress."¹⁷ It is planned that ultimately primary and secondary processing of resources will occur within the region, thereby diversifying the economic base and stabilizing the economy. In addition it is anticipated that an increased demand for goods and services will result due to an enlarged population base.

Successful regional development is considered to be dependent upon improvements to the total transportation system in the northwest, not just to individual components.¹⁸ Due to the synergetic nature of transportation modes, a systems approach has been recommended for planning purposes.¹⁹ Recent transportation development systems have been undertaken by both government ministries and government controlled corporations. Construction and rebuilding programmes have focused upon rail, highway and port facilities.

Rail. Other than the use of pipelines, rail transportation is the least expensive method of moving commodities overland. In the case of goods which are of a bulk nature, such as coal or grain, this is especially so, since unit trains may be used.

The benefits of improved rail service, both by the Canadian National Railway and the British Columbia Railway, are seen as being both internal and external to the north-

west. External benefits could be gained by prairie shippers of grain and potential coal development in Alberta and northeastern British Columbia. Internal benefits consist of the provision of haulage for mineral and forest resources and their movement either to processing points in the northwest or to port facilities for trans-shipment.

Both the CNR and BCR, as seen in Figure 6.2, are in the process of constructing new lines, assessing potential lines and upgrading existing track. Due to political considerations associated with the levels of government and crown corporations involved, this approach has not been as successful as it could be. Federal-provincial rivalries have led to disjointed planning and delays.

At present, the CNR operates a main track from Jasper to Prince Rupert, with a 39-mile spur line to Kitimat.²⁰ The main line is used primarily for moving grain to Prince Rupert, and wood products to eastern markets. The CNR plays a major role in supporting the Eurocan Pulp and Paper Company Ltd. mill at Kitimat and the Canadian Cellulose Company Ltd. pulp and kraft mills at Prince Rupert, by hauling chips and pulp logs from distant forest areas.

A number of CNR rail extensions and branch lines are both under construction and study for the northwest.

Ground survey work was started in 1974 on a 265-mile connecting link²¹ between the CNR at Terrace and the BCR at Mount Beirnes. In 1972 it was forecast that this project

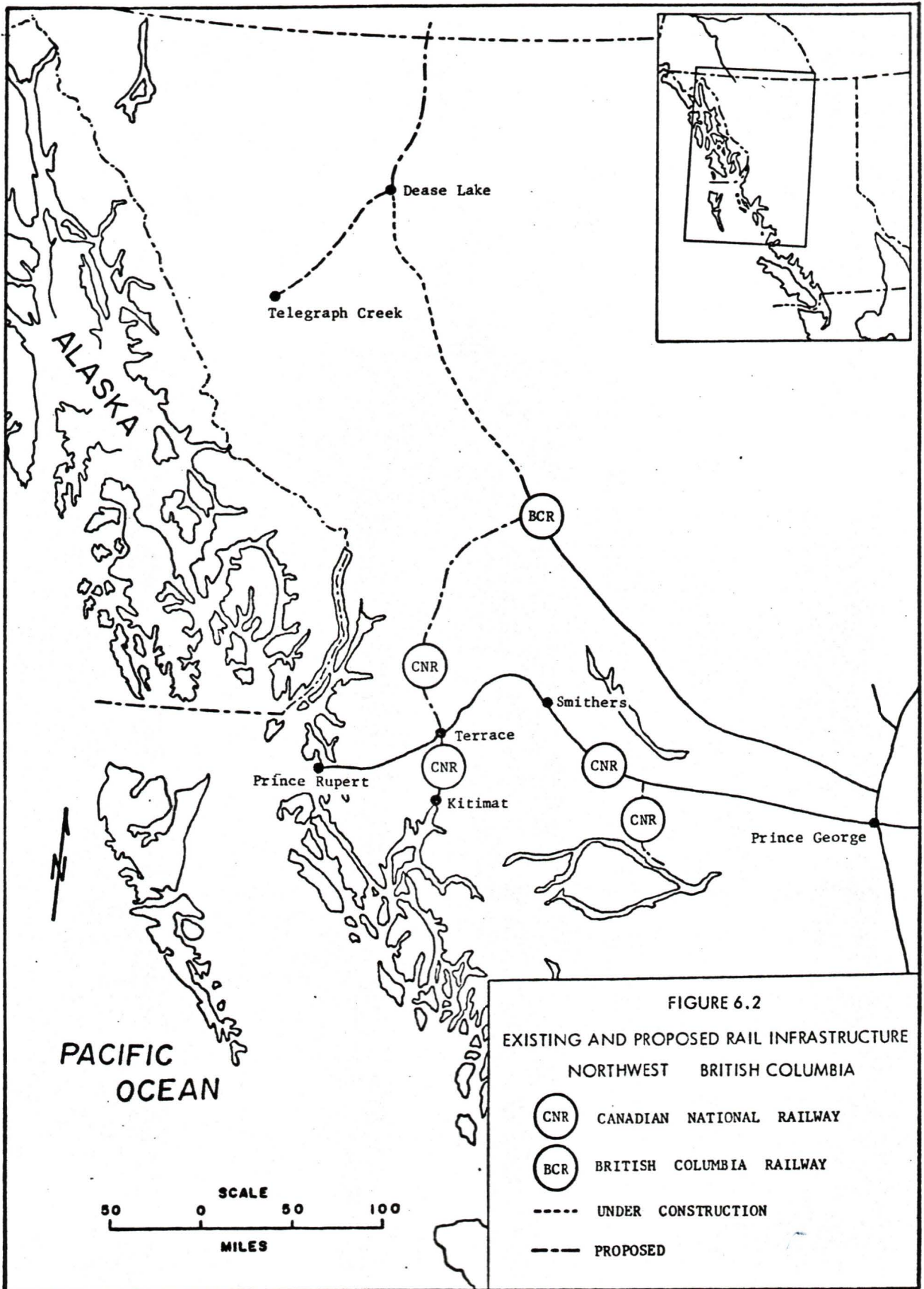






FIGURE 6.2
EXISTING AND PROPOSED RAIL INFRASTRUCTURE
NORTHWEST BRITISH COLUMBIA

-  CANADIAN NATIONAL RAILWAY
-  BRITISH COLUMBIA RAILWAY
-  UNDER CONSTRUCTION
-  PROPOSED

would cost \$70 million.²² This route would provide improved access to forest reserves which would help stabilize Canadian Cellulose's operations²³ and also make accessible mineral reserves. Sawmills were foreseen at Dragon and Meziadin Lakes. Work has been halted due to the unresolved Nishga Land Claim.

A high priority feasibility study of the potential of a branch line to Ootsa Lake has been carried out.²⁴ This spur would provide a more rational basis for lumber harvesting, since round wood would not need to be sent to Eurocan at Kitimat. New sawmills with associated chip flows were envisioned.

A third extension which is under construction involves the BCR's continuation into the Yukon from Watson Lake, which would become the proposed terminus of the railway. This would provide for movement of both general freight into the Yukon as well as mineral products out.

The BCR has acted as a stimulus to development in central British Columbia through its rail construction programmes of the 1950's and 60's. With the collapse of the Wenner-Gren rail development scheme, the BCR became interested in the provision of a rail route into the Yukon. Although the CNR has been preparing preliminary analysis of potential routes into the Yukon, the then-premier of British Columbia, W. A. C. Bennett, authorized construction by the BCR of a route to the Yukon.

The BCR route from Fort St. James to Dease Lake passes through an area of heavy forestation and mineral potential. Forest potential from Tree Farm License Number 1 and the Skeena and Bell-Irving sustained yield units are estimated at an annual 2,200,000 cunits of timber.²⁵ Over the first twenty-five years of operation the railway is expected to generate benefits in the form of net revenues and taxes to the provincial and federal governments, to the value of \$495 million.²⁶ The line is being built to Class A standards, with grades under 1.5%, allowing for the passage of unit trains.²⁷

From Dease Lake, which is expected to develop into a major northern community, a lateral extension to Telegraph Creek is contemplated. This would provide access to the rich copper reserves of the lower Stikine River. Also, once the railway is well established as far as Dease Lake, a line to Watson Lake is proposed.

Efforts to maximize benefits from both existing and proposed rail facilities have resulted in tentative agreements for federal-provincial cost sharing for construction costs in the northwest and reciprocal user rights for completed lines.²⁸ Although tentative agreement was arrived at and agreed to in principle in 1971 and 1973, no further action has since taken place.

In 1973 the provincial government and the federal government reached an agreement for a rationalization of

chip and lumber movement in the northwest. Prior to this agreement, chip cars moving to the coast mills were rated on a one-way haul. With the signing of the agreement, chip cars are balanced against lumber cars moving out of the region on the CNR line. A formula was arrived at which resulted in savings of 50% in haul costs for Eurocan and 40% for Celgar.²⁹

Highways. The benefits from the provision of good quality highways are considered to be threefold. First, highways provide access to mineral and forest reserves as well as established communities. They allow for men, supplies and equipment to be moved into developing areas and the shipment of products out. Second, highways provide mobility for residents of an area, allowing them to not only move between neighbouring communities, but also out of the region. Third, highways provide for the movement both into and through a region by individuals from without. In addition, highway patterns serve to help determine the location of communities.

The quality of a highway acts as a form of "distance factor" in measuring how long it takes to get to another point. On a highway which is in good condition, 60 miles can be travelled in 60 minutes, whereas on a poor quality road the same distance may take 3 hours. Since communities are far apart in the northwest and new communities associated with development are likely to be isolated, the

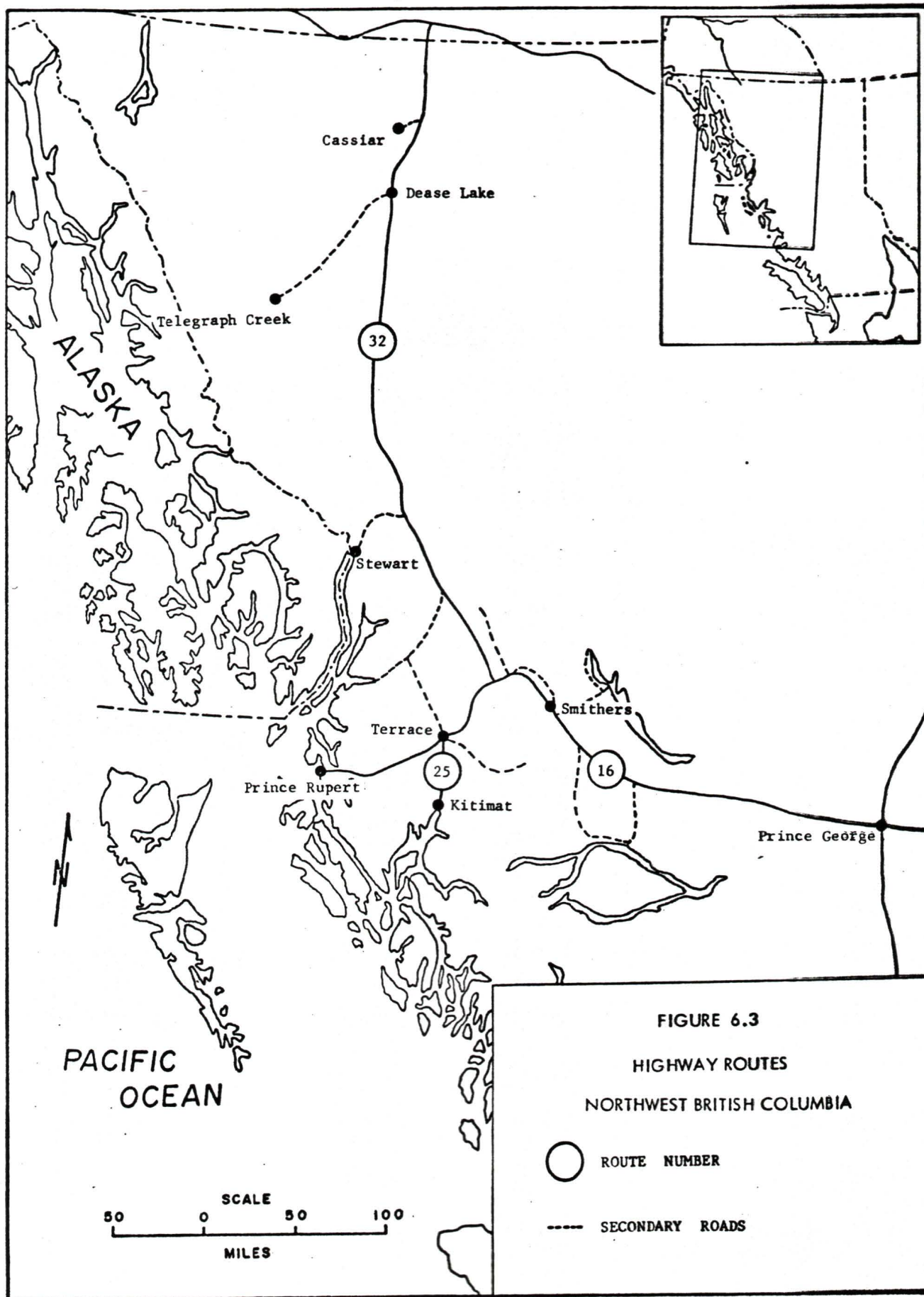
"distance" between communities can be alleviated by quality highways.³⁰

Highway routes in the northwest consist primarily of a north-south and an east-west axis.

Route 37 comprises the road running north-south from Watson Lake to Kitwanga, as shown in Figure 6.3. This route was initially started in 1948 when a road was built from the Alaska Highway to MacDame Creek, near Cassiar.³¹ In 1958, with federal assistance under the Roads to Resources programme, the road was pushed through to Stewart to facilitate the movement of asbestos from Cassiar and also mineral exploration.³² In 1972, with completion of the bridge on the Nass River, Route 37 was completed to join into Route 16. The total distance is 401 miles, of which all but 60 miles is gravel.

Route 16, or Yellowhead 16, provides an east-west link from Prince George to Prince Rupert. This route has been recently reconstructed and is completely paved. It provides not only access to major communities within the region, but also connects with major highways leading north, south, and east. Route 25 branches south at Terrace to serve Kitimat.

Federal-provincial co-operation in highway construction has so far been limited. The federal government constructed the initial Stewart-Cassiar route, but this has required reconstruction, which is not yet completed. In



1975, the federal government contributed \$5 million to highway construction in the northwest, a small portion of total highway costs for the year.³³

In 1974, the B.C. Department of Highways had prepared a report assessing road priorities in northern British Columbia. In this report the southern portion of Route 27 was considered to be of first priority for completion of reconstruction, and the northern section second.³⁴

Port Facilities. The provision of both general cargo and bulk loading port facilities are considered to be essential for the economic movement of goods out of the northwest. In 1972 the federal Department of Transport declared Prince Rupert a National Harbour, to serve both the hinterland of northern British Columbia and prairie shippers. In 1973 agreement was reached between the Government of Canada and the Province of British Columbia to share in the port development costs.³⁵

At present, port facilities serve two main functions, the movement of general cargo and the loading of grain from the prairies. It is anticipated that with the future development of mines and coal deposits in the interior, bulk facilities will be required.

A general cargo, deep-sea terminal located at Fairview in Prince Rupert was opened in January 1976 at a cost of \$17 million. The site, consisting of 22 acres, has two berths with a total length of 1,400 feet and a low water

depth of 45 feet.³⁶ An additional 25 acres of land exists for development, as needed. Anticipated cargo consists of mineral concentrates, forest products, automobiles, pipeline steel, general cargo and containers.

Since the destruction by fire in 1972 of the previous general cargo dock, mineral concentrates from Granisle and Endako have been shipped through Vancouver. The National Harbours Board in Prince Rupert is trying to reattract these shipments, as well as future shipments, to the new facility (Table 6.8).

The existing grain elevator, operated by the Canadian Government, has a capacity of 2,500,000 bushels or 67,000 T.³⁷ At present, this facility is considered to be underutilized, since it has not reached its total annual capacity of 1,000,000 T (Table 6.9). Although Prince Rupert is 500 nautical miles nearer Asian markets, it is also further from prairie shippers than elevators in Vancouver.

Several sites in the Prince Rupert area have been assessed for construction of bulk loading facilities. Problems have been recognized relating to the lack of flat land, construction costs, and environmental impact, especially in the estuary of the Skeena River.

In order for bulk loading facilities to be efficiently operated, 4 to 5 million tons of annual throughput are required.³⁸ Volumes of this size are not considered feasible until 1980-1985, when coal production from Alberta

TABLE 6.8
 MINERAL PRODUCTS PROBABLY AVAILABLE BY 1982 FOR
 SHIPMENT THROUGH PRINCE RUPERT

Number of Properties	Commodity or Metals	Estimated Maximum Annual Tonnage	Percentage Probability	Annual Tonnage Available in 1982 ¹
2	Copper & Molybdenum	90,000	100	90,000
10	Copper	446,000	20	89,200
6	Silver, Lead, Zinc	70,000	15	10,500
9	Copper & Molybdenum	450,000	15	67,500
1	Mercury	1,000	High	1,000
1	Gold	Bullion	Medium	Bullion
1	Asbestos	100,000	100	100,000

¹Short tons.

The Government of the Province of British Columbia, Department of Industrial Development, Trade, and Commerce. *Skeena - Queen Charlotte Regional Economic Study*, (Victoria: K. M. McDonald, Queen's Printer, 1975), p. 71.

TABLE 6.9
 OVERSEAS SHIPMENTS OF WHEAT THROUGH
 PRINCE RUPERT, 1966-1972

Year	Volume (in tons)
1966	477,564
1967	201,594
1968	277,377
1969	136,727
1970	318,125
1971	290,399
1972 (to July)	277,340

Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena - Queen Charlotte Regional Economic Study*, (Victoria: K. M. McDonald, Queen's Printer, 1973), p. 116.

and potash shipments from the prairies are expected to reach sufficient quantities.

Although Prince Rupert has certain advantages over Vancouver, such as less congestion and being nearer to the Orient, it is also further from production points outside of British Columbia, in Canada. Also, it lacks service facilities for maintaining ships.

Air Service. The northwest is well serviced by airlines travelling both within the region and without. Major airstrips exist at Smithers, Terrace and Prince Rupert. Smaller gravel surfaced airstrips and seaplane bases are operated at more isolated locations, serving small communities, as well as logging and mining camps.

National carriers, such as Pacific Western and Canadian Pacific Airlines, operate daily passenger and freight service to major communities within the region and to Vancouver, where global connections can be made.

Regional carriers, such as Trans-Provincial and North Coast Airlines, operate both scheduled and charter services between larger communities and isolated areas, carrying men, supplies and equipment. Regional airlines often provide the only means of ready access, and frequently are required to carry out emergency services. Specialized helicopter service for exploration work is provided by companies from outside of the northwest.

Federal and provincial levels of government as well as regional planners have anticipated that the provision of a sound transportation infrastructure will play a major role in developing the northwest. Decisions regarding the mode, location and quality of transportation facilities will determine the types and quantities of resources which can be extracted. This in turn will affect the size and location of new settlements as well as the growth patterns of existing communities. Decisions concerning the transportation pattern of the northwest can ultimately dictate resource development and life styles of tomorrow.

Forestry

The forest industry, with over 6,250 direct employees, is one of the most important sources of income in the northwest.³⁹ Major growth has occurred since World War II, and this trend is forecast to continue, with the creation of 11,300 new jobs by the year 2000.⁴⁰

In the past, the forest industry in the northwest has been prone to severe market fluctuations. Periods of high demand and expansion of production capacity have been followed by depressed markets and mill closures.

Present forest utilization includes logging, log-hauling, sawmilling, planing, pole-making, tye and post cutting, and pulp and paper production. Due to increased production costs, the trend in forest processing has been

towards a smaller number of high capacity mills, which are centrally located.

For purposes of forest management, the British Columbia Forest Service has divided the province into six forest districts. The Prince Rupert Forest District, encompassing 124,374 square miles,⁴¹ covers an area similar in extent to the northwest study area.

Within the Prince Rupert Forest District, both the extent and quality of forest cover vary, as well as the type of utilization units.

The Coast Forest, as denoted in Chapter V, tends towards over-maturity and decay, with mountainous terrain and limited accessibility. The eastern portion of the Coast Forest consists of the upper basins of the Nass and Skeena Rivers, as well as the Ootas reservoir. Due to a better balance of climate and soil conditions, this area yields over 6,000 cubic feet of wood per acre, as compared to an average of 3,700 cubic feet per acre to the east.⁴²

The Nechako, or Interior Forest, dominates to the east of the Coast Mountains. This area provides large quantities of both saw-cut and pulp logs for mills in the interior of the province. Since the relief is low, road and rail access is more readily provided.

The Northern Forest has negligible timber output at present.⁴³ Small volumes of pine are logged for mine shoring and cordwood. Preliminary estimates have been conducted

which show the best timber to be adjacent to the Alaska border, but this is not readily accessible. The provision of rail transportation into Dease Lake may facilitate a sawmill in the area.

Forest inventories conducted by the British Columbia Forest Service indicate large reserves of mature timber, both under the control of the Forest Service and private companies. Forested land in the Prince Rupert Forest District totals 30,962,073 acres,⁴⁴ of which the Forest Service has control of 25,770,331 acres (Table 6.10) while private concerns control 5,192,231 acres (Table 6.11). Of these forests a large portion are considered to be of a mature standard, and could be utilized if accessible.

The administration and management of forested lands is facilitated through the use of four provincially controlled devices: Public Sustained Yield Units (PSYU's), Tree Farm Licenses (TFL's), Pulp Harvesting Areas (PHA's) and Special Sale Areas (SSA's) (Figure 6.4).

PSYU's consist of crown-owned land from which the right to harvest timber is sold to private companies or individuals. Cutting quotas are dependent upon past successful forest utilization. They are operated on a sustained yield basis. Nine PSYU's exist within the northwest.

TFL's are granted to major forest companies on a 21-year basis.⁴⁵ Although TFL land is crown-owned, all rights to timber are acquired by the leasee. Harvesting,

TABLE 6.10
 PRINCE RUPERT FOREST PRODUCTS: FOREST AND
 NON-FOREST AREA FOR LANDS IN WHICH THE FOREST
 SERVICE CAN DISPOSE OF TIMBER VALUES

Class	Area in Thousands of Acres
Non-Commercial	487,460
Non-Satisfactory Restock	2,608,095
Residual	24,931
Immature	7,097,001
Mature	15,552,844
Total	25,770,331
Non-Forest Land	38,832,823
Total	64,603,169

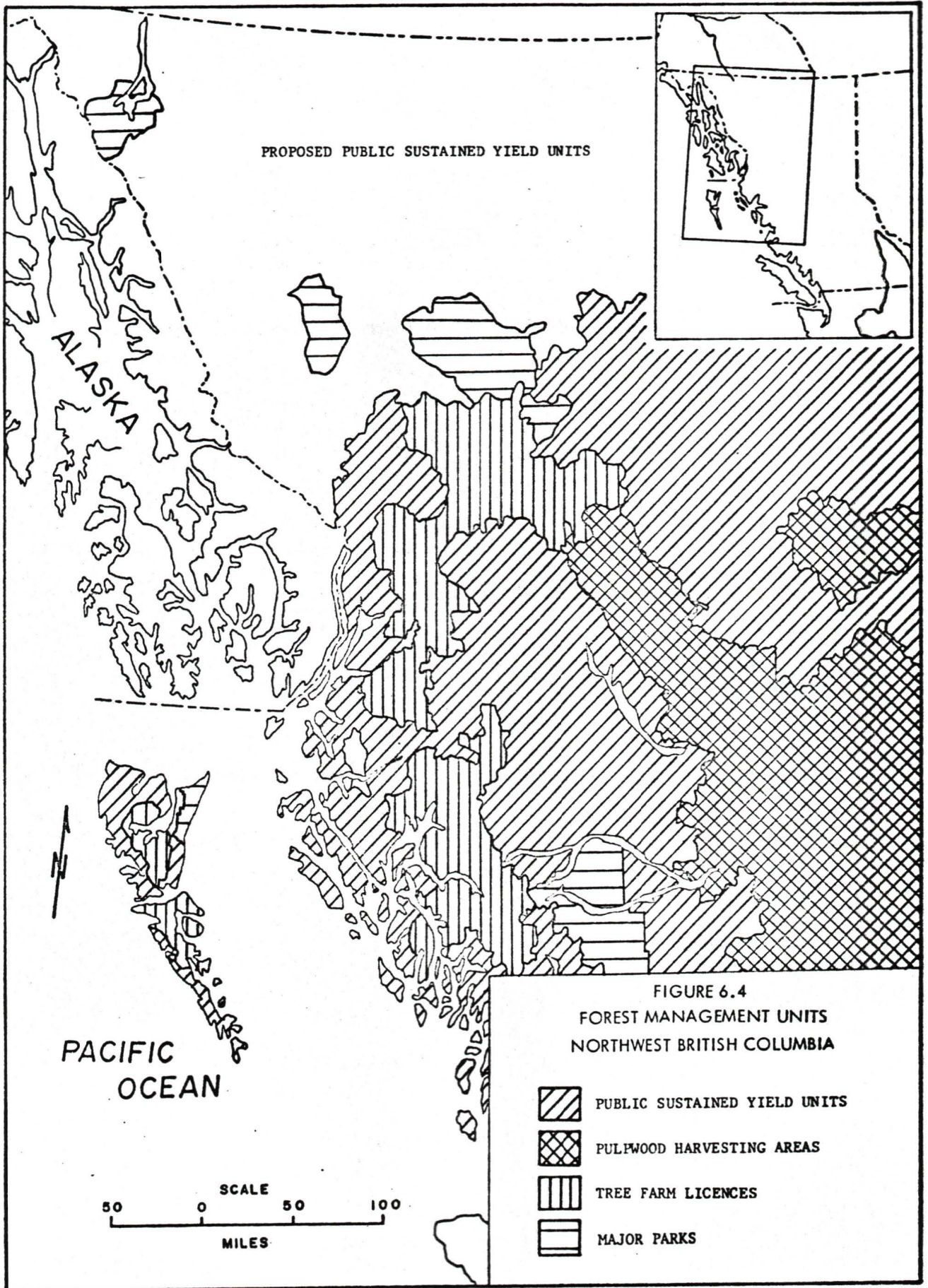
Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, British Columbia Forest Service. *Forest Inventory Statistics of British Columbia 1970*. June 1972, pp. 123-124.

TABLE 6.11
 PRINCE RUPERT FOREST DISTRICT: FOREST AREA FOR
 LANDS ALIENATED FROM DIRECT CROWN CONTROL

Class	Area in Thousands of Acres*
Non-Commercial	353,540
Non-Satisfactory Restock	99,905
Residual	4,569
Immature	865,061
Mature	3,869,156
Total	5,192,231

*Calculated by deducting total of lands on which the forest service can dispose of timber values from the total of all ownerships combined.

Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, British Columbia Forest Service. *Forest Inventory Statistics of British Columbia 1970*. June 1972, pp. 117-124.



replanting, forest protection and access are all company responsibilities. At present, six TFL's exist within the northwest.

PHA's are imposed over PSYU's, and consist of large tracts of forest which are suitable primarily for pulp log production. These areas are administered by the Forest Service and licenses for harvesting are granted to major forest companies. At present, two PHA's exist totally within the northwest as well as part of a third.

SSA's consist of land which has timber of a marginal quality. These areas are in the process of being cleared, usually for agriculture.

Two major pulp mills, as well as several sawmills of varying size, exist within the northwest.

British Columbia Cellulose operates two pulp mills at Watson Island, near Prince Rupert. The first of these mills, a dissolving pulp sulphite mill, came into production in 1951.⁴⁶ This mill was designed to produce acetate and viscose fibres, which are used in the manufacturing of synthetic fabrics. Production capacity is 170,000 T/year, with the Celanese Corporation of New York, the original owners, purchasing the bulk of production. (This mill was closed in 1976, and is in the process of being rebuilt.)

The second mill, Skeena Kraft, commenced production in 1967. This mill was constructed at a cost of \$80 million and produces 260,000 T/year of sulphite pulp. Of this

production, 40% is sold to U.S. and Canadian markets, and 60% to those offshore.⁴⁷ Employment at these two mills totalled 975 men in 1974.

Log supplies are obtained from TFL Number 1 and from timber quotas in the Hecate and Skeena PSYU's, as well as from licensed harvesters.

British Columbia Cellulose also owns Pohle Lumber sawmill at Terrace and operates Twin River Logging, a woods division. An additional sawmill is located at Kitwanga.

In 1973 the Celanese Corporation announced plans to either sell the Canadian Cellulose complex to foreign investors, or to cease operations. The Province of British Columbia, in a move to keep the mills operating, acquired 79% of the 12 million public shares (Appendix A, Items 14, 15, 16, 18A, 19). A holding company, British Columbia Cellulose, was appointed to oversee government involvement in the mill.

Eurocan Pulp and Paper Company Ltd., located at Kitimat, began production in 1970. Major shareholders in the company include three Finnish forest products companies. Wood is obtained from TFL Number 41, as well as from the Ootsa PSYU. Production capacity is 334,000 T of unbleached kraft pulp per year.⁴⁸ The company also operates a sawmill at Kitimat which is capable of producing 150 million board feet per year, as well as small "bush" mills around Burns Lake. Since the bulk of timber controlled by the company is

south of Burns Lake, a 150-man camp is maintained at Ootsa Lake. Logs are boomed and towed down Ootsa Lake and truck hauled to Kemano. From there they are barge hauled to Kitimat.

Sawmilling facilities in the northwest consist of both portable and stationary mills, and range in size from mills cutting less than 1 MFB to over 300 MFB per year (Table 6.12). Many of the smaller, portable mills are privately owned, and cut only rough lumber, depending upon larger mills for planing and drying.

Babine Forest Products, located at Burns Lake, is an example of government involvement in promoting forest industries. Babine Forest Products, consisting of a consortium of Weldwood of Canada, Eurocan, British Columbia Cellulose and provincially funded involvement by local Indians, has built a \$14 million sawmill complex. This mill, which opened in 1975, could employ up to 200 people and create 280 jobs in secondary and spin-off industries, injecting as much as \$3 million in salaries per annum into the local economy.⁴⁹ The involvement of the local Indian band in the sawmill complex has been in response to the chronic unemployment of Indians in the area. It is anticipated that through Canada Manpower training programmes, ownership and administration in the sawmill, and control of 8% of chip production, the well-being of native people will be improved.⁵⁰

TABLE 6.12

PRINCE RUPERT FOREST DISTRICT: SAWMILL CAPACITY BY RANGER DISTRICT 1974 (APRIL)

Ranger District	No. of Active Mills	No. of Inactive Mills	No. of Portable Mills	No. of Stationary Mills	Active Capacity Per Year in MFB	Inactive Capacity Per Year in MFB	Total Capacity Per Year in MFB
Queen Charlotte Islands	5	0	5	0	19	0	19
Prince Rupert	5	0	0	5	124	0	124
Bella Coola	3	2	1	4	20	8	28
Terrace	6	9	11	4	320	22.6	342.6
Kitwanga	2	2	2	2	160	4	164
Hazelton	5	3	6	2	111	7	118
Smithers	7	34	36	5	220	181	401
Houston	14	4	15	3	344	39	383
Burns Lake	26	20	45	1	138	81	219
Southbank	18	21	38	1	74	67	141
Lower Post	2	6	8	0	10	25	35
Kitimat	N.A.*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Stewart	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total	93	100	167	27	1,540	434.6	1,774.6

*N.A. - Data not available.

Government of the Province of British Columbia, British Columbia Forest Service, "Saw Mill Capacity - Prince Rupert Forest District, 1974" (Xerox).

Increased utilization of forest reserves in the northwest is dependent upon healthy foreign markets for wood products. Past market conditions have shown export volumes to fluctuate dramatically, creating economic hardship and out-migration. The current depressed economy of the northwest is a reflection of external market conditions.

Within the northwest the development of transportation systems will provide a limited incentive for growth, since forest reserves will be made more accessible. The provision of rail facilities, which dramatically reduce log and chip hauling rates, is particularly advantageous.

Development proposals should strive to not only stabilize the forest economy of the region, through government support, but also to diversify the economy. Plywood and particle board mills, as well as the production of pre-fabricated wood products, could be promoted, possibly through direct government subsidies. Ultimately, the economic base of the region must be diversified, so the fluctuations in the market for forest products can be better absorbed.

Mineral Resources

The Cordillera of Alaska, the Yukon, British Columbia and the western states of the United States is recognized as being an area of high mineral potential.⁵¹ As a part of this zone, northwest British Columbia contains large areas of both proven and potential mineral deposits.⁵² As yet,

only a few reserves have been exploited in this area.

International demand for mineral products will determine the rate of exploitation, with transport, energy and labour, as well as the relative size and grade influencing the feasibility of individual deposits. At present, the northwest produces substantial tonnages of copper, silver, asbestos, zinc, lead and molybdenum.⁵³ Producing mines and economically feasible mineral deposits occur at several locations throughout the northwest.

The period from the end of the last gold rush until the 1960's was marked by limited mineral production. Inaccessibility and low mineral content made most sites uneconomical. A copper smelter which operated at Anyox, near Alice Arm, during the early part of the century was closed in 1935. Mine production within the Bulkley-Nechako Regional District during this period focused upon the Pinchi mercury mine, at Pinchi Lake, which produced over 4 million lbs between 1940 and 1944.⁵⁴ This mine, owned by Cominco, was still in production in 1973, when it produced 950,000 lbs, but has since closed due to poor market conditions. Other, smaller mines were also in production during this period, but all have been shut down.

Cassiar Asbestos, located at Cassiar and owned by Cassiar Asbestos Corp. Ltd., was started in 1950 when asbestos was discovered on MacDame Mountain. By 1961 a complete, company-owned town had been built, housing

approximately 650 people.⁵⁵ Production in 1973 totalled 108,479 T of fibre, with reserves totalling 16,653,123 T, providing a twenty-year open pit potential.⁵⁶ Present production from Cassiar is truck hauled to Whitehorse, then shipped by rail to tidewater. With completion of the BCR, asbestos will be rail hauled to the south. Cassiar Asbestos also owns low to medium grade deposits to the southeast, at Kutcho Creek, with some development considered likely by 1985.⁵⁷ The growth of Cassiar acted as a stimulant in the construction of the Stewart-Cassiar road, since access for continued prospecting and exploration was realized to be essential.

The growth in mineral production since the early 1960's is recognized as being related to three factors.⁵⁸ First, more efficient mining methods have meant that previously uneconomic deposits can be utilized. Much of the mineralization in the northwest is of a low grade, but large quantities are available. With advanced extraction processes these reserves have become exploitable. Second, foreign demands for metals have increased. Led by Japan, major contracts for concentrates have been signed. Third, the costs for production in southern and south central British Columbia have risen, due to depletion of high grade ores, making mines in the northwest competitive.

In 1973 there were five producing mines in the northwest (Figure 6.5, Table 6.13). Although some of these mines

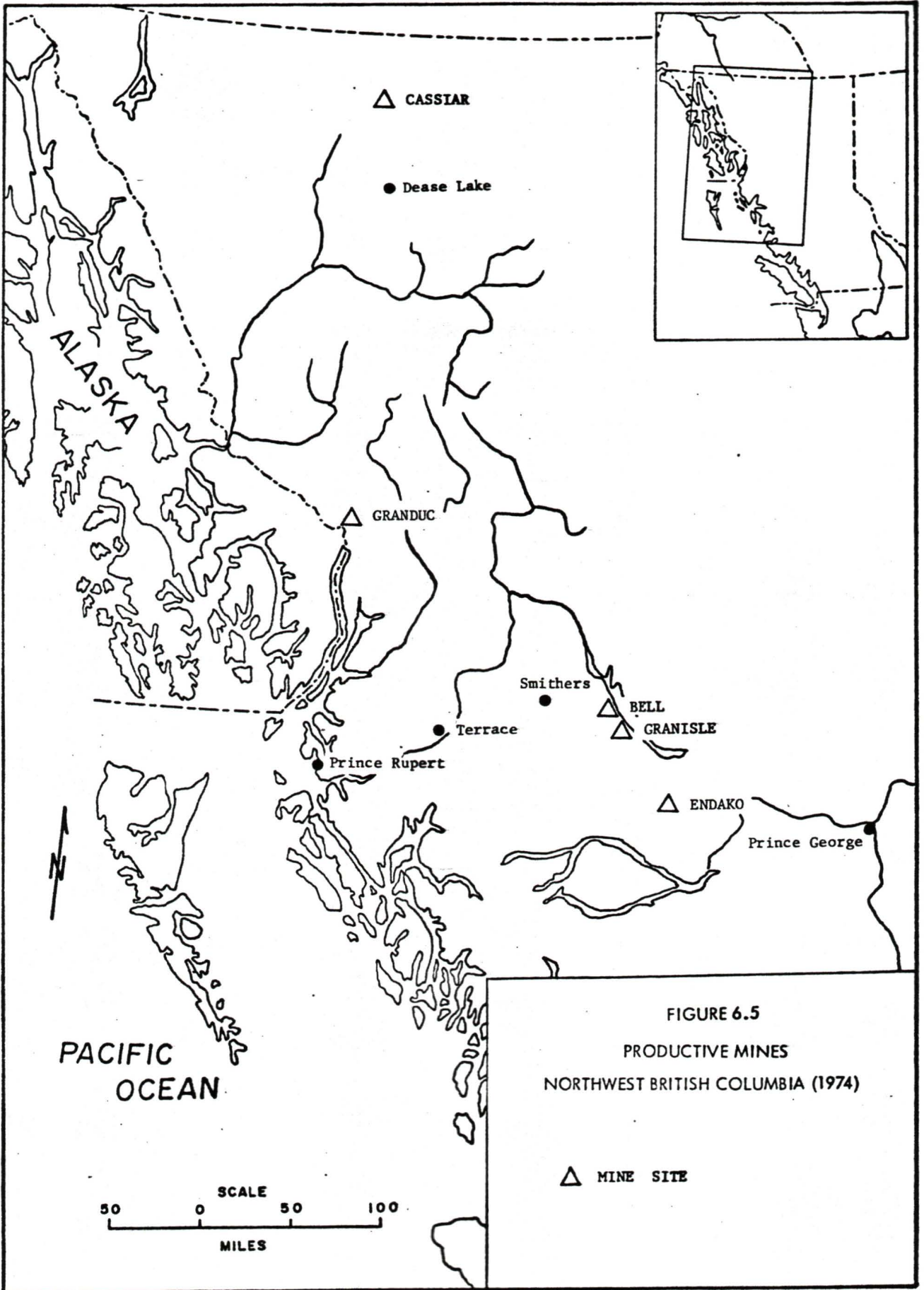


TABLE 6.13

PRODUCING MINES: NORTHWEST BRITISH COLUMBIA, 1974

Mine	Company	Product	Production	Reserves	Probability of Production in 1985	Remarks
Endako	Placer Development	Molybdc Oxide Molybdenite	11.6 million pounds (1974) 4.6 million pounds	226 million tons	100%	- Production cutback 1971-1972. Full production 1973 - Open pit
Granisle	Granisle Copper Ltd.	Copper	56,844 tons (1973)	73.28 million tons (1974)	100%	- 1973 concentrator capacity increased from 6,500 to 14,000 tons/day - Open pit
Bell (Newman)	Noranda Mines Ltd.	Copper Gold	19,013 tons 24,888 oz.	46 million tons	100%	- Concentrates shipped by CNR to smelter in Quebec - Open pit
Granduc	Granduc Operating Company	Copper	119,576 tons (1973)	33 million tons	100%	- Underground mining
Cassiar	Cassiar Asbestos Ltd.	Asbestos	108,479 tons (1973)	16,653,000 tons (1973)	100%	- Open pit - Only high concentrate ore removed

W. D. McCartney, *Mineral Production and Projected Trends 1974 to 2000 in Northern British Columbia, Yukon, and Western Northwest Territories*. (Victoria: WeHealdath Consultants Ltd., 1975), pp. 28-48.

experienced production cutbacks, there was optimism that with improved market conditions and changes in government policy, full production could be resumed. Copper concentrate production peaked in 1973, and since that time cutbacks in deliveries have been requested by Japanese buyers. World prices for metals are not internally controlled, at either a subnational or national level, but rather are dependent on world markets.

Several known deposits of minerals exist in the northwest which are presently undeveloped (Figure 6.6, Table 6.14). Exploitation of these deposits are dependent upon several factors. Obstacles to production for future as well as existing mines include fluctuating world markets, production costs associated with power and transportation, costs related to the provision of townsites and high labour turnover, the exploitation of low grade deposits elsewhere, as well as government policies concerning taxation and mining royalties.

The development of major mines will have considerable impact upon communities within the study area. Existing communities will face expansion due to either increased populations associated with the housing of mine employees within their boundaries, or due to their role as service centers (Table 6.15). An example of the potential for increase is seen in the case of Smithers, where development of Glacier Gulch Molybdenum on Hudson Bay Mountain could

TABLE 6.14

POTENTIAL MINES: NORTHWEST BRITISH COLUMBIA

Map No.	Mine	Company	Mineral	Reserves	% Mineralization	Production Probability (1975)	Remarks
1	Berg	-	Copper	300 Million T.	0.4% Mo and Silver	35%	-
2	Huckleberry	-	Copper	42 Million T.	0.52% Mo, Silver and Gold	35%	\$1 million spent on feasibility study
3	Ox	-	Copper	30 Million T.	-	-	-
4	Elk, Nu	-	Molybdenum	4.5 Million T.	0.23% Mo	-	-
5	-	Noranda Mines	Copper	48 Million T.	0.47% Cu	50%	-
6	Sustut Copper	-	Copper	20 Million T.	0.75% Cu	70%	Truck haul to BCR
7	-	Barrier Reef	Zinc	5 Million T.	10%	40%	Preliminary survey in progress.
8	Groundhog	-	Coal	-	Anthracite	-	Disrupted beds. Non-coking coal.
9	-	Utah Mines	Coal	-	Coking Coal	-	Production possible for 1980 if transportation available
10	Kutcho Creek	Cassiar Asbestos Corp. Ltd.	Asbestos	-	-	-	Some site development Possible production in 1984

TABLE 6.14 Continued

Map No.	Mine	Company	Mineral	Reserves	% Mineralization	Production Probability (1975)	Remarks
11	Lytton Mines	Dease Lake Mines	Copper	20 Million T.	0.44% Cu	-	Production likely by late 1980's
12	-	-	Copper	-	-	-	B.C.R. could improve accessibility
13	Liard and Paramount Copper	-	Copper and Molybdenum	394 Million T.	0.4% to 0.032% Cu	-	-
14	Stikine Copper	Hudson Bay Mining Kenecott Copper	Copper	138 Million T.	1.2% to 1.0% Cu	-	Open pit Transportation problems
15	-	-	Iron and Copper	15 Million T.	45% Fe 0.85% Cu	-	Could supply a steel mill
16	Anyox	-	Copper	250,000 T.	2% Cu	-	-
17	Glacier Gulch	-	Molybdenum	70 Million T.	0.15% Mo	40%	Potential land use conflict. Underground.
18	Silver Queen	Nadina Mines	Silver, Zinc	-	-	40%	Closed 1973. Laid off 129 men. Possible 5 year run.

W. D. McCartney, *Mineral and Projected Trends 1974 to 2000 in Northwestern British Columbia, Yukon and Western Northwest Territories*, (Victoria: WeHealdath Consultants Ltd., 1975), pp. 28-48.

TABLE 6.15
 PROJECTED EMPLOYMENT IN THE PRODUCTION OF
 MINERALS IN NORTHWEST BRITISH COLUMBIA

Location	1974 Employment High	1974 Employment Low	Projected 1985 Employment High	Projected 1985 Employment Low
Prince Rupert	0	0	330	0
Terrace	0	0	285	0
Kitwanga	0	0	0	0
Smithers	15	8	250	0
Houston	0	0	340	210
Twinkle Lake - Ootsa Lake	0	0	560	0
Burns Lake	0	0	0	0
Endako	400	400	400	350
Granisle - Babine	421	380	630	380
Hazelton	0	0	400	0
Bear Lake - Sustut	0	0	250	0
Ground Hog	0	0	300	35
Stewart	681	0	760	0
Alice Arm	0	0	294	0
Cassiar - McDame	220	200	418	220
Kutcho Creek	0	0	140	0
Dease Lake	0	0	200	0
Liard Copper	0	0	400	350
Stikine Copper	0	0	380	0
Telegraph Creek (West)	0	0	0	0
Atlin	0	0	605	0
Total	1737	980	6337	1545

K.M. Ruppenthal, *Highway Development in Northern British Columbia - Priorities, Timing, and Beneficiaries*, (Vancouver: University of British Columbia, Centre for Transportation Studies, 1974), pp. 78-79.

bring up to 250 miners by 1985.

Existing processing of ores originating within the northwest consists of their concentration for shipment out of the region. Recent proposals for development of mineral processing capacity within the northwest have focused upon a steel mill complex at Kitimat.⁵⁹ Such a mill would utilize coking coal from northeast British Columbia, and iron ore from foreign reserves. The only refiner of metals within the region is the Aluminum Company of Canada, which operates an aluminum refinery at Kitimat. Bauxite for the mill comes from Jamaica and Australia and ingots of aluminum are shipped elsewhere for manufacturing.

Large deposits of proven mineral reserves exist in the northwest. With prudent extraction and utilization, environmental and social impact can be minimized and economic benefits can be maximized. Short term utilization dictates extraction to serve foreign markets, with little or no processing occurring within the northwest. Long term utilization would require extraction and processing within the region, with ultimately secondary manufacturing and a diversified economic base.

Tourism and Recreation

Tourism and outdoor recreation are closely linked in the northwest. Non-structured recreation, in the form of activities such as hunting, fishing, hiking and sightseeing,

caters to both local residents and tourists. Assessment of tourism and outdoor recreation potential by government agencies is not complete, although 1974 data indicate a trend towards increased usage. In recent years, awareness of increased tourist demands and needs have prompted improved facilities and the establishment of major recreation sites.

Tourism has long been considered to be beneficial to an area, providing employment and injecting capital. This assumption is now being questioned. Recent studies have shown that additional costs occur which should be considered in assessing the benefits of tourism. Problems associated with seasonal employment, low paying service jobs, crowded facilities, increased highway maintenance costs, the need for increased police and fire protection and litter control, and competition for community resources are but a few of several factors which need to be assessed in relation to their impact on the availability of services to local residents.⁶⁰ Areas having substandard facilities serving local population or which have short tourist seasons may stand to lose, rather than gain from major influxes of tourists.

Outdoor recreation activities cater both to individuals from within an area as well as those from without. The quality of experience is dependent upon the resources available as well as the degree of utilization. Areas in which populations are largely dependent upon outdoor

experiences for leisure and relaxation must maintain a high availability of quality experience. Without such options, both the reason for moving to an area as well as those for staying may be nullified.

Tourist and recreation facilities and opportunities in the northwest can be thought of as occurring along two corridors, north-south (Route 37, Stewart-Cassiar) and east-west (Route 16, Yellowhead).

Tourist Facilities. It has been assumed that tourists travelling the Route 37 are destination-oriented,⁶¹ either going to or returning from the Yukon and/or Alaska. This route is considered to have superior scenery with greater potential for boating, fishing and camping, compared with the Alaska Highway.⁶² Large lakes, waterfalls, volcanic mountains, and glaciers provide for an exciting and changing landscape experience.

Present tourist accommodation is limited, since not only is the route newly opened, but also the tourist season is short with no local population to provide year round support for hotels or motels. A substantial demand exists for campgrounds and trailer parks which are presently provided in limited numbers by the Forest Service.

Route 16, being a well-established travel route with substantial communities, caters to tourism to a greater degree. For many travellers, this part of a circle route between Prince George and points east and south and Prince

Rupert where both the Alaska and British Columbia Ferries connect, offers scenery, hiking, fishing, boating as well as developed attractions (K'Shan) and historic sites.

With completion of Highway 16 from Prince George to Jasper in 1960, the Yellowhead Highway Association was formed to promote northwestern British Columbia. Visitor days in the Kitimat-Terrace-Prince Rupert region increased in 1973 by 33% over 1972.⁶³ This increase is attributed to not only improved accessibility into the Nass River area, but also to increased promotion and awareness of ferry connections in Prince Rupert.

Some tourist accommodations have been developed. Hotels and motels have been built which serve not only tourists, but also local residents and business travellers. In 1974 there were 133 establishments supplying 2,042 units in the area. In addition, there were 768 campsites and 430 trailer spaces.⁶⁴ Government approved tourist accommodation in 1975 in the Bulkley-Nechako and Kitimat-Stikine regional districts provided a total, average annual employment for 885 people.⁶⁵

Outdoor Recreation Facilities. Recreation demands are presently centered upon four uses: parks, campsites, fishing and hunting.

Parks in the area can be broken down into two basic types: (1) roadside parks which cater to travellers along major and lesser roads; and (2) wilderness parks which tend

to be larger and more remote (Figure 6.7). Roadside parks tend to have developed campsite facilities, while wilderness parks are undeveloped (Table 6.16). Developed campsite facilities are extensively used, both on a day visit and overnight basis, with extensive use made by non-British Columbians (Table 6.17). Only Lakelse Lake, which caters to the immediate populations of Terrace and Kitimat, and to a lesser extent Prince Rupert, has a high percentage of B.C. users.

With the exception of Tweedsmuir Park, major wilderness parks have been established in the northwest only in recent years. The political intent of the declaration of such parks is not directly ascertainable, although such parks are usually declared immediately prior to provincial elections. Although the establishment of wilderness parks preserves areas in relatively pristine condition, they are only accessible to those who can afford to charter aircraft and hire guides. Such parks do not cater to the average tourist or northwest resident, who is restricted to recreation experience immediately adjacent to roadways.

Unlike more populated areas, where extensive outdoor recreation complexes have been developed, much of the outdoor recreation experience in the northwest occurs under near wilderness conditions. Large numbers of people prefer to camp adjacent to streams and lakes in areas which are not designated as parks. At many locations, the British

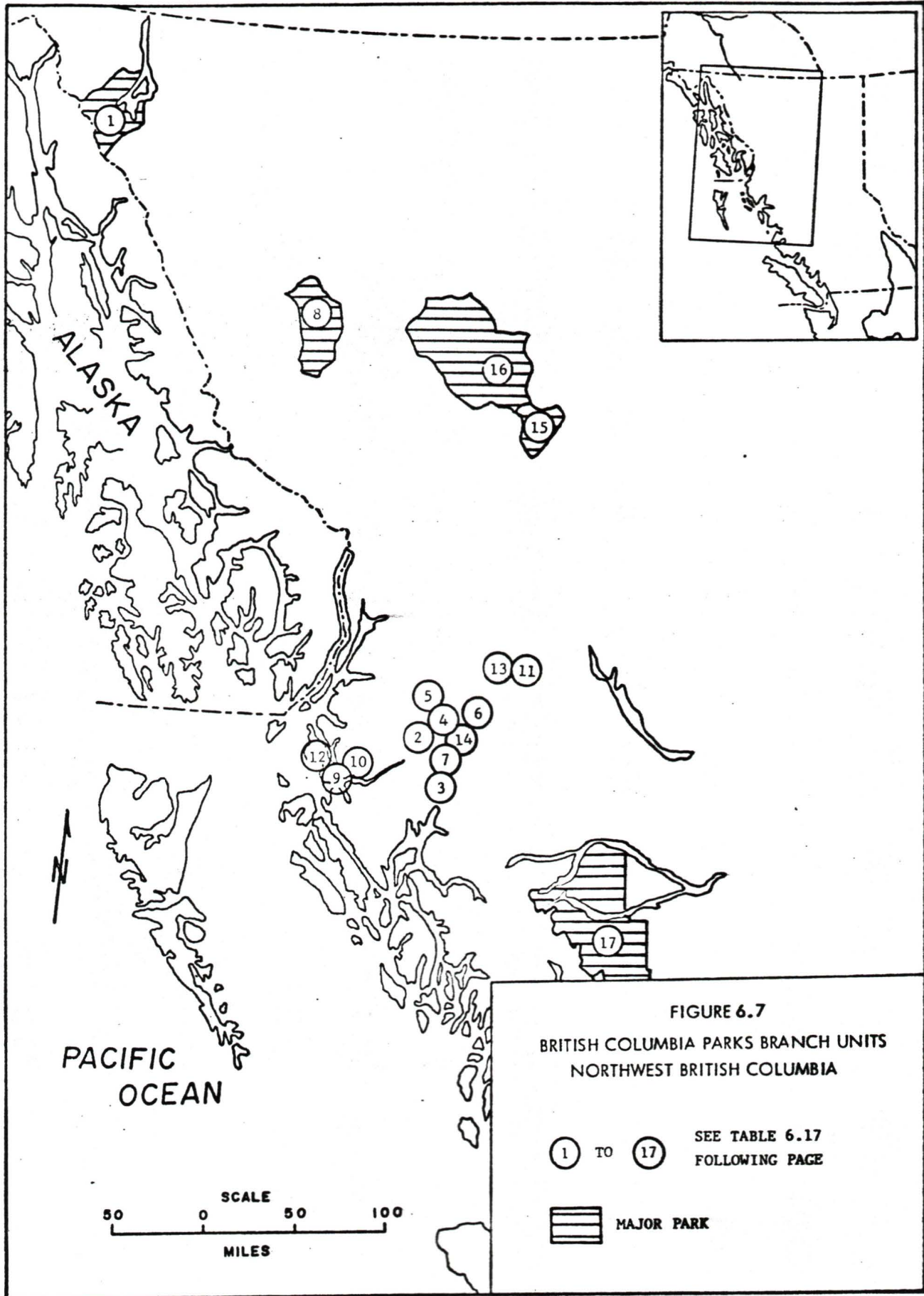


TABLE 6.16

PARK FACILITIES: NORTHWEST BRITISH COLUMBIA

	Class	Established	Area in Acres	Campsites	Map No.
Atlin	A	18 May 1973	575,000	-	1
Atlin (Reserve)	A	9 April 1973	95,000	-	1
Exchamsiks	A	16 March 1956	45	10	2
Hirsh Creek	C	7 November 1958	386	-	3
Kitsumkalum	A	25 November 1947	109	109	4
Kitsum Mountain (Reserve)	A	11 October 1973	3,800	-	5
Kleanza Creek	A	16 March 1956	625	11	6
Lakelse Lake	A	16 March 1956	780	155	7
Mt. Edziza	A	27 June 1972	326,000	-	8
Mt. Edziza (Reserve)	A	27 June 1972	249,000	-	8
Oliver Lake	A	28 June 1960	11	-	9
Prudhomme Lake	A	1 June 1964	18	17	10
Ross Lake	A	31 January 1974	164	-	11
Salt Lake	C	14 December 1940	87	-	12
Seely Lake	A	16 March 1956	59	8	13
Terrace	C	12 December 1958	3		14
Tatlatui					15
Spatzizi					16
Tweedsmuir			26		17

The Government of the Province of British Columbia, British Columbia Parks Branch, Planning Division. "Parks Data Handbook 1975." (Xerox).

TABLE 6.17
 PROVINCIAL PARK UTILIZATION:
 NORTHWEST BRITISH COLUMBIA

Park	Utilization		% Origin of Users		
	Day Visits	Camper Nights	B.C.	Can.	USA
Exchamsiks	2,832	1,848	58	10	32
Kleanza	3,552	2,412	57	14	29
Lakelse Lake	290,412	33,040	81	12	7
Oliver	2,572	-	-	-	-
Prudhomme	-	5,036	34	31	35
Seely	2,888	1,648	54	14	32
Edith F. Wilson	-	2,552	38	24	38
Maclure Lake	30,712	11,708	68	14	18
Pendleton Bay	-	3,796	34	22	44
Smithers Landing	-	3,284	44	16	40
Topley	-	7,708	45	22	33
Atnarko	-	1,616	67	6	27
Burnt Bridge	-	1,248	20	12	18

Government of the Province of British Columbia, British Columbia Parks Branch, Planning Division. "Parks Data Handbook 1975." (Xerox).

Columbia Forest Service has provided crude firepits and trash barrels, leaving campsite amenities to the campers themselves. This has provided for a unique form of recreational experience which is actively pursued.

Sport fishing is considered to be important to both tourists and local residents. Fishing by tourists occurs mainly during the months of July and August, when it plays a part of the general tourist-recreation experience.⁶⁶ Recreational fishing is important to northern residents, providing both recreational and food value. Residents fish primarily for steelhead and salmon during the fall and winter months. During the 1969-70 fishing season 73% of fishing effort was by local residents, 16% by others from British Columbia, 3% by other Canadians, with 8% by non-Canadians.⁶⁷

Hunting is carried out for both recreational and meat purposes. To many residents of the area wild game provides a ready means of offsetting food costs. Hunting is carried out both adjacent to roadways and in remote areas, requiring air travel and guide services.

Route 37 has provided access to large populations of game. This area produces moose, goat, sheep, caribou and black and grizzly bear. As hunting becomes more intensive, increased game management and control of harvesting will be required. Hunting adjacent to Route 16 is primarily for moose and deer. Hunting is considered to be beneficial to the tourist industry, in that it provides some demand for

services during the fall and early winter, which otherwise would not be used.

The northwest contains many areas which can provide for excellent outdoor recreation and tourism. Through responsible development and careful management these areas can provide a meaningful experience to users. The utilization policies of government agencies and private developers will determine the degree of satisfaction which residents of the northwest and visitors ultimately have, when they use these facilities.

Two dangers are inherent to recreation and tourism in the northwest. First, through development and over-utilization, the quality of experience may be despoiled, thereby discouraging users. Many users are seeking uncrowded areas which have not been developed. Road construction and tourist promotion only serve to increase the density of users. A second danger lies in the development of facilities which may ultimately be under-utilized. Recreation and tourism in the northwest are mainly dependent upon the automobile. As the price of gasoline rises and transportation costs increase relatively, tourism may be sharply curtailed. Recreation and tourist development should therefore focus upon activities requiring little capital investment, such as a high quality environment and natural features of the region.

Hydro-Electric Potential

One of the prerequisites for industrial development is the availability of sufficient cheap electrical power. Although present provincial and regional demands can be met, various additional sources of electric power are being investigated in order to meet future needs. One such source involves hydro-electric development on major rivers of the northwest.

Present electrical needs of the northwest are supplied from three sources. First, small scale hydro and thermal generation plants provide part of stream and backup capacity. Second, surplus power from the Aluminum Company of Canada's Kemano hydro-electric project is utilized. The final and major supply of electric power is received from the Provincial Power Grid, which in the northern part of the province is supplied primarily by the Peace River power project. This project, when completed, will provide 2.3 million kilowatts.⁶⁸

Due to the huge drainage basins and the highly productive watershed of the Coast Mountain Range, the northwest is considered to have high potential for hydro-electric development (Table 6.18). The diversion of water to the coast from the east slope of the Coast Mountains can provide not only a tremendous head of water, but also an abundant supply. Other major rivers which dissect the Coast Range drain vast areas, supplying major flows of water (Figure 6.8).

TABLE 6.18

POTENTIAL HYDRO-ELECTRIC SITES IN NORTHWEST BRITISH COLUMBIA

River Basin	Project Name	Maximum Capacity Mw	Maximum Net Head	Type of Dam	Active Storage 10 ⁶ acre ft.	Capital Cost 10 ⁶ \$ (1972)	Cost of Average Energy per KWH Mills (1972)	Conflict	Stage
Stikine	Little Canyon	800	345	Rock	3.2	347	4.9	Salmon	-Exploration required -Technically feasible
	Site A	450	380	Earth	Pondage	215	4.9	Salmon	" "
	Site C	255	280	Concrete	Pondage	104	4.0	Salmon	" "
	Site D	700	770	Concrete	Pondage	229	3.1	Salmon	" "
	Site F	470	485	Earth	3.6	247	6.2	Salmon	" "
Iskut	Forest Kerr Cr.	350	600	Rock	0.8	168	N.A.	N.A.*	N.A.
	Kiniskan Lake	Storage	45	Lake Draw-down	0.3	15	5.3	N.A.	N.A.
Skeena	Cutoff Mt.	1,080	805	Rock	4.4	534	5.6	Salmon	-Unexplored -Believed feasible
Nechako	Kemano II	1,200	2,310	Three Dams	N.A.	363	3.8	Salmon	-Technically feasible
Nass	Kwinatahl Cr.	476	260	N.A.	N.A.	N.A.	N.A.	Salmon	-Costly, needs study
	Meziadin Lake	Storage	N.A.	N.A.	N.A.	N.A.	N.A.	Salmon	N.A.
	Bowser Lake	Storage	N.A.	N.A.	N.A.	N.A.	N.A.	Salmon	N.A.

*N.A. - not available.

Government of the Province of British Columbia, British Columbia Energy Board, *Report on Electric Energy Resources and Future Supply, British Columbia, 1972-1990*. (Montreal: Montreal Engineering Company Ltd., 1972), Vol. 5, Appendix VI, Table 1.

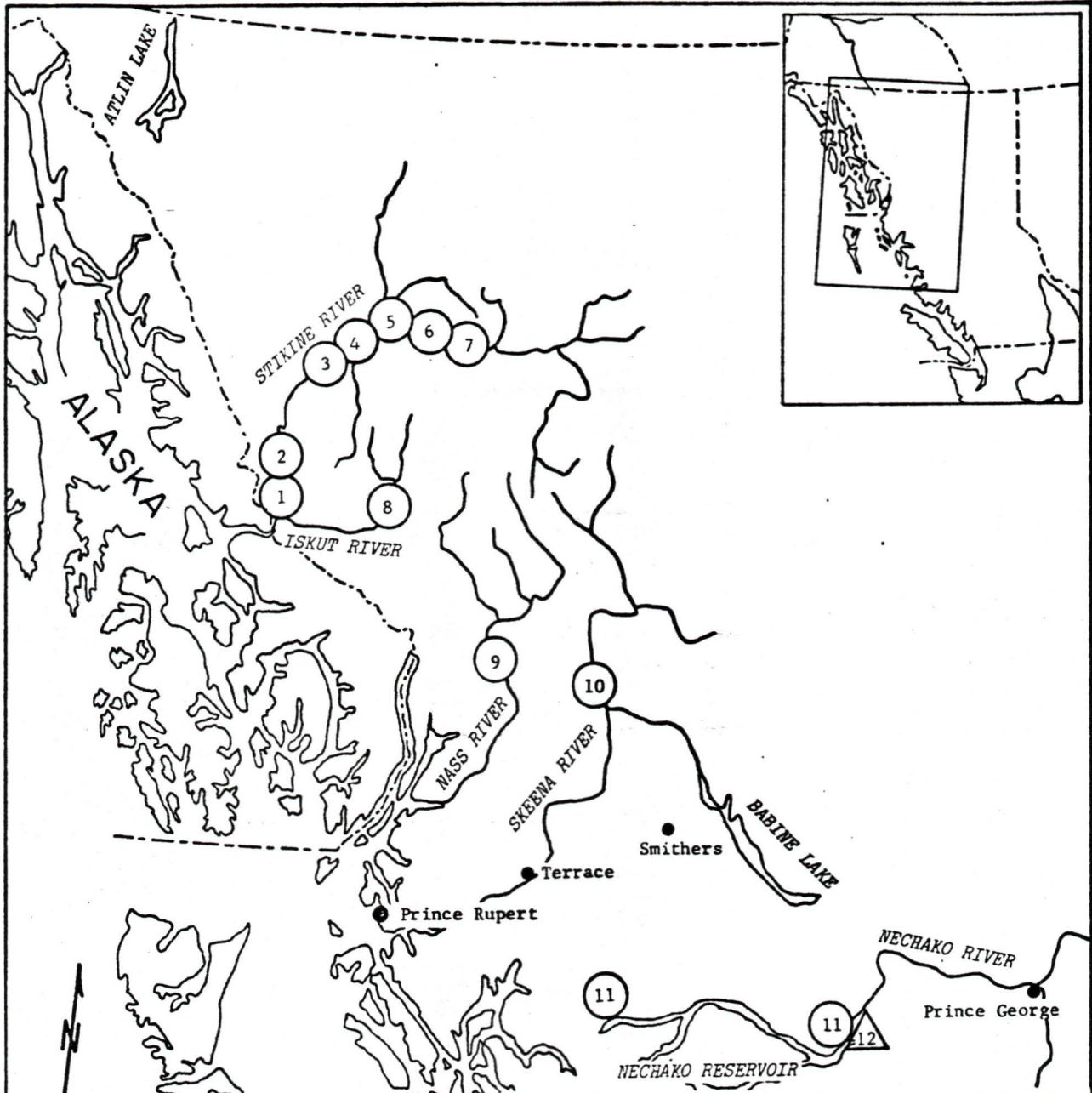
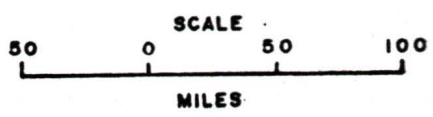


FIGURE 6.8
EXISTING AND POTENTIAL HYDROELECTRIC SITES
NORTHWEST BRITISH COLUMBIA

- | | |
|------------------------------|--------------------|
| ○ POTENTIAL SITE | △ EXISTING SITE |
| STIKINE BASIN | |
| 1 SITE B | |
| 2 LITTLE CANYON | |
| 3 SITE A | |
| 4 SITE E | |
| 5 SITE C | |
| 6 SITE D | |
| 7 SITE F | |
| 8 ISKUT | |
| NASS BASIN | |
| | 9 KWINATAHL CREEK |
| SKEENA BASIN | |
| | 10 CUTOFF MOUNTAIN |
| BULKLEY-NECHAKO BASIN | |
| | 11 KEMANO II |
| | 12 KEMANO I |

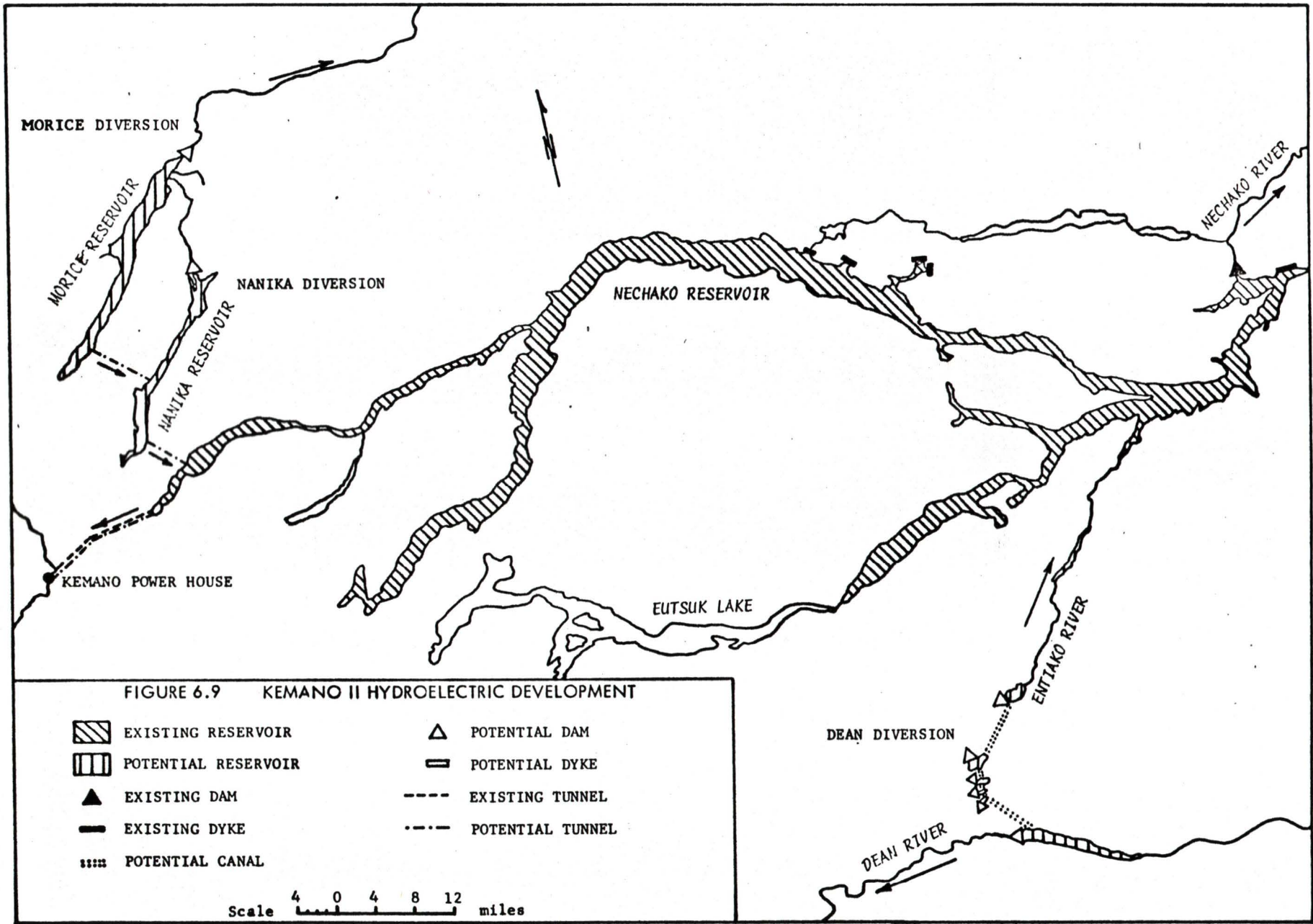
PACIFIC OCEAN



Kemano I, owned and operated by the Aluminum Company of Canada (Alcan) is the only major hydro-electric project existing in the northwest. This project utilizes the flow of water from the east slope of the Coast Range. In 1950, Alcan, in need of cheap sources of hydro power for aluminum refining, obtained the water rights to the Nechako River and Gran Canyon, Skins Lake and the upper Nanika River including Kidprice Lake.⁶⁹ Kenney Dam was constructed on the Nechako, creating a 355-square mile reservoir, with the resultant regulated flow of 6,000 cfs. A 10-mile tunnel dropping 2,600 feet to tidewater at Kemano was constructed to carry the water to 8 generators producing 986,000 kilowatts.⁷⁰

As early as 1950, with the initial granting of water rights to Alcan, the potential for a second phase of development incorporating other adjacent water flows was recognized. In 1972 the British Columbia Energy Board recognized the potential of diverting the balance of the Nechako flow as well as the Nanika River, with enhancement by the addition of the Dean and Morice diversions, into the Ootsa Lake reservoir.⁷¹ The total scheme, as shown in Figure 6.9, would consist of four major river diversions, as follows:

- (1) The balance of present flow into the Nechako River would be utilized.
- (2) A 155-foot-high rock fill dam would be constructed at the head of Kidprice Lake on the Nanika River, diverting water into a 3.8-mile tunnel leading to Ootsa Lake.



- (3) A 60-foot-high concrete dam at the outlet of Morice Lake would facilitate the pumping of water through a 6.5-mile tunnel to the Nanika reservoir. This would require a rise from 2,525 feet to 3,080 feet.
- (4) A 90-foot-high rock fill dam on the Dean River would divert water into 9 miles of canal leading to the headwater of the Entiako River, and ultimately into the Ootsa reservoir.⁷²

The combined flow of water from the preceding schemes would be carried through a second tunnel to a new power house at Kemano. From a supply of 4,700 cfs, 1,200 megawatts could be generated. After deducting the power required from pumping on the Morice diversion, 740 megawatts of usable power would be available.⁷³ At the present time, all components of the project are considered to be technically feasible.

Various government agencies and non-government organizations are opposed to Kemano II. The stoppage of rivers and flooding of valley floors is considered by many to be detrimental to the commercial salmon fishery, sport fishing, recreation, tourism, and community water supplies. Discussions between Alcan and B.C. Hydro, one of the authorizing agencies of the project, have ceased although this situation could readily change.

Future power needs of the northwest could be met by alternative sources, operating both within and without the

region. With full production from the Peace River, large blocks of electric power could be made available to the northwest. Also, the construction of coal-fired thermal stations and nuclear generators either within the northwest or elsewhere in the province could provide alternate sources. The impact of flooding large areas of limited valley floor and the effect upon wildlife and salmon are costs which must be weighed carefully before any final decisions are made.

Agriculture

Agriculture in the northwest is relatively unimportant. Income generated from farming ranks after forestry, mining, tourism, and other service industries.⁷⁴ Limitations associated with steep, mountainous relief, heavy forest cover, adverse climate and poor quality soils have confined production to pockets of alluvium along the Skeena River, and ribbons of land in the Bulkley Valley and lake country. Most farmland is best suited to perennial forage crops which can support ruminant animals. In certain locations in valley floors suitable soils and climate for horticultural crops are found, but this is under pressure from industrial, commercial and residential needs. As population expands in the area, demand for local agricultural products could result in limited expansion.

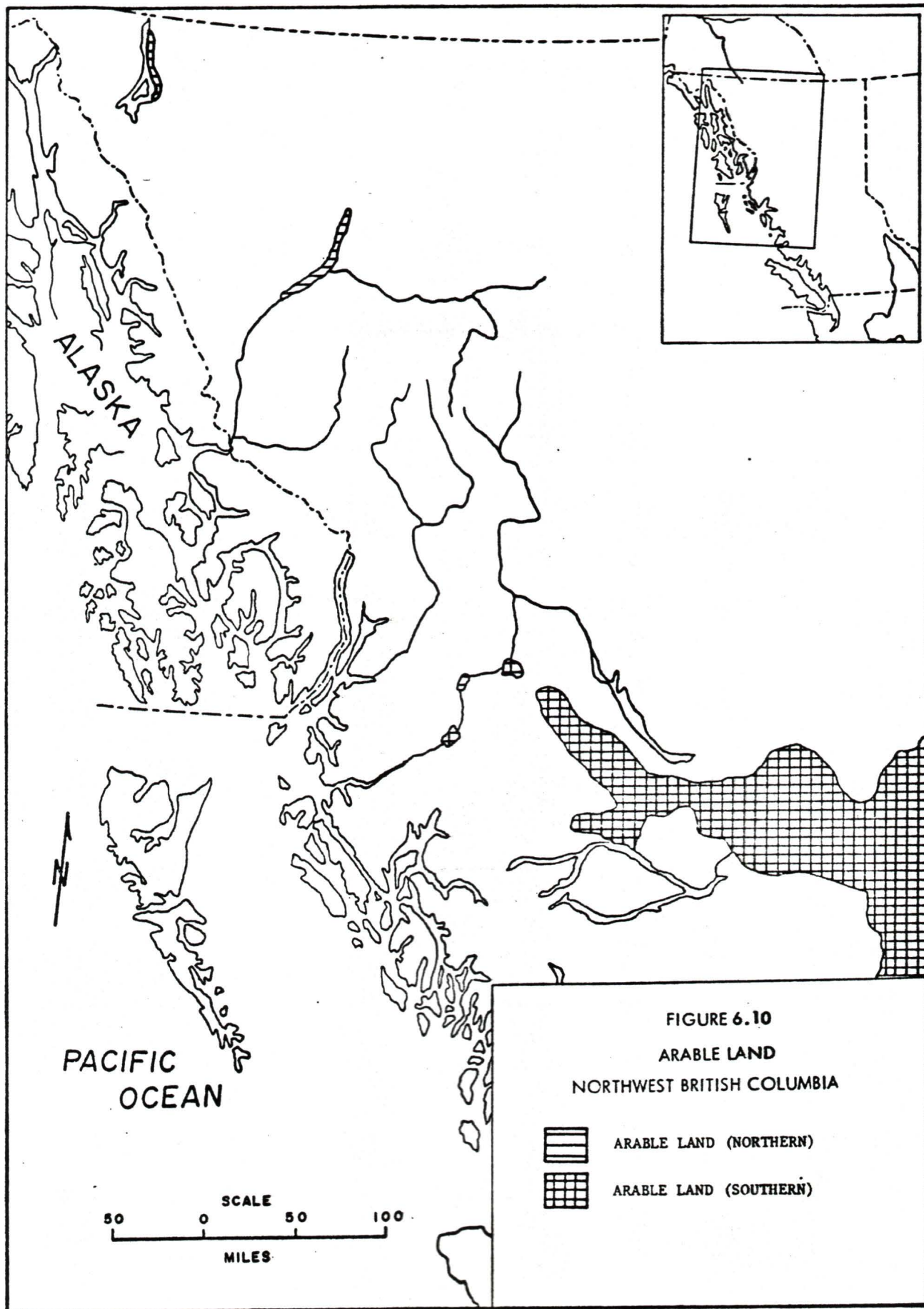
Agricultural development and potential within the northwest can be best analyzed in terms of two sub-units.

The first, the unincorporated District of Stikine and the northern part of the Regional District of Kitimat-Stikine encompasses the northern portion of the study area. The second unit, consisting primarily of the Bulkley-Nechako Regional District, includes the Nass, Skeena, Bulkley and Nechako drainage basins.

Agricultural Production: Northern Area. Present agricultural production in the unincorporated District of Stikine consists of limited subsistence farming. Agricultural potential is greatest along a narrow valley belt from Telegraph Creek to Dease Lake, and the lower elevations around Atlin and Teslin Lakes (Figure 6.10). Limiting factors to extensive production are the scattered nature of arable soils, rigorous climate, unfavourable topography and the need for irrigation and fertilization.

The existing local population is not large enough to support commercial production, and relies upon imported commodities.⁷⁵ Although Atlin has an average of 85 frost-free days per year and Telegraph Creek 100 days,⁷⁶ periodic frosts can occur during the crucial summer growing season.

Agricultural Production: Southern Area. Agricultural production in the southern portion of the study area dates from the late 1800's, when farming was encouraged by both the provincial government and missionaries to serve local markets associated with trading posts, missions and early pioneers. Production increases up to the present have been



closely associated with regional population growth and the expansion of local markets.

Due to high, mountainous country dissected by the narrow valley of the Skeena River, agricultural land between Terrace and Smithers is limited to small pockets of alluvial soils on either river terraces or flood plains. From Smithers east, the topography becomes less harsh, breaking down into rolling hills of glacial outwash. This provides for larger tracts of farmland which, although consisting of poor soils and occasionally water deficient, are practical for grazing and forage purposes (Figure 6.10). Soils to the west of Terrace are generally poorly developed due to excessive moisture.

Climatic conditions are one of the main limiting factors to agricultural production. Low precipitation levels, a short frost-free period and low numbers of solar heat units available,⁷⁷ are major limiting factors for agriculture in the Bulkley-Nechako Regional District (Table 6.19).

Most land suitable for agriculture has been alienated, with the remaining Crown land being of marginal quality. Much of the land which is owned has not been improved. Costs in 1972 for cutting, piling and breaking land varied from \$85 to \$124 per acre, using self-labour.⁷⁸ In 1965, 400,000 acres were classed as being farmland in the Bulkley-Nechako Regional District, of which 95,000 acres consisted of

TABLE 6.19

FACTORS AFFECTING CROP GROWTH AT SELECTED SITES:

NORTHWEST BRITISH COLUMBIA

Location	April-August Precipitation (mm)	April- August Heat Units	April- August Means Temperature Celsius	Frost Free Days	Days Above -2.2°C ¹
Vanderhoof	171	1,408	10.7	49	119
Fort St. James	187	1,316	10.3	49	102
Wistaria	171	1,086	9.5	62	103
Smithers (Airport)	185	1,453	10.8	79	123
Smithers (Canada Dept. of Agriculture)	185	1,316	10.3	52	97

¹-2.2°C is considered to be a killing frost.

Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce. *The Bulkley-Nechako Region - A British Columbia Economic Study*. (Victoria, B.C.: Queen's Printer, 1970), p. 34.

improved land, with 60,000 acres producing forage crops.⁷⁹

Since the agricultural production in the southern portion of the northwest is best suited to growth of perennial grasses and legumes, livestock raising is predominant. Cow-calf, cow-yearling, sheep and dairy production are the most common activities. Livestock finishing and processing occurs outside of the region, in either Edmonton or Vancouver.

Range grazing can usually be carried out from June 1 to October 31, while forage must be stored to provide feed for at least six and one-half months. Grazing capacity varies from 4 acres per animal in better sites to more than 8 acres in poorer sites. Winter feed requires 2 to 5 acres of producing forage crop per animal.⁸⁰

A strong local market exists for high quality produce throughout the region. Root crops which are resistant to frost, such as beets, carrots, potatoes, turnips and also cabbage are well suited to the southern portion of the northwest. In isolated areas asparagus, sweet corn, lettuce, cauliflower, strawberries and raspberries can be grown.

Agriculture has provided a stable source of income as well as a supply of fresh produce for the region. Economic growth and an expanding population could provide the necessary stimulus for increased production, although good quality soil and climate are limiting factors. Ultimately population thresholds may be reached which could

facilitate the establishment of a small scale meat packing plant within the region.

Construction

Construction activity in the northwest is closely linked to the viability of the regional economy. With increased demand in any of the resource sectors, construction activity expands, while deteriorating market conditions may cause construction to cease. This has resulted in cycles of intense activity, followed by near inactivity (Appendix E).

Due to the cyclical nature of construction demand, local contractors have remained small in size, fulfilling the need for housing and small sized structures.

Large scale construction work is usually carried out by major contracting firms who come from outside of the region, thus the labour force for major projects is usually imported. Construction workers attracted to such projects are usually young and not interested in settling permanently. For the most part they are interested in making large wages, and then moving on.

The implementation of major projects usually consists of two distinct phases. First, the plant or facility is erected. This is performed by large scale contractors who may sublet some contracts to local companies. This stage is usually completed quite rapidly so that production can commence.

The second stage consists of the building of infrastructure and support services, such as new roads, retail facilities, housing, schools, etc., which are required by an expanded work force. This phase of activity usually spans a longer period of time, maintaining local contractors and construction workers.

The possibility of construction work providing long term opportunities for employment to large numbers of men within the northwest is minimal. Most large scale work is cyclical, creating unemployment upon completion. Small scale projects cannot support large numbers of workers.

Secondary Manufacturing

The development and manufacturing in the northwest, outside of forest products, aluminum refining and fish processing,⁸¹ has been minimal. Efforts have been made to establish both kelp and peat processing plants on the Queen Charlotte Islands, but these have met with little success.

Existing secondary manufacturing is usually associated with the fabricating of parts associated with the maintenance of existing forest or mining activities. Metal fabrication of both steel and sheet metal products are common in most communities, where they are utilized on a maintenance basis. Fabrication of large parts usually occurs outside of the area, with pieces being shipped in a dis-assembled state.

The need for diversification of the northwest's economic base has been recognized by most agencies concerned with planning the area's future.⁸² Communities and regional districts have all tried to promote the advantages to be gained through the establishment of industry within their boundaries. Various committees have been established in order to promote regional diversification through the attraction of new industry. Unfortunately, due to the lack of local markets, and the distance to potential markets, industries, other than those involved in resource extraction, have not been attracted. The provincial government has made efforts to promote secondary industries, such as steel refining and copper smelting, but so far has been unsuccessful.

Tertiary Activities

The term tertiary activities is often used synonymously with service industries, denoting all sources of employment except manufacturing, construction, and primary or extractive industries.

The viability of tertiary services in the private sector in the northwest is closely tied to the regional economy. With economic expansion, services expand both in size and in numbers, in order to meet the needs of increased population. With declining economic conditions, services tend to contract, with only the most efficient remaining.

Recent trends in the provision of retail services in the northwest have caused local concern. Locally operated retail outlets have served community needs during their initial stages of development. Over the last ten years, communities such as Prince Rupert, Terrace, Kitimat, and Smithers have seen the entrance of major chain stores, forcing smaller business out. Fear has been expressed that since these outlets rely upon large sales volumes and have their head offices elsewhere, any downturn in the local economy will result in their leaving.

Tertiary services in the public sector, in the form of government services, have expanded in the northwest in pace with population growth. Both Terrace and Smithers have become centers for province agency offices, with Terrace also becoming a center for many federal agencies. The designation of Smithers as a provincial government administration center will serve to increase the role of public sector tertiary activity in that community, possibly at the expense of other centers in the northwest.

Census data relating to communities the size of those found in the northwest are not available, in order to substantiate either growth or sales volumes.

Footnotes

¹Albert O. Hirschman, *The Strategy of Economic Development* (New Haven: Yale University Press, 1960), p. 1.

²John Friedmann, *Regional Development Policy* (Cambridge, Mass.: MIT Press, 1970), p. 23.

³Graham Farstad, *North-West British Columbia: A Social Perspective*, 1975, uncirculated publication, British Columbia Department of Human Resources, Victoria, B.C., p. 50.

⁴Ibid.

⁵Ibid., p. 71.

⁶Ibid.

⁷Ibid., p. 72.

⁸Ibid., p. 73.

⁹Pacific Inland Resources employees of Smithers are represented by the Northern Interior Woodworkers Union, which is smaller and more localized than the larger unions, thereby claiming a better understanding of local management and community conditions. D. Groot Logging employees are represented by the Canadian Christian Reform Union, which has affiliations with the Dutch church community of Smithers, of which the sawmill owner is a member.

¹⁰Farstad, op. cit., pp. 73-76.

¹¹J. A. McMillan et al., *Determinants of Labour Turnover in Canadian Mining Communities*, University of Manitoba, Centre for Settlement Studies, 1974, p. 107.

¹²Aluminum Company of Canada, *Report of the Task Force on Employee Turnover--1973: Synopsis* (Kitimat: Kitimat Works, 1974), pp. 1-5.

¹³McMillan et al., op. cit., pp. 65-70.

¹⁴Farstad, op. cit., p. 73.

¹⁵Based upon personal correspondence with Department of Labour and Canada Manpower personnel, both in the north-west and in Victoria.

¹⁶Karl M. Ruppenthal, *Highway Development in Northern British Columbia: Priorities, Timing and Beneficiaries* (Vancouver: University of British Columbia, Centre for Transportation Studies, 1974), p. 22; *The Development of Northern British Columbia: Factors, Concepts and Issues* (Vancouver: F.L.C. Reed & Associates Ltd., 1972), p. 8; The Government of Canada, Transport Canada, *Northwest Transportation Plan 1972*, February 1972, p. 4; The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena-Queen Charlotte Regional Economic Study* (Victoria: Parliament Buildings, 1973), p. 110.

¹⁷Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *ibid.*

¹⁸Ruppenthal, *op. cit.*, p. 7.

¹⁹*The Development of Northern British Columbia: Factors, Concepts and Issues*, *op. cit.*, p. 10.

²⁰The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, Lands Service, *The Prince Rupert-Smithers Bulletin Area* (Victoria: Queen's Printer, 1974), p. 29.

²¹Ruppenthal, *op. cit.*, p. 33.

²²Government of Canada, Transport Canada, *op. cit.*, p. 33.

²³Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *op. cit.*, p. 114.

²⁴*Ibid.*, p. 113.

²⁵Government of the Province of British Columbia, Minister of Lands, Forest and Water Resources, "North West Rail and Port Agreement." Press release, Victoria, B.C., 23 July 1973, p. 4.

²⁶*Ibid.*, p. 2.

²⁷Government of Canada, Transport Canada, *op. cit.*, p. 11. Numerous lawsuits and work stoppages have occurred in relation to the construction of the railway. Due to inaccurate estimates of the amount of material which was required to be moved for the construction of the railway, the BCR has made an out of court settlement to one of the major contractors, as of April 1977, work on the railway had ceased.

²⁸Government of Canada, Government of the Province of British Columbia, "Agreement in Principle, Joint Transportation Development Program Northern British Columbia," pp. 1-2.

²⁹Government of the Province of British Columbia, Minister of Lands, Forests and Water Resources, "Factors in the CN Agreement," Press release, Victoria, B.C., 17 July 1973, p. 2.

³⁰The Government of the Province of Manitoba, *Royal Commission Inquiry into Northern Transportation* (Winnipeg: R. S. Evans, Queen's Printer, 1969). The Province of Manitoba's Royal Commission investigating northern transportation has recognized that highways are of major importance to residents of northern areas. Highways can enhance community interests, social contact and the utilization of leisure time, as well as provide for joint cultural and recreational activities between communities. Lower transportation costs associated with highway travel were also considered to be essential for life and work in northern areas.

³¹The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, Lands Service, *The Atlin Bulletin Area* (Victoria: Queen's Printer, 1974), p. 21.

³²Ruppenthal, op. cit., p. 36.

³³Iona Campagnolo, M.P. Skeena, "The Myth of the Great Northwest" (Xerox). Notes for a speech to the Smithers and District Chamber of Commerce, 8 March 1975, p. 10.

³⁴Ruppenthal, op. cit., pp. 4, 223.

³⁵The Government of the Province of British Columbia, Minister of Lands, Forests and Water Resources, "Northwest Rail and Port Agreement," op. cit., p. 9.

³⁶"Prince Rupert Terminal," 1975, p. 1 (Xerox).

³⁷The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena-Queen Charlotte Regional Economic Study*, op. cit., p. 115.

³⁸Ibid., p. 102.

³⁹The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, Lands Service, *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 18.

⁴⁰Ruppenthal, op. cit., p. 50.

⁴¹Supplied by the Information Service, British Columbia Forest Service, Victoria, B.C.

⁴²The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region: A British Columbia Regional Study* (Victoria: Queen's Printer, 1970), p. 51.

⁴³Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, *The Atlin Bulletin Area*, op. cit., p. 21.

⁴⁴The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, British Columbia Forest Service, *Forest Inventory Statistics of British Columbia, 1970*, p. 117.

⁴⁵The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena-Queen Charlotte Regional Economic Study*, op. cit., p. 32.

⁴⁶*Ibid.*, p. 43.

⁴⁷*Ibid.*

⁴⁸Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit., p. 60.

⁴⁹The Government of the Province of British Columbia, British Columbia Forest Service, "Burns Lake," *Forestalk*, 2, no. 4 (Winter 1974), 11.

⁵⁰*Ibid.*

⁵¹Ruppenthal, op. cit., p. 50.

⁵²*Ibid.*, pp. 63-68; The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit., pp. 69-73; The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena-Queen Charlotte Regional Economic Study*, op. cit., pp. 69-79; W. D. McCartney, *Mineral Production and Projected Trends, 1974 to 2000 in Northern British Columbia, Yukon and Western Northwest Territories* (Victoria: Wehealdata Consultants Ltd., 1975), pp. 31-56.

⁵³Ruppenthal, op. cit., p. 63.

⁵⁴The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit., p. 66.

⁵⁵The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, Lands Service, *The Atlin Bulletin Area*, op. cit., p. 29.

⁵⁶McCartney, op. cit., p. 46.

⁵⁷Ibid., p. 48.

⁵⁸Ibid., p. 18.

⁵⁹The Government of the Province of British Columbia, Department of Economic Development, "News Release," 23 July 1975 (Xerox). Announcement was made of plans to carry out a feasibility study for the location of a 4 million tons per year steel mill at either Prince George or Kitimat.

⁶⁰Ruppenthal, op. cit., pp. 91-92.

⁶¹Ibid., p. 94.

⁶²Ibid., p. 106.

⁶³Ibid., p. 109.

⁶⁴The Government of the Province of British Columbia, British Columbia Department of Travel, "Northwest Sector of British Columbia," p. 45 (Xerox).

⁶⁵Ibid., p. 60.

⁶⁶Ruppenthal, op. cit., p. 101.

⁶⁷Ibid., p. 98.

⁶⁸B.C. Hydro, *Peace River*, p. 2.

⁶⁹SPEC, "The Kemano II Hydro-Electric Development," Smithers, p. 3 (Xerox).

⁷⁰Ibid.

⁷¹Ibid., p. 4.

⁷²British Columbia Energy Board, *Report on Electric Energy Resources and Future Supply, British Columbia, 1972-1990*, by Montreal Engineering Co. Ltd., 1972, vol. 1, section 4, pp. 4-54, 4-55.

⁷³Ibid., p. 4-54.

⁷⁴The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit., p. 33.

⁷⁵The Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, Land Service, *The Atlin Bulletin Area*, op. cit., pp. 32-35.

⁷⁶Ibid., p. 33.

⁷⁷The number of heat units in a day is the number of degrees the mean temperature is above 42°F (5.6°C). Common field crops do not grow vigorously below this temperature. Corn requires a minimum of 2,300 heat units to mature, while other high yielding late field varieties require up to 3,000 units.

⁷⁸The Government of the Province of British Columbia, British Columbia Department of Agriculture, Development and Extension Branch, *Agriculture in the North Cariboo and Central British Columbia* (Victoria: K. M. MacDonald, Queen's Printer, 1974), p. 4.

⁷⁹The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit., p. 36.

⁸⁰The Government of the Province of British Columbia, British Columbia Department of Agriculture, Development and Extension Branch, *Agriculture in the North Cariboo*, op. cit., pp. 5-6.

⁸¹Fish processing provides for a major portion of the economy of coastal communities, especially Prince Rupert. Its effect upon the total region is minimal, but for this reason fishing and fish processing have not been discussed in detail.

⁸²The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *The Bulkley-Nechako Region*, op. cit. The need for diversification of the economy of the Regional District of Bulkley-Nechako is acknowledged throughout this report; The Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce, *Skeena-Queen Charlotte Regional Economic Study*, op. cit., p. 10. During the course of this report the limitations of a narrow economic base are acknowledged and various means of diversification are presented.

CHAPTER VII

STUDY COMMUNITIES

In this chapter, profiles of the three study communities, Terrace, Smithers and Squamish, are presented. Each profile consists of a brief history of the community, the response of each community to regional development and the presentation of data relating to selected indicators of quality of life. As discussed in Chapter IV, these indicators consist of medical and educational services, the cost of living, employment opportunities and isolation.

Terrace

Historical Profile. The history of Terrace commences with the surveying of the townsite in 1911, as a distribution point for the construction of the Grand Pacific Railway.¹ With completion of the railway in 1914, large numbers of settlers moved into the Terrace area.

With the coming of WWI, the community expanded, supplying lumber, especially Sitka spruce, which was used for manufacturing aircraft.

Between WWI and WWII the market for lumber was depressed, with cedar poles being the main export product. During this period, the population remained below 500.

With the eruption of WWII, Terrace was chosen as the site of an army base, and over 6,000 men were stationed in the community. During this period, Route 16 was constructed to Prince Rupert, although it was of a poor quality.

Between 1945 and 1952 the lumber industry once again became dominant in Terrace, with several small scale saw-mills established.

In 1952 the American Celanese Company constructed a pulp mill complex at Watson Island, near Prince Rupert. The company was granted Tree Farm License Number 1, as a source of supply for pulp and sawcut logs. The main portion of this timber grant lies to the north of Terrace, along the Kitsumkalum and Nass Valleys. As a result of the granting of this license forest operations, logging, sawmilling and related service industries, expanded rapidly in Terrace. Between 1951 and 1961 the population of Terrace increased sixfold.² During the same period, Terrace became an alternate source of goods and services for the residents of Kitimat.

From 1961 until 1972, Terrace continued to undergo growth, with various service facilities moving in to supply the developing logging industry. Industrial services such as heavy duty equipment supply and maintenance as well as small welding and metal fabricating shops moved into Terrace. Also, during this period commercial and service functions such as shopping centers, schools, a regional hospital,

apartment accommodation and paved streets became a part of the community.

The Response of Terrace to Northwest Development. Since 1972, with the declaration of Prince Rupert as a National Harbour, followed by the announcement of northwest development, Terrace has passed from one pinnacle of expected growth to another. Residents of Terrace have recognized that the impact of northwest development may affect their community in relation to diversification of the economic base, improvement of services within the community and quality of the environment. All three of these concerns are closely linked and are advocated by various groups within the community. Overshadowing all perceived benefits of development is the belief that development must be sensitive to the needs and expectations of the community.

In discussing the need for economic diversification, Mayor Rowland has noted that the economy of Terrace must be diversified, in order to provide an alternate source of employment. Although logging provides a major portion of the economic base of the community, it is prone to seasonal layoffs and market fluctuations. Representatives of community organizations such as the Kitimat-Stikine Regional Planning District, VOICE,³ Canada Manpower and the municipal administration have reiterated Mayor Rowland's comments regarding the need for diversification of the industrial base of Terrace.

In discussing the provision of services and amenities, the chairman of the Terrace Chamber of Commerce noted that Terrace, as well as the entire northwest, lacks a large enough population base to draw the diverse range of goods and services which residents of a modern community expect. Although the Chamber of Commerce advocates economic expansion as a means of increasing population numbers, it also recognizes the need for community involvement in the planning process. The representatives of several other organizations and services, such as the International Woodworkers of America, Canada Manpower, the United Brotherhood of Carpenters and Joiners of America, the REM Lee Theatre,⁴ and the mayor of Terrace also stressed the need for improved services. Mayor Rowland, in discussing the role of the municipality in providing municipal services, has acknowledged that tax revenues from existing industry are low, and that the municipality could not afford to supply new services. It was anticipated that the attraction of new industry would not only enlarge the population base so as to help make additional commercial services available, but also provide increased tax revenue.

The most vocal advocates of issues relating to quality of the environment and northwest development were the trade unions and VOICE. Concern was expressed regarding not only the impact of development on the physical environment, but also problems associated with the absorption and assimilation

lation of new population levels as well as citizen involvement in the planning process. Fear was expressed that growth would only serve to exacerbate existing problems associated with alcoholism and boredom, since existing facilities would become more crowded. It was stressed that the trade unions of Terrace were not anti-growth, but rather favoured growth which would most benefit the citizens of the northwest. Of those interviewed, many expressed a concern for the quality of the environment, although their views did not appear to be as strongly held as advocacy groups. Several interviewees expressed the belief that the physical environment in the northwest was unlimited, and that those favouring controls relating to either the physical or social environments were "only trouble-makers."

Northwest development proposals have served to create various factions in Terrace. Of the community representatives interviewed most agreed that Terrace must grow in size. It was thought that problems associated with employment opportunities and community and commercial services could only be alleviated through expansion. Contention focused upon matters relating to the scale of development which should occur, the rate at which it should be implemented, and the amount of local participation in the planning process which should occur.

Terrace has evolved into a single enterprise open community. Although Terrace is dependent upon the logging

industry for its economic base, employment opportunities are not controlled by a single employer. Several large sawmill and integrated forest operations, as well as numerous small scale independent operators provide for employment opportunities. Terrace is open in that employers do not have control over matters relating to their employee's personal lives and that Terrace has an autonomous municipal government. Terrace also takes on limited functions associated with regional resource centers.

Although additional construction and enlargement of industry is occurring, Terrace has passed into the fourth and fifth stages of resource town development, as described in Chapter II. Characteristics associated with industrial operation and community improvement as well as industrial and community development typify the stage of community development at which Terrace finds itself. The attraction of a new major industry could cause Terrace to move back towards the stage of industrial and town construction, otherwise Terrace will likely evolve towards a limited stage of community diversification.

A particular problem associated with Terrace, but to which this thesis does not directly address itself, is that of Thornhill. Thornhill consists of an unincorporated community situated on the southeast bank of the Skeena River. In 1974, the population of Thornhill was estimated at approximately 6,000, and growth was continuing. Residents

of this area rely upon Terrace for services and supplies, yet do not contribute to the tax base of Terrace proper. The community of Terrace is divided over whether or not to expand its boundaries to include Thornhill, and as of 1975 was reluctant to act unless the provincial government was willing to contribute substantially to amalgamation costs.

Terrace Community Services. As identified in Chapters II and IV, five factors of quality of life were selected for analysis of community satisfaction. These factors are medical and educational services, cost of living, employment opportunities and isolation.

Medical Services. Medical care is supplied at three levels of service in Terrace, as in Smithers and Squamish. Although each service satisfies a different type of health need, close liaison is maintained between all levels of health delivery.

The first level of health service consists of the complement of medical personnel which are available within the community (Table 7.1). Physicians provide consulting services through three clinics. In addition, five physicians from Kitimat also list their services as being available in Terrace. Specialized medical care is performed by specialists who visit Terrace on a regular basis, otherwise patients are referred to clinics in Vancouver or Victoria.

The provincial Department of Health operates two clinics in Terrace, consisting of the Terrace Public Health

TABLE 7.1
 MEDICAL COMPLEMENT AVAILABLE IN TERRACE,
 SMITHERS AND SQUAMISH: 1975

Medical Complement	Terrace	Smithers	Squamish
Clinics	3	1	2
Physicians:			
General Practitioner	15	6	6
Surgeon	2	-	-
Obstetrics	1	-	-
Internal Medicine	1	-	-
No. of Physicians per 1,000 Population	1.05 ¹	1.2 ²	.6 ³
Dentists	4	2	5
No. of Dentists per 1,000 Population	.22 ¹	.4 ²	.5 ³
Optometrists	2	2	1
Dental Mechanics	1	-	-

¹Based upon an estimated population in 1975 of Terrace 12,000 plus Thornhill 6,000, equaling 18,000.

²Based upon an estimated population in 1975 of 5,000.

³Based upon an estimated population in 1975 of 10,000.

Clinic and the Skeena Mental Health Centre. The staff at both clinics stated that major health problems existed in relation to problems associated with alcoholism. During the summer of 1975, both clinics had less than 50% of their full staff complement, and due to government cut-backs did not anticipate the immediate filling of vacant positions (Table 7.2).

The third level of health service consists of hospital facilities. The Mills Memorial Hospital is operated by the Terrace and District Hospital Association, and offers a wide range of facilities (Table 7.3). With completion of expansion work which was underway in 1975, facilities were to be increased by over 25%.

A 170-bed hospital catering to elderly citizens of the northwest also operates in Terrace. Since this facility is over thirty years old, consisting of remodelled WWII barracks, plans are being made for the construction of a new hospital.

Educational Services. Educational services in Terrace are provided at the levels of juvenile and adult education.

Juvenile education, with the exception of denominational schools, is administered by School District #88, which operates primary, junior secondary and senior secondary schools (Table 7.4). In 1975 no new schools were planned and staff complements had been filled by August.

TABLE 7.2
BRITISH COLUMBIA DEPARTMENT OF HEALTH CLINICS
AVAILABLE IN TERRACE, SMITHERS AND SQUAMISH: 1975

	Terrace	Smithers	Squamish
Public Health Unit	Skeena Health Unit	Skeena Health Unit	Coast - Garibaldi Health Unit
Clinic	Terrace Public Health Clinic	Smithers Public Health Clinic	Squamish Public Health Clinic
Nurses	2	2	2
Full Complement	5	N/A*	N/A*
Present No. of Nurses per 1,000	.11	.4	.2
Public Health Inspector	2	1	1
Mental Health Unit	Skeena Mental Health Center	-	Squamish Mental Health Center
Counsellors	2	(Visiting from Terrace)	1
Case Load for Clinic	400 Approx.		N/A
Case Load/ Counsellor	200		N/A
Full Complement	5		1

*Not Available.

TABLE 7.3
HOSPITAL SERVICES AVAILABLE IN TERRACE,
SMITHERS AND SQUAMISH: 1975

Community	Terrace	Smithers	Squamish
Hospital Services:			
Hospital:	Mills Memorial Hospital	Bulkley Valley District Hospital	Squamish General Hospital
- Acute Beds ¹	87	72	24
- Bassinets	18	12	4
- Intensive Care ²	1	-	-
- Extended Care ³	-	7	-
Staff:			
- Nurses	92	45 (approx)	15
- Pharmacist	-	1	-
- Anesthesiologist	1	-	-
- Radiologist	Visiting	Visiting	-
- Dietician	1	1	-
- Physiotherapist	1	1	-
- Other Staff	76	31	N.A.
Facilities:			
- Operating Theaters	2	2	1
- Testing Laboratory	1	1	1
- Radiology Laboratory	1	1	1
Service:			
- Patients (1974)	3,972	2,128	N.A.
- Patient Days (1974)	24,115	13,323	4,652 ¹
Expansion Plans:			
- Acute Beds	25	Completed 1974	None
- Intensive Care	4		
Care for the Elderly:			
Hospital:	Skeena View Lodge	None	None
Patients:	170	Referral to Terrace	Referral to Vancouver

TABLE 7.3 Continued

Community	Terrace	Smithers	Squamish
Staff:	149		
Expansion Plans	Planned Reconstruction		

¹ Acute care beds consist of those providing normal hospital care for patients too ill to maintain themselves.

² Intensive care beds consist of those providing a high degree of specialized care, such as recovery from major surgery.

³ Extended care beds consist of those providing in-hospital care, but on a minimal basis. Extended care patients can care for themselves except in the case of medical needs.

TABLE 7.4
EDUCATIONAL SERVICES AVAILABLE FOR JUVENILES
BY SCHOOL DISTRICT: 1974 - 1975

	School District 88 (Terrace)	School District 54 (Smithers)	School District 48 (Squamish)
Educational Services:			
Number of Schools	22	9	9
Number of Pupils	6,114	2,708	2,767
Employees:			
Teachers	310	134	135
Administrative	61	N/A*	N/A*
Pupil Teacher Ratio	19.71	20.16	20.47
Budget	\$7,200,000	\$3,300,000	\$4,000,000
Students in Alternative Education Program	14	36	18

*N/A Not Available.

Government of the Province of British Columbia, Minister of Education,
Department of Education, 104th Annual Report. (Victoria: Queen's
 Printer, 1975).

This was in contrast to previous years, when teacher shortages had existed. In addition to the public school system, two religious denominations also operated schools in Terrace (Table 7.5). Since the school districts conform to standards set by the provincial Department of Education, educational services are relatively uniform throughout the province. Dissatisfaction may occur within individual school districts regarding teaching skills available and individual school policies.

Adult education needs are met in part by the British Columbia Vocational Institute, which operates in Terrace. Various courses relating to vocational skills and pre-apprenticeship programmes are offered (Table 7.6). In 1975 the vocational institute was being reorganized to function as a combined vocational/community college facility.⁵ It should be noted that many courses are not offered, and students frequently move to the institutes outside the area to pursue higher education.

Cost of Living. Specific data relating to income in Terrace are not available. Incomes in the Kitimat-Stikine Regional District averaged \$9,153 in 1974, 2.2% below the average income in Vancouver of \$9,356 (see Table 6.5). The degree to which the high salaries and steady employment of Alcan's Kitimat operations affects average salaries is not obtainable. Many employees in the logging industry in Terrace are faced with seasonal woods closures which serve

TABLE 7.5

DENOMINATIONAL EDUCATION SERVICES FOR JUVENILES
AVAILABLE IN TERRACE, SMITHERS AND SQUAMISH: 1975

Denominational Education	Terrace	Smithers	Squamish
Denomination	Terrace Christian Reform Church	Smithers Christian Reform Church	-
School	Christian Public School	Christian Public School	
Grades	1-7	1-10	
Pupils	60	200	
Teachers	3	8	
Pupil Teacher Ratio	20:1	25:1	
Cost of Attendance	\$80/month/family	\$90/month/family	
Denomination	Catholic	Catholic	-
School	Sacred Heart Parish	St. Josephs Parish	
Grades	1-7	1-7	
Pupils	190	150	
Teachers	10	8	
Pupil Teacher Ratio	19:1	18:75	
Cost of Attendance	N.A.	N.A.	

TABLE 7.6
ADULT EDUCATION SERVICES AVAILABLE IN TERRACE,
SMITHERS AND SQUAMISH: 1975

Adult Education Service	Terrace	Smithers	Squamish
Institute	British Columbia Vocational Institute	-	-
Staff	22	(Courses must be sought outside of Smithers)	(Courses must be sought outside of Squamish)
Administration	21		
Students (1974-1975)	380		
Courses Offered	Vocational and Pre- Apprentice		

to lower average incomes.

The lure of large wages which attract many individuals to frontier communities is not justified in terms of average salaries. In order to obtain an above average income, it is necessary for an individual to work overtime hours. In many instances, especially in the logging industry, workers are not willing to spend long hours working under adverse conditions.

Due to standardized wages throughout the province, salaries are similar between northern communities and Vancouver. Although several employers reported paying isolation benefits, incomes were still below the average for Vancouver.

Living costs in Terrace are similar to those of other communities in the northwest. In 1972, living costs in Kitimat and Prince Rupert exceeded those in Vancouver by 8.4% and 9.1% respectively.⁶ Food, the cost of fuels and rental accommodation exceeded average prices in Vancouver by as much as 18.6% (Table 7.7). Although the price of building lots and houses was less expensive in Terrace than in Vancouver, this was partially offset by a substantially higher mill rate.

Newcomers to Terrace, young families, and those who cannot afford to buy a house are the most seriously affected by increased living costs. Also, with the lower participation rate of females in the labour force and larger family

TABLE 7.7

COST OF LIVING DIFFERENCES, TERRACE, SMITHERS AND SQUAMISH WITH VANCOUVER AS BASE: 1975

	Terrace	Difference	%	Smithers	Difference	%	Squamish	Difference	%	Vancouver
Food Composite ¹	\$14.71	+ 18.6		\$14.21	+ 14.6		\$14.03	+ 13.2		\$12.40
Fuels										
Gasoline	73.9	4.2		74.9	5.64		71.9	1.41		70.9
Heating Oil	46.4	8.67		46.9	9.84		44.2	3.51		42.7
Accommodation										
Rent ²	\$190/mo.	+ 10.5		\$190/mo.	+ 10.5		\$200/mo.	+ 16.3		\$172/mo. ³
Building Lots ⁴	\$13,500	- 36.9		\$12,800	- 40.1		\$13,000	- 39.2		\$21,000
House ⁵	\$42,500	- 14.8		\$43,500	- 12.8		\$42,500	- 14.8		\$49,900
Tax Rate										
Mills	93.478	+ 59		89.062	+ 55.2		77.765	+ 35.5		57.4

¹ A composite of prices for milk, bread, ground meat, steak, sugar, flour, salt, butter, eggs, potatoes and coffee taken as the average from two supermarkets in each community.

² Based upon data supplied municipal offices relating to the rental of a 1 bedroom unfurnished suite, heating included.

³ Data supplied by the Greater Vancouver Real Estate Board.

⁴ The average cost of a 4,000 to 5,000 square foot serviced building lot.

⁵ The average cost of a 1,200 square foot, 3 bedroom house.

sizes, a greater number of families have lower gross incomes than found in Vancouver.

Employment Opportunities. Employment opportunities for men in Terrace exist primarily in the logging industry and support functions. In 1975, little expansion of employment opportunities was anticipated. Of 10 employers interviewed out of 17 having more than 30 employees on regular staff, only 3 anticipate hiring additional staff (Table 7.8).

B.C. Hydro expected to hire an additional 22 or 23 employees with completion of construction of divisional offices in Terrace. It was stated that many of these employees would be transferred from other offices. Mills Memorial Hospital was undergoing a major expansion and additional nursing and administrative staff would be required within two years. The B.C. Vocational Institute in Terrace was in the process of becoming a regional college and staff members were being recruited, although most would come from outside Terrace.

With the exception of the preceding establishments, employment opportunities were not readily available. Construction work on Route 16 was nearing completion and although many of the workers were from outside the Terrace area, they did contribute to the local economy. It was anticipated that construction of the CNR line to the Nass Valley would provide a large number of jobs, but there was little optimism that the project would start in the near

TABLE 7.8

MAJOR EMPLOYERS: TERRACE, 1975

Company	- Canadian Cellulose (Sawmill Division) (Pohle Lumber)
Product	- dimension lumber, wood chips
Production	- 1974 - 120 Mf.b.m.
Employees	- 1974 - 300 1975 - 300
Labour Turnover	- 1975 - 85-95% (decreased from previous years due to poor employment opportunities)
Layoffs	- 28 June to 14 July 1975
Expansion Plans	- none
Salary	- start \$5.20/hr. plus \$.33/hr. COLA plus \$.12/hr./shift welder \$7.505/hr. plus \$.33/hr. COLA plus \$.12/hr./shift

Company	- Canadian Cellulose (Woods Division) Twin River Timber Limited
Product	- sawcut and pulp logs
Production	- 1 million cunits/year
Employees	- 1974 - 460
Labour Turnover	- 1975 - 8%/month (decreased from previous years due to poor employment opportunities)
Layoffs	- closed due to a strike in the pulp industry
Expansion Plans	- none in immediate future
Salary	- start \$5.55/hr. plus COLA welder \$7.455/hr. plus COLA plus \$.18 per shift

TABLE 7.8 Continued

Company	- Price-Skeena Forest Products
Product	- dimension lumber, wood chips
Production	- 1974 - 63 Mf.b.m.
Employees	- 1974 - 240
Labour Turnover	- 1974 - 73% (decreased from previous years due to poor employment opportunities)
Layoffs	- December 13, 1974 to May 1, 1975.
Expansion Plans	- none
Salary	- labourer \$5.30/hr. plus COLA plus \$.18/shift welder \$7.40/hr. plus COLA plus \$.18/shift

Company	- Skoglund Logging
Product	- sawcut and pulp logs (contract logging)
Production	- by contract
Employees	- 1974 - 100 1975 - 85
Labour Turnover	- 1974 - 50%
Layoffs	- closed due to strike in pulp industry
Expansion Plans	- none
Salary	- start \$5.55/hr. plus COLA welder \$7.455/hr. plus COLA

TABLE 7.8 Continued

Company	- Northwest Loggers Association (representing contract loggers in area)
Product	- sawcut and pulp logs on contract basis
Production	- n/a
Employees	- 1974 - 1200
Labour Turnover	- 1974 - 300% overall 1974 - 900% camps
Layoffs	- closed due to strike in pulp industry
Expansion Plans	- none
Salary	- per union contract

Company	- Finning Tractor and Equipment Company Limited
Product	- parts, service and sales of logging equipment
Production	- n/a
Employees	- 1974 - 70 to 74
Labour Turnover	- 1974 - 4% 1975 - 9.3%
Layoffs	- according to work available
Expansion Plans	- none
Salary	- start \$4.58/hr. plus \$.23/hr. isolation allowance welder \$7.90/hr. plus \$.395/hr. isolation allowance

TABLE 7.8 Continued

Company	- B.C. Hydro
Product	- electrical service
Production	- n/a
Employees	- 1974 - 33 1975 - 33 plus 25 construction
Labour Turnover	- 1974 - 20% 1975 - 20-25%
Layoffs	- none
Expansion Plans	- relocate division offices to Terrace plus add 22 employees
Salary	- clerical \$708/month (4.42/hr.) plus \$33.40/month isolation allowance linesman \$9.44/hr. plus \$33.40/month isolation allowance

Company	- B.C. Telephone
Product	- communication service
Production	- n/a
Employees	- 1974 - 127 1975 - n/a
Labour Turnover	- 1974 - 15% skilled trades - high in unskilled trades
Layoffs	- 1975 - 3 positions
Expansion Plans	- none
Salary	- apprentice installer \$4.92/hr. stores manager \$5.97/hr.

future. The forest industry was in a state of decline and had experienced shutdowns during the preceding year (Appendix A, Items 33, 38, 45, 54, 55).

Accurate unemployment rates are not available for Terrace or for the Kitimat-Stikine Regional District with the exception of the 1971 census. Due to this, trends cannot be calculated. Decreased turnover rates experienced by various employers indicate a greater difficulty in finding employment (Table 7.8).

Employment opportunities for women focused primarily upon jobs associated with clerical and retail. The participation rate for women in the Kitimat-Stikine Regional District is 2.2% below the provincial average of 40.4%.⁷ The likelihood for employment opportunities for women to improve is considered to be unlikely.

Overall, the employment situation in Terrace in 1975 was not favourable. Unemployment was running at approximately 10% for adults and higher for teenagers.⁸ Forest production was in a state of decline and new industrial expansion was not anticipated. Northwest development was not occurring as rapidly as expected and there was little optimism that new industry would be attracted into Terrace in the near future.

Isolation. Physical isolation in Terrace is determined by inconveniences, rather than availability. Terrace is provided for by most methods of travel and communications

(Table 7.9). Due to factors associated with distance and the size of market being served, services are expensive, time consuming and frequently of poor quality.

Friction of distance provides a major component of isolation. The nearest community which is substantially larger than Terrace and provides alternate shopping and entertainment is Prince George, which is approximately 400 miles distant. Vancouver is approximately 900 miles distant and requires two days driving time by car. Although air flights are regularly available, they are limited to occasional use due to cost. During winter months, ice and snow frequently curtail rail, air and highway travel.

Communication facilities are limited to a locally owned television and radio station, as well as CBC radio. Local newspapers provide news coverage, while major newspapers from outside of the region arrive one day late.

The preceding five qualitative factors of quality of life provide a base for the measurement of satisfaction in Terrace. Data relating to other factors of quality of life are presented in Appendix F.

Smithers

Historical Profile. Smithers was founded in 1913 as the result of a decision by the Grand Trunk Pacific Railway to construct a divisional headquarters halfway between Prince George and Prince Rupert.⁹ During the years of railway

TABLE 7.9
TRANSPORTATION AND COMMUNICATION SERVICES
AVAILABLE IN TERRACE, SMITHERS AND SQUAMISH: 1975

	Terrace	Smithers	Squamish
<u>Transportation Services:</u>			
Air Service to Vancouver	3 flights/day	3 flights/day	Not provided
Rail Service	CNR	CNR	BCR
Passenger Service	3 trains/week	3 trains/week	3 trains/week June-September
Bus Service	2 buses/day	2 buses/day	1 bus/day
Highway	Route 16 East/West Route 25 South	Route 16 East/West	Route 99
Distance to Vancouver	848 miles	722 miles	41 miles
Condition	Paved	Paved	Paved
<u>Communication Services:</u>			
Radio	CBC	CBC	CBC plus stations from Vancouver
Television	CFTK 1 channel cablevision	CFTK -	Vancouver (intermittent) 1 channel cablevision
Newspaper			
Local	2 weekly	1 bi-weekly	2 weekly
External	Vancouver Dailies	Vancouver Dailies	Vancouver Dailies
Postal Service	Box and Delivery	Box and Delivery	Box
Telegraph and Telex	CN Tele- communication	CN Tele- communication	N.A.
Telephone and TWX	B.C. Telephone	B.C. Telephone	B.C. Telephone

construction and those immediately following, Smithers underwent rapid growth, with settlers and railworkers moving into the community. By 1921, Smithers was of sufficient size to apply for and receive status as an incorporated village. WWI served to end the dream of Smithers developing into a major city, since British and American capital was invested elsewhere.

From 1920 until the end of WWII, Smithers underwent minimal or no growth, relying upon logging and agriculture to maintain the community.

Between 1945 and 1955 a large number of Dutch families immigrated to Smithers. Many of the families were associated with two Dutch church groups, the Canadian Reformed Church and the Christian Reformed Church.

The Dutch community of Smithers is very community conscious and is involved in community services as well as business. Church principles play a strong role in the affairs of these residents, and is reflected in such actions as labour representation by the Christian Labour Association of Canada at a local Dutch-owned sawmill, and a sense of community co-operation.

From its inception until 1972, Smithers has undergone slow but steady growth, with few "boom" cycles. Economic development has focused upon forestry and agriculture. During this period, several small scale, locally owned logging and sawmilling companies developed in Smithers.

Due to their local affiliations, they have been sensitive to employment needs in Smithers. Agriculture in the Bulkley Valley has provided a stabilizing force in that it has not been controlled by foreign market fluctuations, as has been the case with lumber exports. In the area adjacent to Smithers, many ranchers work in the logging industry to gain supplemental income.

The Response of Smithers to Northwest Development. In 1972, it was anticipated that benefits from northwest development would be realized in Smithers through: (1) expanded sawmilling and the construction of a veneer mill; (2) expanded service functions associated with the proximity to Route 37; and (3) increased government functions associated with the declaration of Smithers as a regional center for government (see Items 20, 21, 25, 29, 65, in Appendix A). Concerns relating to the impact of growth in Smithers have focused primarily upon expansion of the economic base, quality of the physical environment and alteration of existing life styles.

In acknowledging that Smithers has had a narrow economic base, Mayor Williams recognized problems associated with market fluctuations and layoffs in the forest industry and a lack of employment opportunities for young people. Employment opportunities were considered to be especially poor for women and those first entering the labour market, as well as Indians.¹⁰ Although Mayor Williams promoted

economic growth in the community, he was apprehensive that too rapid a rate of growth could alter both the natural beauty and harmony of Smithers. Other organizations in Smithers, such as the Smithers Chamber of Commerce and local trade unions, echoed the mayor's appreciation of the need for a prudent growth rate.

The local chapter of SPEC presented a more conservative approach to economic growth. Although the need for improved employment opportunities was recognized, it was stressed that Smithers enjoys a low labour turnover rate, few social problems and is not dominated by a single large industry. It was felt that the residents of Smithers shared a sense of community, with a willingness to work together. The opinion was expressed that sudden growth, or growth which was insensitive to community needs, would severely disrupt the life style found in Smithers.

Views regarding the merits of growth and the course it should take in Smithers were less polarized than in Terrace. Community leaders and representatives of various groups all expressed a desire to see Smithers remain relatively small and socially stable.

The quality of the physical environment in and adjacent to Smithers was a frequent point of concern. Representatives of SPEC, the Smithers Chamber of Commerce, the provincial government, and the Bulkley-Nechako Regional District, all expressed concern that any industry which

locates in Smithers be pollution free or "clean." SPEC expressed concern regarding not only industry in Smithers, but also the impact of development upon the overall physical and social environment of the northwest (Appendix A, Item 28). Concern for the physical environment prompted the community of Smithers to successfully oppose the logging of nearby Hudson Bay Mountain. The apparent concern for environmental matters is likely due, in part, to the idyllic setting in which Smithers is situated, and which has attracted many of its residents.

The most dominant concern expressed relating to the impact of northwest development was alteration of the existing life style in Smithers. Nearly all of those interviewed stated that Smithers was a very peaceful and harmonious community in which to live and that it was free from many of the problems associated with larger communities. These characteristics were favoured by long term residents and had served to maintain many newcomers. Fear was expressed that rapid growth associated with development would disrupt the sense of community which had developed as a result of Smithers' relatively slow pace of growth. Anxiety concerning changing life styles was cited as one of the reasons why sawmill expansion was scaled down and a veneer/plywood mill was successfully opposed by many residents of Smithers.

In summary, most individuals interviewed expressed doubt regarding the benefits to be obtained from large scale

economic growth. This was likely due to two factors. First, long term residents of Smithers have seen various schemes for large scale growth come and go, without success. Second, many of those interviewed lived in Smithers because they enjoyed living in a small community, and did not wish to see the community greatly changed. Although opinions conflicted regarding the future of Smithers, it was frequently expressed that opposing views combined with public discussion would ultimately lead to a solution and a better community.

Smithers is in a state of evolution from a multi-enterprise open community to a regional resource center. Traditionally, Smithers has served as a center for logging and agriculture, as well as a distribution center for the Bulkley Valley. With the increasing importance of government and distribution functions within the community, it is anticipated that Smithers will serve as a regional resource center.

Smithers, like Terrace, is also at a stage of development characterized by industrial operation and community improvement, as well as industrial and community development.

Smithers Community Services.

Medical Services. The first level of health services available to residents of Smithers consists of the complement of medical personnel which is available (Table 7.1). One clinic is available to handle outpatient diagnosis. Two retired physicians also reside in Smithers, and provide

their services on a part-time basis. Four physicians residing in Burns Lake also provide health care in Smithers and utilize the Bulkley Valley District Hospital. Patients requiring specialized medical care are either moved to facilities in Vancouver, or must wait for the scheduled arrival of the specialist.

The provincial Department of Health operates the Smithers Public Health Clinic as a sub-unit of the Skeena Health Unit. A major health problem within the community was recognized as being alcoholism. Alcoholism was considered to be worst amongst the Indian population, although it was also common amongst the white population. Similar to the health unit in Terrace, the Smithers Health Clinic was also suffering from a lack of staff (Table 7.2). Since a Mental Health Office was not located in Smithers, a counsellor visited the community on a regular basis from Terrace.

The third level of health services in Smithers consists of the Bulkley Valley District Hospital Society, and provides services to Smithers as well as the surrounding region (Table 7.3). In 1974 a major expansion of the hospital was completed, providing needed bed space and surgery facilities. As a part of this expansion, a specialized flouroscope unit was acquired, and provides service to other hospitals in the northwest.

Specialized care of elderly patients is not available in Smithers and if the Bulkley Valley District Hospital

cannot satisfy their needs, they are moved to Skeena View Lodge in Terrace.

Educational Services. Juvenile education in Smithers is provided by School District #54 (Table 7.4). In 1975 expansion plans consisted of a new classroom wing and gymnasium complex, which was also to serve for community functions. It was noted that during recent years few difficulties had been encountered in filling staff requirements, since Smithers was considered to be a desirable place to live.

Both of the demoninational schools had large enrolment when compared to their counterparts in Terrace (Table 7.5). It was not possible to ascertain whether this was a result of increased church involvement in Smithers or dissatisfaction with school district policies.

Adult education courses are provided by way of either correspondence courses or visiting lecturers who come from the College of New Caledonia, in Prince George. Pursuit of a university degree, vocational courses, or technological training must be sought by moving to centers where such courses are offered.

Cost of Living. Specific data relating to income in Smithers are not available.

The 1974 average income in the Bulkley-Nechako Regional District was \$8,223. This was 12.1% below the average income in Vancouver (see Table 6.5).

Decreased incomes in Smithers are attributed to three factors. First, seasonal woods closures decrease the average income of those employed in the logging industry. Second, the Bulkley-Nechako Regional District is lacking a large, high salaried industrial plant, such as Alcan in Kitimat. Third, farm income is traditionally low, and a major portion of the labour force in the regional district is composed of self-employed farmers. Conditions for obtaining above average wages in Smithers are similar to those found in Terrace, with overtime under average working conditions being required.

In 1975 the cost of food, fuels and rental accommodation in Smithers exceeded those in Vancouver by between 10.5% and 14.6% (Table 7.7). This was offset by lower costs for building lots and houses. The mill rate in Smithers was 55.2% above that of Vancouver.

As in Terrace, those in Smithers who are unable to own their own accommodation are the most greatly affected by increased living costs. Also, lower labour participation rate by females and larger family size serves to exacerbate living costs.

In most communities in the northwest, residents seek to offset food costs through home gardens, the purchasing of locally grown produce from farms, and hunting and fishing. To many residents of the area, hunting is considered to be a matter of necessity rather than a sport.

Although the dollar cost of living may be greater in the northwest than in southern British Columbia, other benefits such as lower crime rates, recreation, and relaxed life styles are accepted as compensation. The dollar value which is placed upon life style traits is not measurable.

Employment Opportunities. Employment opportunities for men in Smithers are primarily associated with the forest industry and its support functions. Of the four employers interviewed in 1975 who had over 30 employees on staff, only one, the B.C. Forest Service, anticipated major expansion (Figure 7.10). All other employers were either maintaining existing staff, or decreasing their worker complement.

Employment opportunities for women focused primarily upon clerical and retail jobs. The participation rate of women in the labour force in the Bulkley-Nechako Regional District is 5% below the provincial average of 40.4%.¹¹ Although many women were seeking employment in 1975 in the region, jobs were not available.¹² It was anticipated that employment opportunities for women would improve with the establishment of additional government offices in Smithers.

Industrial expansion was at a standstill in 1975. One sawmill in Smithers anticipated installing a new planer which would employ an additional nine men, otherwise existing industrial facilities were not being expanded. It was not anticipated that any new industries would be situated in Smithers, and the local industrial development promotion

TABLE 7.10

MAJOR EMPLOYERS: SMITHERS, 1975

Company	- D. Groot Logging Ltd.
Product	- Dimension Lumber, Wood Chips
Production	- 1974 - 17.5 M fbm
Employees	- 1974 - 45 1975 - 45
Labour Turnover	- 1974 - 25%
Layoffs	- None
Expansion Plan	- Adding Planer, Hiring 9 Men
Salary	- Comparable to IWA Agreement Employees represented by Canadian Christian Union

Company	- Pacific Inland Resources Ltd.
Product	- Dimension Lumber
Production	- N.A.
Employees	- 1974 - 90-95 1975 - 80-85
Labour Turnover	- 1974 - 30%
Layoffs	- September 30, 1975 to January 1, 1977
Expansion Plan	- None
Salary	- Comparable to IWA Agreement Employees represented by the Northern Interior Woodworkers Union

TABLE 7.10 Continued

Agency	- British Columbia Department of Highways Smithers Division
Product	- Highway Maintenance
Production	- N.A.
Employees	- 1974 - 56
Labour Turnover	- 1974 - 5%
Layoffs	- Termination of Seasonal Workers, Students
Expansion Plans	- None
Salary	- Labourer - \$1,000/month (\$6.25/Hr.) Welder - \$1,163/month (\$7.26/Hr.)

Agency	- British Columbia Forest Services Smithers Offices
Product	- Forest Management
Production	- N.A.
Employees	- 1975 - 45 full time - 70 part time
Labour Turnover	- N.A.
Layoffs	- Termination of Seasonal Workers
Expansion Plans	- Regional Administrative Offices to be located in Smithers by 1980
Salary	- N.A.

committee had disbanded.

In summary, the employment situation for both men and women in Smithers in 1975 was poor. Unemployment was approximately 10% amongst men, 27% amongst women and very high amongst new entries into the labour market. Due to co-operation between local unions and sawmills, layoffs had been kept to a minimum and none were anticipated. Expansion associated with northwest development had been curtailed and further expansion was not expected.

Isolation. As in the case of Terrace, physical isolation in Smithers is determined by inconvenience rather than availability. All normal methods of travel and communication are available in Smithers (Table 7.9). Due to factors associated with distance and the size of market being served, transportation and communication services are expensive, time consuming and frequently of poor quality. Since Smithers is located to the east of the Coast Mountains, transportation services are less affected by weather conditions than in Terrace.

Although Smithers is closer to Prince George and Vancouver than Terrace, distances are still great enough to discourage frequent travel. Physical isolation can only be alleviated through improved services and reduced costs to users.

The preceding factors of quality of life in Smithers serve to help determine the satisfaction which residents

have towards their community. Other components of quality of life in Smithers are presented in Appendix F.

Squamish

Historical Profile. Initial white settlement in the area of present day Squamish occurred during the late 1890's, with over a dozen families living in the area by 1900.

In 1909 a private railway, the Howe Sound and Pemberton Valley Northern, was built to transport logs to the coast.¹³ In 1912 the railway was bought by the government of British Columbia and renamed the Pacific Great Eastern Railway. With the sale of the railway a land boom occurred and the community of Newport was built. This name was soon changed to Squamish, after the Indian name Squohomish, meaning "strong winds."¹⁴

The period from the beginning of WWI until the end of WWII saw little growth occurring in Squamish, with 700 people living in the community in 1946. At this time logging was the major source of income.

In 1948, Squamish was incorporated as a village.

In 1956, the Pacific Great Eastern Railway completed construction of track from Squamish to North Vancouver. This served to provide a direct rail link between central British Columbia and Vancouver. Also, Squamish was enhanced as a rail center and port.

In 1958, work was completed on construction of Route 98 between North Vancouver and Squamish. This served to further enhance Squamish as a port and a community in which to live.

In 1964, as a response to a developing pattern of disjointed residential construction, Squamish was incorporated as a district municipality, encompassing most of the lower portion of the Squamish Valley. Although it has continued to evolve into four distinct neighbourhoods, consisting of Valleycliff, Brackendale, Garibaldi, and Squamish, municipal services and utilities are supplied on an integrated basis. In 1966 the Townsite of Woodfibre was incorporated into Squamish.¹⁵

The Response of Squamish to Industrial Development. The economic base of Squamish is dependent upon forest utilization and the British Columbia Railway.¹⁶

Forest related industries which have situated in Squamish include the Rayonier Canada pulp mill, a Weldwood of Canada sawmill, a MacMillan Bloedel woods division, Howe Sound Timber, and several smaller operations. In total, the forest industry employs over 2,000 men in the Squamish area.¹⁷ Other industries related to the forest industry include FMC Chemicals and Dow Chemicals, both of whom produce chlorine and caustic soda, as well as other chemicals used in the pulp industry.

The BCR has designated Squamish as the maintenance center for railway operations. Over 1,238 miles of track and associated rolling stock are maintained or provisioned from yards and shops at Squamish.¹⁸ In addition, BCR has constructed a railcar manufacturing plant in the community and Railwest Manufacturing, a separate division of the BCR, commenced production in 1975. This facility, once in full production, is expected to employ 280 men.¹⁹

Squamish Terminals, owned by Star Shipping, has constructed a trans-shipment port facility for handling wood and pulp products from mills in the interior of British Columbia. Materials are transported to Squamish by the BCR, as well as by barge from coastal points, and then loaded onto ships bound for world markets.

Tourism and outdoor recreation, especially in the area north of Squamish, also help to provide an economic base of the community.

Industrial growth in Squamish has occurred primarily since 1962, and has been most pronounced between 1971 and 1974, during which time the growth rate exceeded 25% per year.²⁰ The rate of expansion of Squamish would have been even greater, except that a large percentage of workers commute from Vancouver. In 1972 the average was 12% of the work force, exceeding 25% in some industries.²¹

Although Squamish is not a participant in a regional development plan as such, it is anticipated that the commun-

ity will continue to grow. Increased movement of commodities by the BCR will require expanded port facilities. Also, grain and coal handling have been proposed as future port functions. In addition, furniture manufacturing and shipbuilding have been acknowledged as potential industries.²² With increasing land costs and environmental pressures in the Vancouver area, the municipality of Squamish envisions continued growth and development.

Response to industrial development in Squamish has not been as polarized as in Terrace or Smithers. This is possibly due to the number of recent arrivals living in Squamish, the division of the community into four separate neighbourhoods and identification with Vancouver by many residents. Concerns expressed by interview respondents focused upon the continuation of economic growth, community apathy, and the lack of cultural facilities.

Squamish was recognized as being an industrial community and it was felt that this trend should continue. Mayor Stewart noted that industrial growth creates needed tax revenue with which services can be provided to the community, and that moves to curtail the establishment of industry in Squamish would ultimately lead to a lower level of services. Several respondents acknowledged that decisions had to be made between the amount of industrialization which should occur and the degree of environmental quality which could be retained. The overall feeling was that

continued industrial development would not seriously disrupt the environment, either physical or social.

Organized opposition to development proposals or the presence of a public forum of discussion was not available. It was noted that residents had complained about odours associated with FMC Chemicals when it first started production, but this had been remedied by the plant.

During the summer of 1975, the main concern regarding industrial development in Squamish related to how it could be further promoted. Interview respondents were concerned that the rapid growth rate of the previous ten years would cease. It was noted that many of the community services which were required were dependent upon a sound industrial tax base, and this could only be ensured through continued growth.

Community apathy was considered to be a major problem in Squamish. Problems associated with a lack of community identity, and non-involvement were recognized as being common. This was considered to be largely due to the proximity to Vancouver. Most residents utilized Vancouver for shopping, cultural, recreational and social needs, therefore there was little identification with Squamish.

It was also recognized that many of the residents of Squamish had arrived only recently. The most static group were those with children, while those who were unmarried or young tended to be transient. Due to the recent arrival of

much of the population, community identity and involvement were still in a developing stage.

The third level of concern related to the impact of growth in Squamish and a lack of cultural facilities. Several of those interviewed stated that residents must travel to Vancouver in order to experience cultural enrichment, whether it be in the form of music, drama or art. This was recognized as being a problem associated with the proximity of Squamish to Vancouver, although it was also acknowledged that Squamish had undergone such rapid growth that cultural facilities had not had time to develop. It was anticipated that with a stabilized growth and population turnover rates, cultural expression could become better developed within the community.

Squamish serves to typify a multi-enterprise open community, in that the economic base is broader than most northern communities.

The economic base of Squamish is supported by direct involvement in the forest industry in the form of logging, sawmilling and pulp production, as well as indirect production in the form of chemical manufacturing. In addition, Squamish has a large industrial base associated with railway maintenance and railcar production. Although these industries have a large degree of control over payrolls in the community, they do not direct municipal government, in the sense of a "company town."

Squamish is presently at the stage of resource town development typified by industrial operation and community improvement. Industrial construction has slowed and residential construction and the provision of public utilities are the main focus of community growth. The commercial sector is stunted, due to the proximity of Vancouver.

Squamish Community Services

Medical Services. The resident medical health complement of Squamish consists of six general physicians and five dentists (Table 7.1). Medical services are dispensed from two clinics. Many patients seek medical care in Vancouver, with physicians in Squamish treating minor ailments, emergencies and those who cannot afford travel costs.

In 1975 reference was made to a lack of co-operation between the two medical clinics in Squamish. Several interview respondents considered the medical clinics to be competing with each other for dominance and unwilling to provide sufficient attention to their patients, the Squamish General Hospital or the overall community.

Public health services in Squamish are supplied by the Coast-Garibaldi Health Unit. In 1975 two health nurses in addition to a public health inspector were located in Squamish (Table 7.2). The composition of a full staff complement for the clinic was not obtainable, although it was noted that the existing facilities were overtaxed.

Mental health needs in Squamish are catered to by the Squamish Mental Health Clinic. This facility is staffed by one professional counsellor and a part-time clerk (Table 7.2). Cases requiring more specialized treatment are referred to Vancouver.

The Squamish General Hospital is operated by the Squamish Hospital Society. Hospital facilities are inadequate due to the dependence upon hospitals in Vancouver (Table 7.3). In 1974 all major operations were referred to hospitals in Vancouver.²³ In 1975, efforts were being made to have the hospital accredited as a fully provided general hospital, although at that time plans were not being made for physical expansion.

Education Services. Juvenile education in Squamish is administered by School District #48 (Howe Sound), which operates four elementary schools and one junior/senior secondary school within the community (Table 7.4). In 1975 no new schools were planned, although the possibility of shifts was being considered.

In 1975 there were no denominational schools in Squamish. St. David's School for Boys provided instruction on a private basis, catering mainly to students from outside the Squamish area.

Adult education, with the exception of non-academic enrichment courses, are available only through attending institutions outside of Squamish. Due to the proximity to

Vancouver, many students commute each day to attend courses. The BCR provides a vocational training programme in conjunction with the B.C. Vocational Institute. Courses are offered which relate to the needs of the rail industry.

Cost of Living. Specific data concerning income levels in Squamish are not available.

The average income in the Squamish-Lillooet Regional District was 35.3% below that of Vancouver (see Table 6.5). The substantially lower salaries found within the regional district are likely due to the seasonal nature of the logging industry and seasonal work associated with outdoor recreation.

Living costs in Squamish exceed those of Vancouver by between 13.2% and 16.3% (Table 7.7). As in Terrace and Smithers, the cost of building lots and houses was substantially lower than those in Vancouver. Increased living costs would be most greatly felt by those who do not own their own accommodation, while food costs can be offset by purchases made in Vancouver while on other business.

Employment Opportunities. Employment opportunities in Squamish are related primarily to the forest industry and the BCR (Table 7.11). With the exception of Squamish Terminals, none of the existing plants anticipated expansion or providing increased employment opportunities. The job market was poor, and most employees were remaining with their present employers. This was reflected in decreased

TABLE 7.11

MAJOR EMPLOYERS: SQUAMISH 1975

Company	- MacMillan Bloedel and Powell River Limited, Squamish Division
Product	- pulp and sawcut logs
Units Produced	- n/a
Employees	- 1974 - 109 1975 - 99
Labour Turnover	- 1974 - 183% 1975 - 27% (due to closure, approximation only)
Layoffs	- December 17, 1974 - May 12, 1975
Expansion Plans	- none
Salary	- start \$5.55/hr. welder \$7.455/hr.

Company	- Weldwood of Canada, Empire Logging
Product	- wood chips, pulp logs, sawcut logs
Units Produced	- n/a
Employees	- 1974 - 75 direct employees - 89 contract employees
Labour Turnover	- 1974 - 275%
Layoffs	- closed December 1, 1974 to March 1, 1975
Expansion Plans	- none
Salary	- n/a

TABLE 7.11 CONTINUED

Company	- Weldwood of Canada Empire Lumber Division, Squamish
Product	- sawcut and dimension lumber
Units Produced	- 300 Mf.b.m. (1973)
Employees	- 1974 - 223 1975 - 220
Labour Turnover	- 1974 - 115% 1975 - lower, fewer jobs available
Layoffs	- major shutdown had occurred within last year due to poor market conditions
Expansion Plans	- none
Salary	- n/a

Company	- Rayonier of Canada Woodfibre Division
Product	- bleached kraft pulp
Production	- 550 T/day
Employees	- 1972 - 431 men
Labour Turnover	- 1972 - 55.8%
Layoffs	- n/a
Expansion Plans	- n/a
Salary	- n/a

TABLE 7.11 CONTINUED

Company	- British Columbia Railway Mechanical Division
Product	- maintenance of railway equipment
Units Produced	- n/a
Employees	- 1975 - 425
Labour Turnover	- 20-25% labourers lower rate on skilled trades
Layoffs	- none (men transferred to rail car production)
Expansion Plans	- none
Salary	- labourer \$5.03/hr. plus \$.15 shift differential welder \$7.08/hr. plus \$.15 shift differential

Company	- Star Shipping Squamish Terminals Ltd.
Product	- 44 acre general cargo facility
Production	- 1974: pulp - 352,606 T lumber - 39,868 Mf.b.m. paper - 1,528 T plywood - 2,650 T
Employees	- 1975 - 22-25 regular 35 on dispatched basis
Labour Turnover	- work force changes as part of longshore dispatch procedure
Layoffs	- none
Expansion Plans	- projected second berth and warehouse by 1978.
Salary	- n/a

labour turnover rates.

Employment opportunities for both female and new entrants into the job market were considered to be very poor. Positions available for women were either clerical or sales oriented. Positions for young males were scarce, since employers hesitated to hire individuals who were not established and therefore likely to be transient. It was hoped continued industrial expansion and diversification would provide a wider range of employment opportunities.

Isolation. Physical isolation in Squamish is determined primarily by the availability of an automobile.

Transportation services such as rail and air to and from Squamish are poorly provided for. Rail passenger service is provided three times a week by the BCR. During the summer a steam locomotive is used as a novelty ride. Air service is accommodated by means of a paved surface runway, although scheduled service is not available.

Communication services associated with radio and television are limited due to the mountainous terrain surrounding Squamish. Radio and television signals are intermittent. Efforts were being made in 1975 to have relay facilities installed to improve service. Telegraph and telex service is supplied through Vancouver offices and telephoned to Squamish.

Unlike Terrace or Smithers, Squamish is within 45 minutes driving time of a major metropolitan area. Due to

this many of the transportation communication services which are directly available in Terrace and Smithers are not available in Squamish. Although Route 99 is frequently closed during the winter, easy driving access is usually available to facilities and services in Vancouver with the expenditure of a minimum of time and effort. Essentially, Squamish is more isolated in relation to certain services, but less isolated in respect to the ease of travel to Vancouver.

Further data relating to components of quality of life in Squamish are presented in Appendix F.

Footnotes

¹Nadine Asante, *The History of Terrace* (Terrace: Totem Press Terrace Ltd., 1973), p. iv.

²Terrace and District Chamber of Commerce, *Your Guide to Terrace, British Columbia*, 1975, p. 65.

³Victims of Industry Changing Environment, a trade union group originating in Kitimat, with offices in Terrace. Their main purpose is to research various development proposals and to provide trade union input.

⁴The R.E.M. Lee Theatre is a unique structure when compared to theatre facilities in other northern communities in British Columbia. The theatre consists of a 702-seat fine arts and drama theatre designed for the staging of major theatrical events. It is administered by the School District and the Municipality of Terrace and has attracted functions such as the Winnipeg Ballet, the Vancouver Symphony and the Pacific Northwest Drama Festival.

⁵In September 1976 the Northwest Community College came into service, providing vocational courses and first and second year accredited university courses.

⁶Graham Farstad, *North-West British Columbia: A Social Perspective*, 1975, uncirculated publication, British Columbia Department of Human Resources, Victoria, B.C., p. 79.

⁷*Ibid.*, p. 66.

⁸Canada Manpower, Terrace, B.C., personal communication.

⁹Town of Smithers, Chamber of Commerce, *Smithers, British Columbia*, p. 3.

¹⁰Canada Manpower, Smithers, B.C., personal communication.

¹¹Farstad, *op. cit.*, p. 66.

¹²Canada Manpower, Smithers, B.C., personal communication.

¹³"Squamish: A Look at the Past," *Columbian*, New Westminster, B.C., 8 July 1970, p. 9.

¹⁴*Ibid.*

¹⁵D. Shaw, W. Prothero, B. Bradbury, *Environmental Health Study for Squamish*, 1972, p. 18.

¹⁶The Pacific Great Eastern Railway (PGE) was renamed the British Columbia Railway (BCR) on 1 April 1972.

¹⁷D. Thacker, "Squamish, and the Process of Coming of Age," *Business in B.C.* (May/June 1974), p. 22.

¹⁸*Ibid.*, p. 27.

¹⁹*Ibid.*

²⁰*Ibid.*

²¹Shaw, *op. cit.*, p. 14.

²²Thacker, *op. cit.*, p. 29.

²³In 1974, of all the patients listing Squamish as their address, 34.9% were admitted to the Squamish General Hospital, 34.8% to the Lions Gate Hospital in North Vancouver, 9.5% to St. Paul's Hospital in Vancouver, and 8.4% to Vancouver General Hospital (supplied by Squamish General Hospital).

CHAPTER VIII

SATISFACTION ATTAINMENT AND
THE QUALITY OF LIFE

It is anticipated that the components of quality of life utilized in the perception of satisfaction as well as the intensity with which satisfaction is felt varies between the residents of the three study communities. It is further anticipated that demographic features associated with the study population will influence the perception of satisfaction. In this chapter, these factors will be evaluated, with a focus upon the selected determinants of quality of life as outlined in Chapters IV and VII.

Study Population Characteristics

In all three study communities, responses were dominated by males (Table 8.1). Due to a tendency for female recipients to pass the questionnaires on to their husbands, the sample was not representative of the sex ratios of Terrace, Smithers and Squamish (see Table 6.3). Crosstabulation analysis of the sex profile of respondents did not provide a statistically significant difference between the three communities, indicating a similarity of proportions of male and female respondents in the three communities.

TABLE 8.1
SEX PROFILE OF SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Sex						
Male	75	70.1	57	55.3	64	60.4
Female	32	29.9	46	44.7	42	39.6
Total	107	100.0	103	100.0	106	100.0
Missing Cases	2		1		1	

Chi square = 5.03386

df = 2

Significance = 0.08

Approximately 60% of the respondents in Terrace and Smithers were in the age group of 20-39 years (Table 8.2). This age group was substantially less in Squamish, accounting for 46.6% of the sample. This variation was offset by a higher representation of those in the categories 50-59 and over 60, in Squamish. Respondent age profiles parallel the age profiles found in regional districts of the northwest and the Regional District of Squamish-Lillooet (see Table 6.2). Door-to-door sampling precluded responses from those under 19, since in most areas adults received the questionnaire.

Of the three study communities, Terrace displayed the lowest percentage of respondents who were married and the highest percentage of those who were single (Table 8.3). This may be associated with Terrace's role as a center for logging and construction activity, with a resultant attraction to young, unmarried workers.

Analysis of the number of children residing at home indicated statistically significant differences between the three study communities (Table 8.4). Both Terrace and Smithers had greater percentages of families with three and four children, and lower percentages of families with one or two children.

Data relating to educational attainment and gross income of households showed little variation between the three study communities (Tables 8.5 and 8.6).

TABLE 8.2

AGE OF SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
15 - 19 years	1	0.9	-	-	5	4.7
20 - 29 years	35	32.7	24	23.3	20	18.7
30 - 39 years	34	31.8	35	34.0	32	29.9
40 - 49 years	21	19.6	23	22.3	23	21.5
50 - 59 years	14	13.1	17	16.5	21	19.6
+ 60 years	2	1.9	4	3.9	6	5.6
Total	107	100.0	103	100.0	107	100.0
Missing Cases	2		1		-	

Chi square = 15.058

df = 10

Significance = 0.1299

TABLE 8.3

MARITAL STATUS OF SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Single	16	15.0	5	4.8	9	8.4
Married	82	76.6	93	89.4	93	86.9
*Other	9	8.4	6	5.8	5	4.7
Total	107	100.0	104	100.0	107	100.0
Missing Cases	2		-		-	

Chi square = 8.345

df = 4

Significance = .079

*Includes respondents who were separated, divorced or widowed.

TABLE 8.4
NUMBER OF CHILDREN RESIDING AT HOME IN SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
None	31	30.4	29	28.4	25	25.0
One	15	14.7	20	19.6	22	22.0
Two	26	25.5	18	17.6	37	37.0
Three	16	15.7	19	18.6	7	7.0
Four	12	11.8	14	13.7	2	2.0
Five	2	2.0	2	2.0	5	5.0
More than 5	-	-	-	-	2	2.0
Total	102	100.0	102	100.0	100	100.0
Missing Cases	7		2		7	

Chi square = 29.33
With df = 12
Significance = .004

TABLE 8.5

EDUCATION ATTAINMENT OF SAMPLE POPULATION

Community Attainment	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Less than Grade 7	4	3.7	3	2.9	2	1.9
Grades 7 - 9	13	12.1	10	9.7	11	10.5
Grades 9 - 12	46	43.0	43	41.7	51	48.6
Technical School	11	10.3	8	7.8	10	9.5
Trade School	9	8.4	9	8.7	14	13.3
University	13	12.1	14	13.6	10	9.5
Postgraduate School	3	2.8	4	3.9	2	1.9
Professional School	8	7.5	12	11.7	5	4.8
Total	107	100.0	103	100.0	105	100.0
Missing Cases	2		1		2	

Chi square = 8.118
df = 14
Significance = .883

TABLE 8.6

GROSS INCOME OF HOUSEHOLDS IN SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Under \$2,999	3	3.2	2	2.1	1	1.1
\$3,000 - \$5,999	2	2.1	4	4.2	3	3.2
\$6,000 - \$8,999	6	6.4	8	8.3	13	13.7
\$9,000 - \$11,999	15	16.0	19	19.8	16	16.8
\$12,000 - \$14,999	22	23.4	25	26.0	24	25.3
\$15,000 - \$17,999	15	16.0	19	19.8	14	14.7
\$18,000 - \$20,999	14	14.9	8	8.3	13	13.7
\$21,000 or more	17	18.1	11	11.5	11	11.6
Total	94	100.0	96	100.0	95	100.0
Missing Cases	15		8		12	

Chi square = 9.76

df = 14

Significance = .780

The occupations of respondents varied significantly between the study communities (Table 8.7). Terrace displayed a low percentage of respondents in the category of other occupations. This may be explained by either a higher percentage of women in the work force or a lower propensity for people to retire in Terrace. The decreased level of professional and service and sales occupations in Squamish may be associated with a dependence upon Vancouver for goods and services. Of particular interest are the low number of occupations associated with primary activities in the three communities, and especially in Smithers.

The size of the community in which respondents spent their youth and the duration of expected continuing residency in the study communities showed little variation between communities (Tables 8.8 and 8.9).

The duration which respondents had lived in the study communities varied significantly (Table 8.10). Smithers had a tendency towards respondents who had lived there more than 10 years. This may be explained by a core of residents who have made Smithers their home. Squamish was characterized by a relatively uniform distribution of residency duration. The variations in residency duration may be partially explained by growth cycles through which the communities have passed, resulting in concentrations of population growth.

TABLE 8.7

OCCUPATIONS OF SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
Occupation Group	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Professional	27	25.7	17	16.5	11	10.8
Service - Sales	32	30.5	33	32.0	23	22.5
Primary Activities	13	12.4	4	3.9	10	9.8
Fabricating	17	16.2	7	6.8	22	21.6
Transportation	6	5.7	10	9.7	6	5.9
Other*	10	9.5	32	31.1	30	29.4
Total	105	100.0	103	100.0	102	100.0
Missing Cases	4		1		5	

Chi square = 35.14
 df = 10
 Significance = .001

*Includes housewives and those retired or unemployed.

TABLE 8.8

SIZE OF COMMUNITY IN WHICH YOUTH WAS SPENT BY SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
More than 500,000 population	16	16.2	24	24.0	30	29.4
50,000 to 500,000 population	7	7.1	9	9.0	7	6.9
5,000 to 50,000 population	32	32.3	23	23.0	28	27.5
Rural area	44	44.4	44	44.0	37	36.3
Total	99	100.0	100	100.0	102	100.0
Missing Cases	10		4		5	

Chi square = 6.79
 df = 6
 Significance = .341

TABLE 8.9

DURATION OF EXPECTED CONTINUAL RESIDENCY IN COMMUNITY BY SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Less than 1 year	8	7.5	2	2.0	5	4.8
1 - 2 years	11	10.4	12	12.0	5	4.8
More than 2 years	28	26.4	35	35.0	28	26.9
Unknown	59	55.7	51	51.0	66	63.5
Total	106	100.0	100	100.0	104	100.0
Missing Cases	3		2		3	

Chi square = 9.55
df = 6
Significance = .145

TABLE 8.10
DURATION OF RESIDENCE IN COMMUNITY BY SAMPLE POPULATION

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
Duration in Community	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Less than 6 months	5	4.6	5	4.8	3	2.8
6 - 12 months	6	5.5	13	12.5	13	12.1
1 - 3 years	27	24.8	19	18.3	21	19.6
4 - 6 years	18	16.5	8	7.7	14	13.1
7 - 10 years	15	13.8	10	9.6	24	22.4
More than 10 years	38	34.9	49	47.1	32	29.9
Total	109	100.0	104	100.0	107	100.0
Missing Cases	-	-	-	-	-	-

Chi square = 18.89
df = 10
Significance = .042

Although the preceding demographic characteristics show few variations between the study communities, they provide a general socio-economic profile of the study population and also a base for further analysis.

Analysis of Satisfaction Associated with Quality of Life: Variables and Differences in Perceived Satisfaction Between Northern and Southern Communities

In this section the levels of satisfaction associated with various quality of life components in each of the study communities, as well as the degree of variation in satisfaction between the northern and southern study communities, will be analyzed (Tables 8.11 and 8.12). Each of the five focus variables of quality of life will be analyzed and data will be presented regarding other variables which prove statistically significant.

Health Facilities. Within each of the study communities over 50% of respondents expressed satisfaction with health facilities (Table 8.11). Although Squamish has generally fewer medical personnel and a lower level of facilities available in the community (Tables 7.1, 7.2 and 7.3), a high degree of satisfaction was expressed. This may be explained by either the services which are available in Squamish being of exceptionally high calibre, or the distance required for travel to Vancouver not being considered an impediment.

TABLE 8.11
PERCEIVED SATISFACTION WITH QUALITY OF LIFE VARIABLES IN SAMPLE COMMUNITIES

Community	Terrace				Smithers				Squamish			
	Percentage of Sample		Percentage of Sample		Percentage of Sample		Percentage of Sample		Percentage of Sample		Percentage of Sample	
	Satisfied*	Neutral	Dissatisfied	N	Satisfied	Neutral	Dissatisfied	N	Satisfied	Neutral	Dissatisfied	N
Health Facilities ^{1,2}	59.8	21.5	18.6	107	53.0	24.5	22.5	102	59.7	19.2	20.2	104
Education Facilities ¹	63.0	25.9	11.2	108	47.0	35.0	18.0	100	53.8	25.0	21.2	104
Cost of Living ^{1,2}	4.7	19.6	75.7	107	13.5	20.2	66.3	104	14.3	16.2	68.6	105
Employment Opportunities (men) ¹	58.8	23.5	17.6	102	47.0	31.0	22.0	100	60.2	25.5	14.3	98
Employment Opportunities (women) ¹	48.5	33.3	18.2	99	34.0	39.4	26.5	94	23.1	36.8	40.0	95
Employment Opportunities (teenagers) ¹	24.2	37.4	38.5	91	14.3	38.5	47.3	91	14.0	31.2	54.8	93
Proximity to Urban Area ¹	31.0	28.0	41.0	100	32.7	40.8	26.5	98	71.1	20.2	8.6	104
Recreation Facilities (outdoor) ²	67.3	15.0	17.7	107	70.6	15.7	13.7	102	64.1	11.3	24.6	106
Recreation Facilities (indoor)	58.7	21.2	20.2	104	41.0	19.0	40.0	100	26.2	23.3	50.5	103
Climate	35.8	27.5	36.7	109	51.0	26.5	22.5	102	61.9	26.7	11.5	105
Media Facilities	34.9	21.1	44.0	109	35.3	24.5	40.2	102	47.7	10.5	41.9	105
Housing	41.5	18.9	39.6	106	45.0	27.0	28.0	100	55.2	21.0	23.8	105
Religious Facilities	50.4	46.7	2.8	107	76.7	22.3	1.0	103	45.3	50.0	4.7	106
Job Security ²	53.9	27.5	18.6	102	52.9	37.3	9.8	102	54.6	22.2	23.2	99
Working Conditions ²	59.9	25.2	14.9	107	63.3	28.6	8.2	98	65.0	29.0	6.0	100
Labour-Management Relations	35.0	43.7	21.4	103	50.0	43.9	6.1	98	42.5	40.4	17.2	99
Municipal Government	21.7	33.0	45.2	106	55.8	28.8	15.4	104	52.9	27.9	19.2	104
Regional District	13.6	51.5	35.0	103	25.5	56.1	18.4	98	33.7	48.5	17.8	101
Provincial Government	23.1	26.0	51.0	104	24.5	16.7	58.8	102	36.9	31.1	32.1	103
Federal Government	25.5	30.2	44.4	106	24.5	32.4	43.1	102	23.3	34.0	42.7	103
Satisfaction With Community ²	63.0	25.0	12.1	108	85.6	8.7	5.7	104	75.7	20.4	3.9	103
Law Enforcement ²	63.5	26.2	10.3	107	60.2	28.2	11.6	103	68.5	14.3	17.1	105
Entertainment Facilities	30.8	30.8	38.4	107	37.3	35.3	27.5	102	27.6	27.6	44.7	105
Retail Facilities	30.1	30.2	39.7	106	51.0	29.4	19.6	102	39.0	31.4	29.5	105

*Satisfied consists of the combined questionnaire classes of very satisfied and moderately satisfied and dissatisfied consists of the combined questionnaire classes of moderately dissatisfied and very dissatisfied.

¹Focus variables in the analysis of satisfaction.

²Variables with greater than 50% levels of either satisfaction or dissatisfaction for the three study communities.

TABLE 8.12
 CROSS TABULATION ANALYSIS OF COMBINED QUALITY OF LIFE VARIABLES FOR
 TERRACE AND SMITHERS WITH SQUAMISH

Community	Terrace and Smithers				Squamish				N	X ²	df	Sign.	
	Percentage of Sample		Percentage of Sample		Percentage of Sample		Percentage of Sample						
	Satisfied*	Dissatisfied	Satisfied*	Dissatisfied	Satisfied	Neutral	Dissatisfied	Dissatisfied					
Satisfaction Variable													
Health Facilities ^{1,2}	56.4	23.0	20.6	20.9	59.7	12.2	20.2	104	5.73	4	.220		
Education Facilities ^{1,2}	55.3	30.3	14.4	208	53.8	25.0	21.2	104	4.23	4	.376		
Cost of Living ^{1,2}	9.0	19.9	71.1	211	14.3	16.2	68.6	105	6.85	4	.144		
Employment Opportunities (men) ^{1,2}	53.0	27.2	19.8	202	60.2	25.5	14.3	98	8.63	4	.071		
Employment Opportunities (women) ¹	41.4	36.2	22.3	193	23.1	36.8	40.0	95	13.64	4	.009		
Employment Opportunities (teenagers)	19.2	37.9	42.9	182	14.0	31.2	54.8	93	4.06	4	.399		
Proximity to Urban Area ¹	31.9	34.3	33.8	198	71.1	20.2	8.6	104	58.04	4	.001		
Recreation Facilities (outdoor) ²	68.9	15.3	15.8	209	64.1	11.3	24.6	106	5.43	4	.246		
Recreation Facilities (indoor) ²	50.0	20.1	29.9	204	26.2	23.3	50.5	103	21.93	4	.001		
Climate	43.2	27.0	29.9	211	61.9	26.7	11.5	105	16.64	4	.002		
Media Facilities	35.0	22.7	42.2	211	47.7	10.5	41.9	105	12.39	4	.015		
Housing	43.2	22.8	34.0	206	55.2	21.0	23.8	105	11.85	4	.019		
Religious Facilities	63.3	34.0	1.9	210	45.3	50.0	4.7	106	13.29	4	.010		
Job Security ²	53.5	32.4	14.2	204	54.6	22.2	23.2	99	5.71	4	.222		
Working Conditions ²	61.4	26.8	11.7	205	65.0	29.0	6.0	100	4.17	4	.384		
Labour Management Relations	42.3	43.8	14.0	201	42.5	40.4	17.2	99	.95	4	.917		
Municipal Government	37.6	31.0	30.5	210	52.9	27.9	19.2	104	10.00	4	.040		
Regional District	19.4	53.7	26.8	201	33.7	48.5	17.8	101	12.49	4	.014		
Provincial Government	23.8	21.4	54.9	206	36.9	31.1	32.1	103	15.12	4	.005		
Federal Government	25.0	31.3	43.8	208	23.3	34.0	42.7	103	1.73	4	.785		
Satisfaction with Community ²	74.0	17.0	9.0	212	75.7	20.4	3.9	103	3.22	4	.521		
Law Enforcement ²	61.9	27.1	10.9	210	68.5	14.5	17.1	105	8.57	4	.073		
Entertainment Facilities	34.0	33.0	33.1	209	27.6	27.6	44.7	105	7.64	4	.106		
Retail Facilities	40.3	29.8	29.8	208	39.0	31.4	29.5	105	3.31	4	.507		

*Satisfied consists of the combined questionnaire classes of very satisfied and moderately satisfied and dissatisfied consists of the combined questionnaire classes of moderately dissatisfied and very dissatisfied.

¹Focus variables in the analysis of satisfaction.

²Variables with greater than 50% levels of either satisfaction or dissatisfaction for the three study communities.

An analysis of the differences in satisfaction with health services between the northern communities and Squamish proved not statistically significant (Table 8.12).

Education Facilities. Satisfaction with education facilities was shown to be high in all three communities, although Terrace and Smithers differed by 16% (Table 8.11). Similarities in satisfaction are likely attributable to standardized education requirements and the high priority placed upon education by society. The amalgamation of data for Terrace and Smithers and crosstabulation with Squamish resulted in the lack of a statistically significant difference in satisfaction with education facilities between the northern communities and Squamish (Table 8.12).

The Cost of Living. Dissatisfaction with the cost of living was high in all three study communities, exceeding 65% (Table 8.11). Terrace had the highest percentage of dissatisfaction, with 44.9% of respondents indicating that they were very dissatisfied. Comparison with Table 7.8 indicates that in the three study communities Terrace recorded the highest overall costs, although the question relating to satisfaction associated with the cost of living did not isolate specific components. It should be recognized that some components of quality of life may evoke particular responses, in that it may be socially desirable to have either a negative or a positive response. The cost of living may be an indicator which solicits a negative

response because respondents feel obligated to be dissatisfied. Although responses may be skewed, the perception of dissatisfaction provides an indication of conditions which are perceived as being real and unsatisfactory.

Crosstabulation analysis of the amalgamated data for Terrace and Smithers with Squamish did not result in a statistically significant difference between the northern communities and Squamish, since all three recorded similar levels of dissatisfaction.

Employment Opportunities (Male). Perceived satisfaction with employment opportunities for men was similar in both Terrace and Squamish (Table 8.11). Satisfaction with employment opportunities for men in Smithers was lower, possibly as a result of a narrower economic base, resulting in fewer jobs being available as well as less choice.

Crosstabulation of the combined data for Terrace and Smithers with Squamish indicated the lack of a statistically significant difference in satisfaction with employment opportunities for men.

Employment Opportunities (Female). Satisfaction expressed with employment opportunities for women varied considerably between the three study communities (Table 8.11). The highest level of satisfaction occurred in Terrace, with 48% of respondents indicating satisfaction and 18% indicating dissatisfaction. Higher levels of satisfaction associated with employment opportunities for women in Terrace may be

related to improved job opportunities in the service and retail sectors.

Satisfaction with job opportunities for women in Squamish was low, with 40% of respondents indicating dissatisfaction. This may be related to Squamish's retarded levels of service and sales occupations in which women are frequently employed (Table 8.7 and Appendix F).

Amalgamation of data for Terrace and Smithers and crosstabulation with Squamish resulted in statistically significant differences in satisfaction with employment opportunities for women. In this case Squamish had the highest proportion of responses indicating dissatisfaction when compared to the two northern communities.

Employment Opportunities (Teenagers). High levels of dissatisfaction with employment opportunities for teenagers was expressed for all three study communities. This was especially so in the cases of Squamish and Smithers, where dissatisfaction was expressed by 54.8% and 47.3% of respondents, respectively.

Amalgamation of data for Terrace and Smithers and crosstabulation with Squamish indicated a lack of difference in the perception of satisfaction between the northern and southern communities. The three communities were similar in the recognition of dissatisfaction associated with employment opportunities for teenagers.

Isolation. Isolation was measured utilizing two separate questions.

A question related to the level of satisfaction associated with the proximity to urban areas resulted in responses which were unique to each of the three communities. Terrace recorded the lowest level of satisfaction, consisting of 31% of the respondents. This was complemented by 41% of respondents indicating dissatisfaction, of which 23% were very dissatisfied. Respondents in Smithers were less committed regarding satisfaction with the proximity to urban areas, with over 40% being neutral. Squamish was represented by 71.1% of the respondents being satisfied, of which 53.8% were very satisfied. In the three communities responses may be related to the increasing distance from Vancouver, although other factors may play a role in determining satisfaction.

The difference in perception of satisfaction between the northern communities and Squamish was reaffirmed by amalgamation and crosstabulation of the data. Response rates from northern communities proved statistically different from those of Squamish (Table 8.12).

The second question relating to isolation asked whether or not respondents felt isolated living in their community. No differentiation was made between physical, social or economic isolation. The assumption was made that a feeling of isolation would be stressful, and that further

research would isolate the components of isolation.

Respondents in both Terrace and Smithers indicated a high perception of isolation, with approximately 52% indicating a feeling of isolation either always or sometimes (Table 8.13). Respondents in both Terrace and Smithers indicated a greater feeling of isolation in the winter than those in Squamish. This is likely explained by more difficult travel conditions due to inclement weather (Table 5.2). Squamish was represented by 63.9% of its respondents never feeling isolated. This is likely due to the proximity of Vancouver and the ease of automobile travel between the two communities.

In addition to the preceding five focus variables of quality of life, several other variables displayed results which were significant.

A marked contrast in satisfaction associated with outdoor and indoor recreation facilities was expressed. In all three study communities over 60% of the respondents were satisfied with outdoor recreation facilities (Table 8.11). In contrast, over 50% of the respondents in Squamish were dissatisfied with indoor recreation facilities, with over 27% indicating that they were very dissatisfied (Table 8.11). Although respondents in Smithers were closely divided between being satisfied and dissatisfied, amalgamation of data for Terrace and Smithers and crosstabulation with Squamish indicated a statistically significant difference in

TABLE 8.13

DO YOU FEEL ISOLATED LIVING IN THIS COMMUNITY?

Community	Terrace (N = 109)		Smithers (N = 104)		Squamish (N = 107)	
	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample	Absolute Frequency	Relative % of Sample
Only in winter	15	14.4	8	8.0	4	3.8
Only in summer	0	0.0	1	1.0	0	0.0
Always	14	13.5	4	4.0	6	5.7
Never	30	28.8	37	37.0	67	63.8
Sometimes	40	38.5	47	47.0	22	21.0
Undecided	5	4.8	3	3.0	6	5.7
Total	104	100.0	100	100.0	105	100.0
Missing Cases	5		4		2	

the levels of satisfaction between the northern communities and Squamish.

Satisfaction with climate varied inversely between the three communities (Table 8.11). These results are in accordance with observed climate conditions, where Squamish is more temperate and Terrace is more extreme (Table 4.2). Amalgamation of data for Terrace and Smithers with cross-tabulation with Squamish indicated a difference which was statistically different between the two northern communities and Squamish (Table 8.12).

Satisfaction with media facilities was outweighed by dissatisfaction in both Terrace and Smithers, with 44% and 40.2% of respondents being dissatisfied, respectively (Table 8.11). Satisfaction with media facilities in Squamish was closely split between those who were satisfied and those who were dissatisfied being separated by 5.8%. Crosstabulation analysis of the combined data for Terrace and Smithers against Squamish indicated a statistically significant difference in satisfaction with media facilities.

Satisfaction associated with housing was lowest in Terrace followed by Smithers (Table 8.11). Terrace recorded the highest level of dissatisfaction, with 29.6% of the respondents indicating dissatisfaction, while 28% of the respondents in Smithers were dissatisfied. The difference in satisfaction with housing may be attributed to the recent growth in population in Squamish, with a resultant stock of

new housing as well as Dunhill Development Corporation support in the construction of low cost residences.¹ Cross-tabulation analysis of the combined satisfaction levels for housing in Terrace and Smithers indicated a statistically significant difference between the northern communities and Squamish (Table 8.12).

Satisfaction associated with religious facilities varied considerably between Smithers and Terrace and Squamish (Table 8.11). Over 76% of the respondents in Smithers expressed satisfaction with religious facilities, while in both Terrace and Squamish, respondents were closely divided between being satisfied and neutral. Amalgamation of data regarding satisfaction with religious facilities in Terrace and Smithers and crosstabulation with Squamish indicated a statistically significant difference between the northern study communities and Squamish. This difference is largely explained by the high rates of satisfaction in Smithers,² which has a large population of Christian Reform Church and Canadian Reform Church followers.

Questions relating to working conditions and labour-management relations were utilized in order to assess satisfaction associated with employment. Both job security and working conditions recorded high levels of satisfaction, exceeding 50%. Labour-management relations were perceived with less satisfaction, being lowest in Terrace (Table 8.11). At the time the questionnaires were being administered,

closures were pending in the forest industry due to an anticipated pulp workers strike, which may have influenced results. Also, most forest operations in the study communities had undergone extended closures during the previous winter. Crosstabulation of data for Terrace and Smithers with Squamish did not result in a statistically significant indication of differences for employment attributes (Table 8.12).

Satisfaction with various levels of government varied considerably (Table 8.11). Municipal government was regarded with the highest level of satisfaction in Smithers (55.8%), closely followed by Squamish (52.9%). Over 45% of the respondents in Terrace were dissatisfied with their local government, with 22% being very dissatisfied. Although the difference in satisfaction between the combined data of Terrace and Smithers proved statistically significant when crosstabulated with Squamish, this is largely due to the low score of Terrace (Table 8.12).

Satisfaction expressed with regional districts was low in all three communities. Terrace recorded the lowest level of satisfaction, with 13.6% of the respondents expressing satisfaction and 35% expressing dissatisfaction. Approximately 50% of all respondents in the three communities were neutral regarding satisfaction with their regional districts. This may be associated with either a lack of knowledge regarding the role of regional districts, or a genuine sense

of neutrality. Crosstabulation analysis of the difference between the combined data for Terrace and Smithers with Squamish indicated a statistically significant difference between the northern communities and Squamish (Table 8.12).

Dissatisfaction associated with the provincial government was particularly high in both Terrace and Smithers, totalling 51% and 58.8% respectively. This may be explained by frustration with provincial development policies, as well as other programmes of the government which was then in power. Squamish was not characterized by strong views regarding satisfaction with the provincial government. Crosstabulation analysis of the differences in perceived satisfaction between the combined data for Terrace and Smithers with Squamish resulted in a statistically significant difference in satisfaction between Squamish and the communities of the northwest (Table 8.12).

All three study communities were characterized by low levels of satisfaction and high levels of dissatisfaction with the federal government (Table 8.11). The impact of regional federal policies upon this dissatisfaction was not ascertained.

With the exception of municipal governments in Smithers and Squamish, satisfaction with various levels of government was low in the three study communities. The reasons for this may be many and varied, ranging from personal politics to dissatisfaction with particular programmes

or policies. As in the case of satisfaction associated with the cost of living, the perception of satisfaction with various levels of government may be influenced by a social bias favouring dissatisfaction.

A question was posed regarding the level of satisfaction which respondents perceived living in their community. All three communities recorded high rates of satisfaction, with Smithers being the highest, consisting of 85.6% of the respondents (Table 8.11). Of this percentage, 42.3% were very satisfied and 43.3% were moderately satisfied. Although Terrace recorded a relatively high rate of overall community satisfaction, it also recorded the highest rates of neutral and dissatisfied respondents, consisting of 25% and 12.1% respectively.³

*Analysis of the Association Between
Demographic Characteristics of the
Sample Populations and the Focus
Quality of Life Components*

Spearman correlation analysis indicated a poor degree of covariance between demographic characteristics of the study populations and the focus quality of life variables (Tables 8.14, 8.15, 8.16). In all cases low correlation coefficients resulted, indicating weak levels of association. Only two demographic characteristics resulted in frequent levels of statistical significance and relatively consistent directionary coefficients.

TABLE 8.14
SPEARMAN CORRELATION OF DEMOGRAPHIC CHARACTERISTICS WITH FOCUS QUALITY OF LIFE VARIABLES: TERRACE (N = 109)

Demographic Characteristic	Health Facilities		Education Facilities		Cost of Living		Job Opportunities (Male)		Job Opportunities (Female)		Job Opportunities (Teenagers)		Isolation	
	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.
Sex	0.0798	.209	0.1669	.044*	0.0037	.485	-0.0336	.370	-0.0076	.471	0.0812	.225	-0.0312	.380
Age	-0.2273	.010*	-0.1704	.040*	0.1292	.094	-0.2077	.001*	-0.3220	.001*	-0.1070	.159	-0.0539	.299
Marital Status	0.0178	.428	-0.2067	.017*	0.1237	.104	0.0269	.395	-0.1534	.067	0.0390	.358	-0.0013	.495
Number of Children	-0.0551	.293	0.0795	.215	0.1226	.112	0.0209	.420	0.0976	.175	0.1529	.080	-0.0358	.367
Education Attainment	-0.0658	.252	0.0390	.346	-0.1706	.041*	-0.0150	.441	-0.0630	.267	-0.0303	.388	0.1065	.148
Income	-0.2084	.023*	-0.1495	.076	-0.2283	.014	-0.1408	.094	-0.2355	.014*	0.0031	.489	0.2326	.016*
Occupation	-0.0755	.224	-0.2557	.004*	0.0347	.363	-0.0564	.290	-0.0353	.366	-0.1609	.065	-0.3016	.001*
Size of Community in which youth was spent	-0.0593	.282	-0.1390	.086	0.1946	.028*	-0.2174	.018*	-0.1966	.031*	-0.0350	.376	-0.0225	.416
Length of Planned Continual Residency	0.0021	.491	-0.0733	.229	-0.0474	.317	-0.0481	.318	-0.0186	.429	-0.0150	.445	0.0838	.206
Duration of Residency in Community	-0.1956	.022*	-0.1833	.029*	0.0372	.352	-0.3033	.001*	-0.2548	.005*	-0.0733	.245	-0.1164	.124

*Spearman correlation results below .05 level of significance.

TABLE 8.15
 SPEARMAN CORRELATION OF DEMOGRAPHIC CHARACTERISTICS WITH FOCUS QUALITY OF LIFE VARIABLES: SMITHERS (N = 104)

Demographic Characteristic	Health Facilities		Education Facilities		Cost of Living		Job Opportunities (Male)		Job Opportunities (Female)		Job Opportunities (Teenagers)		Isolation	
	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.
Sex	0.2754	.003*	0.1821	.036*	-0.0375	.353	0.0934	.179	0.0699	.252	-0.0472	.329	0.0301	.385
Age	-0.1927	.027*	-0.1989	.024*	0.0569	.284	-0.1892	.030*	-0.1585	.063	0.0020	.493	0.0248	.404
Marital Status	0.0533	.297	-0.0364	.360	0.1540	.059	-0.2685	.003*	-0.0569	.293	0.1589	.066	0.0536	.300
Number of Children	0.0143	.444	0.0193	.425	-0.0718	.237	-0.0682	.251	-0.0511	.313	0.0241	.410	0.0677	.256
Education Attainment	0.2251	.012*	0.1725	.044*	-0.1218	.110	-0.1439	.078	-0.0158	.440	-0.1185	.133	0.0777	.225
Income	0.0552	.299	-0.0191	.428	-0.1248	.113	-0.0247	.407	-0.0675	.266	-0.1185	.138	-0.1117	.147
Occupation	-0.0225	.412	-0.0335	.371	0.1251	.104	-0.0481	.318	0.1406	.089	0.0245	.410	-0.2034	.023*
Size of Community in which youth was spent	0.1127	.135	-0.0488	.318	-0.0067	.474	-0.0960	.176	-0.1181	.131	-0.1163	.139	-0.1215	.120
Length of Planned Continual Residency	-0.0774	.224	-0.0149	.443	0.0421	.339	0.0274	.396	0.0211	.421	0.1662	.060	-0.0256	.403
Duration of Residency in Community	-0.0668	.252	-0.0443	.331	0.0088	.465	-0.3282	.001*	-0.2543	.007*	-0.0585	.291	-0.0682	.252

*Spearman correlation results below .05 level of significance.

TABLE 8.16
 SPEARMAN CORRELATION OF DEMOGRAPHIC CHARACTERISTICS WITH FOCUS QUALITY OF LIFE VARIABLES: SQUAMISH (N = 107)

Demographic Characteristic	Health Facilities		Education Facilities		Cost of Living		Job Opportunities (Male)		Job Opportunities (Female)		Job Opportunities (Teenagers)		Isolation	
	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.	Co-efficient	Sign.
Sex	0.2050	.019*	0.1918	.028*	0.0240	.404	-0.0114	.456	0.1023	.163	-0.0306	.386	0.0477	.316
Age	-0.1160	.121	-0.0426	.334	0.6373	.353	-0.1076	.146	-0.0357	.365	0.1680	.054	0.0097	.461
Marital Status	-0.1155	.122	-0.0686	.244	0.0829	.200	-0.1525	.067	0.1149	.135	-0.0726	.245	0.0638	.260
Number of Children	-0.0406	.346	0.0654	.262	0.0542	.298	-0.0159	.440	-0.0952	.185	0.0090	.466	0.0037	.486
Education Attainment	0.1358	.087	-0.1185	.118	0.0688	.245	-0.0749	.234	0.1416	.088	0.0254	.239	-0.0814	.186
Income	-0.0646	.270	0.0047	.482	-0.1410	.089	-0.0831	.222	-0.0388	.363	0.1721	.062	-0.2465	.009*
Occupation	0.0750	.229	0.1151	.127	0.0639	.263	0.1411	.087	0.2918	.003*	0.1672	.059	0.0501	.310
Size of Community in which youth was spent	-0.0722	.238	-0.0985	.165	-0.1103	.137	-0.2049	.024*	-0.1641	.061	-0.2034	.029	0.0715	.241
Length of Planned Continual Residency	0.0096	.462	0.0666	.254	0.1504	.066	0.1597	.061	-0.0441	.338	0.0315	.348	0.2582	.005*
Duration of Residency in Community	-0.1856	.030*	-0.2141	.015*	-0.0643	.257	-0.2458	.007*	-0.1715	.048*	-0.0219	.417	-0.0196	.422

*Spearman correlation results below .05 level of significance.

The demographic characteristics of respondent age, when correlated with the selected quality of life variables, indicated a tendency toward a negative association which was statistically significant in a majority of cases in both Terrace and Smithers (Tables 8.14 and 8.15). As the age of the respondents increased, their level of satisfaction tended to increase. None of the correlation coefficients were high, indicating a weak relationship between the age of respondents and satisfaction. Squamish was not typified by a tendency toward either positive or negative coefficients of correlation and none of the results relating to age were statistically significant.

The demographic characteristic of the duration of residency in a particular community by respondents when correlated with selected quality of life variables proved statistically significant in a reasonable number of cases (Tables 8.14, 8.15, 8.16). Correlation coefficients tended to be negative, indicating a tendency toward increasing dissatisfaction with increased duration in the community. In all cases the relationship between variables was weak, indicating a low degree of association.

Footnotes

¹The Dunhill Development Corporation has acted to make available low cost lease/purchase housing as well as central accommodation in Squamish. In 1975 30 housing units were available for lease/sale. These consisted of 2 and 3 bedroom units which were to be sold, with the fully serviced lots which the home stood upon being leased for \$60 per month plus 8% interest. In addition, 45 lots with houses were available for full rental.

²Crosstabulation analysis of the data for Terrace with Squamish resulted in a chi-square value which was not statistically significant at the .05 level, indicating a lack of difference between the responses from Terrace and Squamish. Due to this, the statistically significant chi-square value which was achieved for the combined data of Terrace and Smithers when crosstabulated with Squamish is due to the high level of satisfaction and low level of dissatisfaction in Smithers with religious facilities. Although this anomaly is contradictory to the research technique of combining values for northern communities and comparing them to Squamish, it is not considered to be a significant inhibition of the research design, in that the analysis of levels of satisfaction within communities is an integral part of the research.

³Amalgamation and crosstabulation of the data for Terrace and Smithers with Squamish served, in this case, to conceal the differences in the data from the three communities. When each community was crosstabulated against the other, statistically significant results indicating differences in satisfaction were achieved. In this case, Terrace showed the greatest degree of difference from the other two study communities.

CHAPTER IX

CONCLUSIONS AND RECOMMENDATIONS

With the completion of the analysis of satisfaction with various components of quality of life in Terrace and Smithers in northwest British Columbia, and in Squamish in southern British Columbia, several conclusions and recommendations can be reached.

Conclusions

Three levels of conclusions, relating to the hypotheses, the quality of life available in the study communities, and regional development policy in northwest British Columbia are apparent. Within each of these levels of conclusions, specific recommendations can be made.

Conclusions Regarding the Hypotheses. Hypothesis I, that quality of life components in resource frontier communities are of a lower calibre than those provided in communities adjacent to major metropolitan areas, thereby contributing to increased dissatisfaction, is conditionally rejected.

Of the 24 components of quality of life measured for differences in perceived satisfaction between the two northern communities and Squamish, 10 components resulted in statistically significant levels of difference (Table 8.12). Of these, seven components--proximity to urban areas, climate,

media facilities, housing, municipal government, regional district, and provincial government--indicated lower levels of satisfaction in Terrace and Smithers combined, than in Squamish. Proximity to urban area and climate are relatively fixed by physical circumstances. Three components of quality of life--employment opportunities for women, indoor recreation facilities, and religious facilities--resulted in lower levels of perceived satisfaction in Squamish than in the northern communities. Of the five focus quality of life components, only employment opportunities for women and proximity to urban areas resulted in statistically significant differences between the northern communities and Squamish.

These results are contrary to what was anticipated. It was expected that dissatisfaction with quality of life would be much greater in Terrace and Smithers, when compared to Squamish. Although differences in perceived satisfaction with quality of life components do exist between Terrace and Smithers when compared to Squamish, they are outweighed by components providing satisfaction. When compared to Squamish, the quality of life in Terrace and Smithers does not appear to impose inordinate penalties upon northern residents.

Hypothesis II, that satisfaction attainment with components of quality of life in resource frontier communities is influenced by demographic characteristics of the population, must be rejected.

Demographic characteristics associated with the sample populations had little significance in the perception of satisfaction or dissatisfaction (Tables 8.14, 8.15, 8.16). Only two demographic characteristics--age and duration of residency in the study community--were found to be statistically associated with the perception of either satisfaction or dissatisfaction. Both of these variables indicated low levels of association and were not consistently significant when correlated to the focus quality of life components.

At this stage of research the importance of demographic characteristics in determining satisfaction with quality of life components in Terrace and Smithers, as well as Squamish, must be doubted. Future research, combining demographic characteristics and testing for their synergetic impact upon the perception of satisfaction, as well as a more intensive analysis of individual quality of life components may lead to alternate conclusions.

It should be noted that the results are dependent upon data which were collected at a point in time utilizing a particular set of collection methods and from three specific communities. Similar research at a different point in time, the use of different research techniques, or the analysis of different communities, may result in different conclusions. Also, each of the quality of life components utilized in the analysis was treated as a whole. Further analysis could explore attributes of components which

resulted in high levels of either satisfaction or dissatisfaction.

Conclusions Regarding the Quality of Life Available in the Study Communities. One of the objectives of regional development in northwest British Columbia is to improve the quality of life which is available to residents living in the region. If this goal is to be achieved, quality of life components with which satisfaction is high must be identified and maintained, and those causing dissatisfaction must be identified and improved. Analysis of satisfaction with quality of life components in the three study communities has indicated several variables with which either high levels of satisfaction or dissatisfaction exist.

Terrace. Over 50% of the respondents in Terrace expressed satisfaction with the following components of quality of life: health and education facilities, employment opportunities for men, outdoor and indoor recreation facilities, religious facilities, job security, working conditions and law enforcement. Sixty-three percent of the respondents expressed overall satisfaction living in the community of Terrace (Table 8.11). Conversely, dissatisfaction was expressed by greater than 50% of the respondents in Terrace with the cost of living and the provincial government.

Efforts to promote regional growth in the northwest through the expansion of existing resource processing facilities or by the development of new facilities should be

sensitive to components of quality of life indicating satisfaction or dissatisfaction in Terrace. The infusion of additional population without the provision of services providing satisfaction could lead to increased dissatisfaction.

Special attention should be paid to maintaining existing components of quality of life which serve to offset detrimental characteristics. In particular, resource development should not conflict with outdoor recreation opportunities, which may compensate in part for perceived isolation. Also, indoor recreation facilities, which may serve to offset dissatisfaction with the climate, should be maintained or improved upon.

Efforts should be directed towards the alleviation of perceived dissatisfaction with the cost of living. This could be accomplished through either direct subsidies on freight costs or by encouraging self-help programmes, such as co-operatives. The second quality of life determinant with which residents expressed considerable dissatisfaction was the level of services provided by the provincial government. These feelings of dissatisfaction were probably reflected in the election of a Social Credit representative from the riding in November 1975.

Smithers. Over 50% of the respondents of Smithers expressed satisfaction with the following components of quality of life: health facilities, outdoor recreation,

climate, religious facilities, job security, working conditions, municipal government, law enforcement and retail facilities. Eighty-five percent of the respondents in Smithers were satisfied living in their community (Table 8.11). As was the case in Terrace, dissatisfaction was expressed by greater than 50% of the respondents in Smithers with the cost of living and the provincial government.

Concerns relating to northwest development and the quality of life in Smithers are similar to those found in Terrace. Efforts to improve economic viability both within the northwest and in Smithers must be responsive to the maintenance and improvement of quality of life.

Of the components of quality of life with which greater than 50% satisfaction was expressed, three merit further comment. Efforts should be made to ensure that the quality of outdoor recreation is not disrupted due to resource development. In particular, Hudson Bay Mountain, immediately adjacent to Smithers, serves as a skiing, hiking and recreation area. Resource utilization conflict, in the form of logging and mining should be minimized in this area. Efforts should be made to maintain existing retail facilities. Although the number of services in Smithers was more restricted than in Terrace, residents were satisfied with the services which were available. Of particular interest was the level of satisfaction expressed with the climatic conditions in Smithers. Northern climes have been accepted

as a major source of dissatisfaction by several past studies, yet in the case of Smithers climate did not appear to result in undue dissatisfaction.

Although dissatisfaction with the cost of living was relatively high in Smithers, it was the lowest of the three study communities. Further research may serve to isolate specific factors which lead to dissatisfaction with the cost of living. As in the case of Terrace, measures such as freight subsidies and assistance in the formation of co-operative groups could serve to alleviate dissatisfaction. Dissatisfaction with the provincial government was also expressed in Smithers, with the election of a Social Credit representative occurring in the fall election of 1975.

Squamish. Over 50% of the respondents in Squamish expressed satisfaction with the following components of the quality of life: health and education facilities, employment opportunities for men, proximity to urban area, outdoor recreation facilities, climate, housing, job security, working conditions, municipal government, and law enforcement. Seventy-five percent of the respondents expressed overall satisfaction with their community (Table 8.11). Dissatisfaction was expressed by more than 50% of the respondents with the cost of living, employment opportunities for teenagers and indoor recreation facilities.

Although Squamish, in 1975, was not involved in a major regional development scheme, the recorded levels of

satisfaction and dissatisfaction are important to the community. Economic development in Squamish should be sensitive to quality of life components which provide satisfaction. Efforts should be made to maintain quality of life components providing satisfaction, and, wherever possible, to improve those causing dissatisfaction.

Regional Development Policy in Northwest British Columbia.

Regional development in northwest British Columbia has been fragmented and unco-ordinated. Municipal, regional, provincial and federal levels of government have operated with a minimum amount of interagency or intergovernment planning and liaison. In many instances announced development has not materialized, and delays and alterations have characterized projects during their implementation stages. Major decisions, such as the construction of the BCR, have been motivated, in part, by political objectives. Until mid-1974, the Province of British Columbia denied that northwest development, as such, existed, but rather stated that a series of projects were being investigated and implemented. Concern regarding the quality of life and public involvement were not an integral part of northwest development, but rather incorporated after public questioning of projects arose.

Citizens in both Smithers and Terrace have become increasingly more articulate and sophisticated in their questioning of the impact of northwest development upon

their communities. Public meetings have been held and briefs presented, and in the case of Smithers, development plans have been altered in accordance with community wishes. In both communities, views regarding the merits of northwest development were bifurcated and debate occurred regarding the future role of development in the two communities. In both communities a local intelligentsia was evolving, which whether pro or anti development, expressed the view that community organizations as well as residents of the northwest should have more input to the development of their region.

Community leaders, as well as many questionnaire respondents, recognized that decisions which were being made regarding northwest development would have long term effects upon the quality of life available in the northwest. Frustration was expressed regarding various levels of government, especially the provincial, since it was believed that local sensitivities regarding satisfaction and dissatisfaction were being neglected.

Recommendations

At present the northwest finds itself at a crossroads of opportunity. Existing development, although dramatic in its impact upon local areas, has had little impact upon the total northwest. Resource exploitation has consisted primarily of forest utilization which, with proper

management policies, can be regenerated. The impact of industrial development has been confined primarily to a pulp mill site at Prince Rupert and to the estuary of the Kitimat River.

Through the construction of transportation networks and the alienation of resource utilization rights by the Government of the Province of British Columbia, both short and long term resource exploitation and development priorities are in the process of being set. Decisions relating to resource utilization will contribute to the quality of life in the northwest and ultimately all of Canada.

To date development has occurred on an ad hoc basis, with little liaison between government development agencies, the private sector and the public at large. Frequently decisions have been made which are motivated by political expediency or economic objectives without evaluating either the long term objectives or the net benefits to society. For the above reasons the following recommendations are made.

Recommendation I. It is recommended that a Northwest Development Authority be established. This authority would set policies regarding the utilization of resources and ultimately the quality of life which is to be had within the region. Specifically, such an authority would be charged with the responsibility of reviewing and setting policy regarding matters such as: priorities for the utilization of resources within the northwest; resource utilization stand-

ards; the acceptance of costs associated with the provision of necessary infrastructure and services; and the determination of acceptable standards of overall quality of life.

Such an authority would be composed of both elected and appointed representatives of groups having an interest in development within the northwest. Government representation would occur from the federal, provincial, regional and municipal levels. Industry would be represented through the appointment of various identifiable leaders of industry in the northwest. Public representation would be facilitated through either the appointment or election of individuals from society at large.

All development proposals would be required to pass before such a development authority. The authority would have the power to approve, reject, or to make recommendations for changes regarding development proposals, as necessary. Various levels of government would contribute administrative and technical expertise so as to provide necessary operative ability. Mechanisms for the appeal of decisions would be made available.

Recommendation II. It is recommended that in conjunction with the establishment of a Northwest Development Authority, a public commission be established to hold on both a scheduled and ad hoc basis, public hearings to review established development policy and provide public input regarding proposed development schemes. The purpose of

these public hearings would be to provide an opportunity for various public and special interest groups to have input into the decision process, and to provide information to the public regarding development within the region.

The commission would be composed of commissioners appointed by the four levels of government in the region. The commissioners would be charged with the responsibility of reporting to and making recommendations regarding development priorities to the development authority. In order to carry out their mandate, the commissioners would have the power to subpoena information and to request studies providing further data, from both the public and the private sectors.

Inherent to the establishment of a Northwest Development Authority and mandatory public hearings are a series of fundamental questions regarding resource utilization and the quality of life, to which society must address itself. These questions are common not only to residents of the northwest, but also to all Canadians.

Is there a need for the development of resources, or are the economic, environmental and social costs too great? The development of resources in hinterland areas requires not only the expenditure of large amounts of capital, but also the disruption and possible destruction of the physical environment and existing social structures. Resource utilization in order to justify continued growth and development

so as to satisfy artificially created demands without the evaluation of true costs, must be questioned.

If resource extraction is to occur, at what rate should it be performed? Since a minimal amount of extraction has occurred within the northwest, the opportunity exists for a measured rate of resource extraction which provides the maximum amount of social benefit. Rather than promoting a boom of extraction, with the ultimate exhaustion of resources, should they be judiciously used, providing not only long term benefits, but also a resource stock for future generations?

If resources are to be extracted, who should benefit from their utilization? Existing resource utilization practices have placed British Columbia in a colonial position, supplying raw materials to industrialized nations by way of multi-national corporations. Through the shipment of resources to external points for processing, economic and related social opportunities are exported from the northwest. In order for long term benefits to be gained within both the northwest and in British Columbia, government intervention may be required in order to construct and operate resource extraction and processing facilities.

The implications of the preceding recommendations and questions are many and far-reaching, touching upon the basic tenets of contemporary society. Through the recognition and evaluation of the preceding recommendations, prudent

resource development policies may be evolved and a quality of life which is acceptable to the residents of northwest British Columbia may be arrived at.

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APPENDIX A**CHRONOLOGICAL SEQUENCE OF EVENTS:
NORTHWEST DEVELOPMENT**

The purpose of this appendix is to provide a chronological sequence of events relating to northwest development in British Columbia. For purposes of brevity and accuracy, this appendix contains only major policy decision announcements as well as selected events which are indicative of the regional response to development.

Events are documented in the following manner:

- (1) date, (2) title of publication, (3) publishing agency, if documented, (4) author or authorizing agent, if cited, (5) summary of events.

ITEM 1

1. 1959

2. *Report on Route and General Plan for a Railway in Northern B.C. for the Wenner-Gren British Columbia Development Co. Ltd.*

3. N/A

4. Colonel S. H. Bingham (retired), Consulting Engineer

5. This report was prepared as an analysis of route and gradient choices for the construction of a railway from Prince George into the Yukon. Construction costs were put at \$251 million in 1959 (p. 62), with justification the belief that rail transportation was the key to development.

ITEM 2

1. April 1970

2. *The Bulkley-Nechako Region: A British Columbia Regional Economic Study.*

3. Government of the Province of British Columbia; Department of Industrial Development, Trade and Commerce; Economics and Statistics Branch, Victoria, B.C.

4. Hon. Waldo M. Skillings

5. Primarily a descriptive report relating to human resources, natural resources, manufacturing and tertiary industries in the Bulkley-Nechako Regional District, although predictions and proposals were made relating to potential recreation growth and improvement of conditions relating

to native Indians. The report was designed to act as an information base for future planning to be carried out by various local government and service organizations.

ITEM 3

1. January 1971

2. *Economic Development of the Regional District of Kitimat-Stikine, British Columbia.*

3. AVG Management Science Ltd., Vancouver, B.C.

4. Commissioned by the Regional District of Kitimat-Stikine.

5. An analysis of economic growth potential in the Regional District of Kitimat-Stikine. Recommendations for overcoming problems associated with market fluctuations and transportation costs associated with the logging industry were made. Agriculture, mining, manufacturing, retail functions, service trades, recreation and construction were also recognized as contributing to the regional economy. Recommendations were made concerning potential growth activity, the most important of these being that:

The future development of the Kitimat-Stikine Regional District depends to a large extent on the development of the transportation systems. The industries of the region are resource oriented. The potential future industries are also resource oriented. The economic validity of these industries depends on the transportation costs (p. 94).

ITEM 4

1. 1971

2. *A Railway in the Kitimat-Stikine Region of British Columbia.*

3. N/A
4. N/A
5. This brief enumerated economic factors associated with construction of a rail line from Terrace north through Nigunsaw Pass to the Stikine River. Factors such as probable traffic, railroad costs and revenues, economic indicators, increased government revenues and benefit/cost ratios were considered. Such a railway was considered essential to the economic development of British Columbia's northwest area.

ITEM 5

1. 22 January 1971
2. *Northern British Columbia: The Awakening Giant.*
3. Pacific Great Eastern Railway, Vancouver, B.C.
4. J. S. Broadbent, Vice President and General Manager.
5. Rail expansion from Fort St. James to Dease Lake was recognized as passing through 420 miles of untapped resources. Timber resources were recognized as being the main asset, consisting of 3.5 million acres with an allowable annual cut estimated at 158 million cubic feet. Sawmills were envisioned at Takla Lake, Bear Lake, Groundhog, Stikine River and Dease River, with potential pulp mill sites near Stikine Crossing and Lower Post on the Liard River.

ITEM 6

1. 22 January 1971.
2. *Years of Challenge.*
3. Pacific Great Eastern Railway.
4. J. S. Broadbent, Vice President and General Manager.
5. As part of a luncheon address to the Annual Convention of the Prince George Construction Association and Northern B.C. Construction Association, an announcement was made that clearing work was proceeding on the first 100 miles of track to Dease Lake, with completion to Dease Lake expected by the mid-1970's. The 420-mile extension was seen as an extension into ". . . a vast treasure trove of natural resources" (p. 4).

ITEM 7

1. February 1972
2. *Northwest Transportation Plan.*
3. Transport Canada.
4. N/A
5. Existing demand for transportation facilities as well as foreseen needs were reviewed in relation to northwest British Columbia, the Yukon and the western portion of the Northwest Territories. From this recommendations were made regarding various development strategies. Development of forest products and bulk loading facilities at Prince Rupert; federal and provincial co-operation

on rail construction and utilization; construction of a rail connection between the then PGE Dease Lake line and the CNR Prince Rupert line; and termination of the then PGE at Dease Lake to allow staged development, were recommended. The importance of a transportation infrastructure was recognized in the statement that ". . . satisfaction of the primary demand for low cost transportation network capable of handling large quantities of resource products will create a secondary demand related to a developing social and economic infrastructure" (p. 1).

ITEM 8

1. Summer 1972

2. *Economic Considerations Related to the Growth of the British Columbia Railway.*

3. British Columbia Railway, Vancouver, B.C.

4. N/A

5. A public information bulletin presented to ". . . clarify the often misunderstood and not fully appreciated contribution of a growing railway to the economic development of the province" (p. 1). Initial construction work was proceeding on 340 miles of right-of-way from Takla Lake to Dease Lake, with Dease Lake to become a terminal and major supply and distribution center.

ITEM 9

1. 4 July 1972

2. *Six Federal Government Transportation Proposals for British Columbia and the Yukon.*

3. Transport Canada.

4. Directorate of Pacific Affairs.

5. Announcement was made of six major transportation proposals which were being considered to improve the economies of the western provinces and the Yukon. Three proposals relating to northwest B.C. were: (a) rail connection from Terrace to BCR; (b) CNR rail branch lines to Ootsa Lake, Babine Lake and the Nass River; (c) improvement of the Stewart-Cassiar highway.

ITEM 10

1. 4 July 1972

2. *Federal Government Identifies need for Railway Branch Lines: Prince Rupert-Kitimat Area.*

3. Transport Canada.

4. Directorate of Public Affairs.

5. The then Transport Minister, Don Jamieson, announced the need for branch lines to Ootsa Lake, Babine Lake and the Nass River. New sawmills supplying dressed lumber and wood chips to pulp mills at Prince Rupert and Kitimat were envisioned.

ITEM 11

1. August 1972
2. *Intercity Consumer Price Differentials: Prince Rupert and Kitimat versus Vancouver.*
3. Economics and Marketing Research Section, Division of Management Services, B.C. Research.
4. Prepared for City of Prince Rupert, the Corporation of the District of Kitimat by D. C. Wright and G. S. Crawford.
5. Costs for food, shelter and transportation were found to be between 8% and 14% higher in Prince Rupert and Kitimat as opposed to Vancouver. Recommendations for reducing price differentials such as increased local government involvement were made.

ITEM 12

30 August 1972, New Democratic Party of British Columbia elected to office.

ITEM 13

1. September 1972
2. *The Development of Northern British Columbia: Factors, Concepts and Issues.*
3. F. L. C. Reed & Associates Ltd., Vancouver, B.C.
4. The Northern Development Council.
5. This study was commissioned to evaluate past research work and to explore development concepts which would incorporate economic, social and political constraints.

It was recognized that: (a) timber, mineral, water and recreational resources represented a tremendous opportunity for industrial development, as well as for social conflict; (b) that sector studies were needed to prepare resource inventories and project market demand; (c) that key transportation elements had been recognized, but not rationalized; (d) that economic and social goals needed to be integrated; and that (e) the impact of economic development in the northern urban base had not been examined.

ITEM 14

1. 9 February 1973
2. *News Release*
3. Columbia Cellulose Co. Ltd., Vancouver, B.C.
4. N/A
5. Proposed sale of pulp mill and related assets at Castlegar and Prince Rupert by Columbia Cellulose to Weyerhaeuser Canada Ltd. was stopped due to lack of approval by the British Columbia government.

ITEM 15

1. 30 March 1973
2. *Press Release.*
3. Minister of Lands, Forests and Water Resources
4. Hon. R. Williams.
5. Announcement was made that trading of Columbia Cellulose

shares was suspended by the Ontario Stock Exchange.

The government of British Columbia was seeking to develop a plan to maintain Columbia Cellulose.

ITEM 16

1. 2 April 1973

2. *Statement to the House.*

3. Minister of Lands, Forests and Water Resources.

4. Hon. R. Williams.

5. An announcement was made to the provincial Legislative Assembly that the province of British Columbia had entered into an agreement with the Celanese Corporation of New York to purchase a 79% interest in Canadian Cellulose Co. Ltd., owners of Columbia Cellulose. Pulp mills and associated forest operations were located at Prince Rupert and at Castlegar, employing 3,000 men directly and 600 men with contractors. Purchase of the mills was seen as ". . . only one step in a series of interrelated programs that will ensure a greater economic future for northern British Columbia" (p. 2).

ITEM 17

1. June 1973

2. *The Skeena-Queen Charlotte Region: A British Columbia Regional Economic Study.*

3. Government of the Province of British Columbia, Department of Industrial Development, Trade and Commerce,

Victoria, B.C.

4. Hon. Gary Lauk, Minister.
5. This report summarized the state of primary, secondary and tertiary activities in the Skeena-Queen Charlotte region. It was designed to indicate opportunities which exist for future development and planning within the region.

ITEM 18

1. 29 June 1973
2. *Press Release*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Official acceptance of Columbia Cellulose was made. Columbia Cellulose, renamed Canadian Cellulose, with 79% of shares owned by the Province of British Columbia, was to be operated by British Columbia Cellulose, a holding company. Northern operations in 1972 consisted of:
 - 154,000 T/year sulphite mill at Prince Rupert;
 - 230,000 T/year kraft mill at Prince Rupert;
 - 65,000 Mf.b.m/year at sawmill, Terrace;
 - 31,000 Mf.b.m/year chip-n-sawmill at Terrace;
 - 28,000 Mf.b.m/year chip-n-sawmill at Kitwanga.

The Hon. R. Williams described the opportunities associated with the purchase as ". . . one of the most exciting opportunities for any government anywhere in the world" (p. 3).

ITEM 19

1. 4 July 1973

2. *Press Release.*

3. Minister of Lands, Forests and Water Resources.

4. Hon. R. Williams.

5. Following a two and one-half week tour of northern

British Columbia by the Minister of Lands, Forests and Water Resources, an announcement was made of the following options and proposals to assist community development:

(a) A special team was to be sent to Dease Lake "to clear up red tape" that had hampered the community's development.

(b) Subdivision and service centers were to be developed at Meziadin Lake.

(c) The Department of Lands was to undertake additional subdivisions of Crown land to be available to those pioneering the north.

(d) The provincial and federal governments were in the process of finalizing a transportation package for the northwest.

(e) An examination was to be made of the possibilities for improved information and communication services.

(f) Improvements were being made to the Stewart-Cassiar highway and a link with Highway 16 was to be sought, including the designation of key service centers.

- (g) Protection of Lakelse Lake and Swan Lake as recreation areas was to be investigated.
- (h) Means of protecting critical environmental and extensive wildlife areas were to be investigated.
- (i) Consideration of a joint provincial-regional district land and resource allocation programme was to be made.
- (j) Consideration was to be made of better coastal transportation services.
- (k) Further research on the possibility of using "weed" species of timber such as birch for secondary manufacturing was to be made.
- (l) Solutions to individual problems of northern residents was to be sought.

ITEM 20

1. 17 July 1973
2. *Press Release.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Agreement was reached between British Columbia government by way of British Columbia Cellulose with the Canadian National Railway, for freight rate restructuring to facilitate the movement of lumber products and wood chips. The freight rate agreement was seen as being critical to the wood and pulp economy and part of a series of ". . . interrelated steps to greatly improve the economy of the

northwest" (p. 1). The steps in northwest development were announced as consisting of: (1) acquisition of British Columbia Cellulose, (2) improvement of freight rates, (3) a major expansion programme in railway construction, (4) a major programme of sawmill development. Expansion of forest products and related activities was called for on a planned basis over ten years, with provision made for shipment through Prince Rupert. The four step development programme and other related activities were seen as acting:

. . . to stabilize, or moderate, or if possible reduce the costs of economic output in important sectors or in key regions of British Columbia. The cost of transportation, the cost of capital, the cost of community and social infrastructure, and other areas are all potential targets for this policy (p. 4).

ITEM 21

1. 17 July 1973

2. *Factors in the CNR Agreement.*

3. Minister of Lands, Forests and Water Resources.

4. Hon. R. Williams.

5. The objective of an agreement made with the CNR was announced as being to reduce the freight rate on wood chips in northwest British Columbia so as to provide both Eurocan Pulp and Paper and Canadian Cellulose with lowered raw material costs. Cancell's cost per unit of chips was lowered to \$6.00 from \$10.58 and Eurocan's to \$6.25 per unit from \$12.18. The number of chip cars moved was to

equal to within 10% the number of lumber cars moved, and there was to be a 50% per year increase in traffic over the next ten years.

ITEM 22

1. 22 July 1973

2. *Agreement in Principle, Joint Transportation Development Program, Northern British Columbia.*

3. N/A

4. N/A

5. An announcement was made that the Government of Canada and the Government of British Columbia had agreed in principle to undertake co-operatively a comprehensive programme of transportation and resource development involving railway, port and highway construction. Four jointly funded rail construction projects were to consist of the following: (a) the British Columbia Railway line from Fort St. James to Dease Lake; (b) a new British Columbia Railway line from Klappan to Telegraph Creek; (c) a new Canadian National Railway line from Terrace to the new BCR Dease Line at or near Groundhog; (d) a future extension of the BCR from Dease Lake to Lower Post. Included in the agreement were proposals for capital cost sharing of railway construction, reciprocal running rights between CNR and BCR lines, joint federal-provincial funding of port facilities at Prince Rupert, and agreement

upon principles of resource processing within the northwest.

ITEM 23

1. 23 July 1973.

2. *Northwest Rail and Port Agreement.*

3. Minister of Lands, Forests and Water Resources

4. Hon. R. Williams.

5. The northwest rail and port agreement was identified as phase 3 in the province's program for northwest development. Rail development was to consist of proposals put forth in the Joint Transportation Development Program agreement of 22 July 1973 (Item 22). Rail development was seen as opening up an area of 27 million acres of forest land with development of major sawmills at Nass Camp and Meziadin Lake. In addition to forest lands, the proposed railways were to open up copper, asbestos and coal deposits, as well as move concentrates to a possible copper smelter at Kitimat. Joint federal-provincial port development at Prince Rupert was seen as a counterforce to Vancouver, with Prince Rupert acting as a regional and national port.

ITEM 24

1. 10 August 1973

2. *Fourth Step in the Northwest Development Program.*

3. Minister of Lands, Forests and Water Resources.

4. Hon. R. Williams.
5. An announcement was made of the fourth step in the north-west development programme, consisting of sawmill expansion. Expansion programmes were to begin at Burns Lake with private industry presenting plans, proposals and bids for timber harvesting. Proposals were to include provision for ". . . the best combination of employment, social benefits, and wood utilization, as well as the Crown revenue factor" (p. 1). Municipal or regional tree farm licenses were encouraged so that independent operators as well as local communities could share in northern growth.

ITEM 25

1. 1974
2. *The Upper Watershed of the Kispiox River as a Nature Conservancy.*
3. Kispiox Valley Community Association.
4. The Zoning and Planning Committee.
5. A brief was released requesting the formation of a Nature Conservancy encompassing the upper watershed of the Kispiox River. As a part of the brief it was noted that the Environment and Land Use Committee Secretariat had stated:

A public and special interest group involvement program is anticipated to form an important part of the Natural Resource planning process. It is hoped that individuals, groups, local governments, etc., can provide information which will help ensure that the best mix of uses of the region's forest lands are realized (p. 28).

ITEM 26

1. March 1974
2. *Northern Industrial Communities.*
3. Conference held in Prince George.
4. N/A
5. This conference was held to assess sources of satisfaction and dissatisfaction for northern residents. From the conference a series of summary statements representing satisfaction levels of various types of work groups were made.

ITEM 27

1. April 1974
2. *The Social Effects of Rapid Growth: A Northern Sickness.*
3. SPEC, Smithers, B.C.
4. Richard Overstall.
5. Alarm was expressed over past development policies and the lack of concern for social, mental and physical conditions of residents. It was recommended that a moratorium be placed on all major development in northwest British Columbia until studies could be made relating to social costs, comprehensive community planning, and low impact development opportunities. Also it was recommended that local wishes be considered so that traditional life styles could be retained. Finally, it was recommended that a programme of rehabilitation be initiated for those groups and communities suffering from past "boom" economies.

ITEM 28

1. 21 June 1974
2. *Houston and Smithers Sawmill Bids Awarded.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. An announcement was made of the awarding of Houston and Smithers sawmill bid proposals. Bulkley Valley Forest Industries, located at Houston, was to receive 144,000 units of allowable cut. The company was to construct a new sawmill for \$8.3 million and to create 118 new jobs. The mill was to produce 80 million board feet of lumber and 56,000 units of chips annually. Due to opposition by the community of Smithers, the Smithers bid was reduced from 96,000 units to 68,800 units, with 32,000 going to Pacific Inland Resources and 36,800 to Fink's Sawmills Ltd. Pacific Inland Resources was to spend \$1 million and increase employment by 49 jobs while Fink's Sawmill was to spend \$500,000 and employ 76 people in total.

ITEM 29

1. 3 August 1974
2. *The Provincial Dream is Fast Becoming a Reality.*
3. The Vancouver Sun, p. 37.
4. N/A
5. The forecast completion date of the BCR to Dease Lake was set as being the end of 1976, at an estimated cost of \$110 million.

ITEM 30

1. 19 August 1974
2. *Press Release.*
3. Minister of Northern Affairs.
4. Hon. Alf Nunweiler.
5. An announcement was made of a formal programme of citizen involvement through community meetings. Meetings were planned so that ". . . residents of northern communities will be involved in the orderly planning of social and economic growth as it affects their community" (p. 1).

ITEM 31

1. 20 August 1974
2. *Ottawa Asked to Put Thumb on Development.*
3. *The Citizen, Prince George, pp. 1-2.*
4. N/A
5. The British Columbia Wildlife Federation announced concern over the apparent decline of provincial interest in development schemes. A request was made that the federal government withhold development money so that environmental studies would not be either limited or hushed.

ITEM 32

1. 28 August 1974
2. *Joint Federal Provincial Interim Program to Upgrade Highway Facilities in British Columbia.*
3. N/A

4. N/A
5. An announcement was made of a federal-provincial interim agreement for a programme in excess of \$10 million for construction and improvement of highways in northern British Columbia. Five million dollars was to be committed by the federal government during 1974-75.

ITEM 33

1. 30 August 1974
2. *Stumpage Rates Reduced.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Due to a drop in housing construction in the United States and soft Japanese and European markets for wood products, sawmills in the interior of British Columbia were experiencing cutbacks and layoffs. As a means of support the provincial government announced reduced stumpage rates.

ITEM 34

1. 16 September 1974
2. *"New Dimensions" Programme for Burns Lake Native Peoples: Signing of Social and Economic Development Agreements.*
3. N/A
4. N/A
5. An agreement was signed between the Native people of the Burns Lake area and the British Columbia government which

provided for direct Native participation in the operation and profits from Babine Forest Products. Provisions were made for Native involvement in the form of: ownership in conjunction with Weldwood of Canada, Eurocan, and CanCel; apportionment of 8% of Babine's chip production; development of subsidiary and support industries; on-the-job and counsellor training by Canada Manpower and the B.C. Department of Labour; and community planning and development.

ITEM 35

1. 16 September 1974
2. *Socio-Economic Impact on the Burns Lake Area of the Babine Forest Products Mill.*
3. AVG Management Science Ltd., Vancouver, B.C.
4. N/A
5. The intent of this report was to estimate the impact of the Babine Forest Products Mill and logging operation upon the community of Burns Lake. Efforts were made to forecast various shortfalls in services and to alleviate anticipated problems associated with community services.

ITEM 36

1. 30 September 1974
2. *Nishga Land Claims Threaten Rail Plan.*
3. The Vancouver Sun, p. 15.
4. N/A

5. Due to the slow pace of discussions concerning the 96-year-old, 4,000-square-mile Nishga Land Claim in the Nass Valley, the Nishgas refused to grant rail right-of-way to the CNR for its extension to the BCR.

ITEM 37

1. September 1974
2. *International Conference on the Human Environment in Northern Regions.*
3. Minister Without Portfolio (Northern Affairs).
4. Hon. A. A. Nunweiler.
5. A paper presented at Sapporo, Japan, in which the provincial Minister of Northern Affairs outlined the philosophy and actions of the New Democratic Party of British Columbia in relation to northern development. Basic problems were recognized as existing in: the diversification and stabilization of a resource based economy; the maintenance of outstanding environment qualities, and maintenance of the attractiveness of northern areas to northern residents who are being drawn to southern areas due to lack of opportunity. More specific problems relating to economic, social and community planning were recognized as: single industry dependence of many northern communities; northern climate; the conservation of ecological systems; the preservation of areas for outdoor recreation; and the utilization of resources so as to provide maximum benefits both locally and provincially. It was stated that in

relation to resource industries, excessive market swings occur which lead to "unstable communities which cannot provide the opportunities or amenities to hold young people or attract new migrants" (p. 5).

ITEM 38

1. 2 October 1974
2. *Hazelton Mill Future Fuzzy as Williams Misses Meeting.*
3. The Vancouver Sun, p. 6.
4. N/A
5. Closure of the Rim Forest Products Ltd. sawmill at Hazelton on 11 July 1974 due to insufficient markets, placed 175 people out of work. The Hon. R. Williams was unable to attend a meeting held at Hazelton due to inclement weather, at which it was proposed that Rim be taken over by CanCel.

ITEM 39

1. 7 October 1974
2. *Press Release*
3. Minister for Northern Affairs.
4. Hon. A. A. Nunweiler.
5. A repeated call was made for local labour organizations and working people to become more active in community development.

ITEM 40

1. 10 October 1974
2. *Ministers to Visit Northwest.*
3. The Province, Vancouver, B.C., p. 6.
4. N/A
5. An announcement was made that the then federal Ministers of Transport, Revenue, and Regional and Economic Expansion, as well as the then Premier of B.C., would visit the northwest. Speculation was expressed that the long-delayed plans for industrial development of the region would be accelerated.

ITEM 41

1. 4 November 1974
2. *North "Exploited" by Mine Companies.*
3. The Vancouver Sun, Vancouver, B.C., p. 29.
4. N/A
5. The accusation was made by a United Steel Workers of American official that one of the ways in which northern mining companies exploit mine workers was by helping to create problems associated with poor health care and housing, high living costs, poor transportation, education and communications.

ITEM 42

1. 13 November 1974
2. *Development for Northern People.*

3. *The Herald, Terrace, B.C., p. 1.*
4. N/A
5. The Minister of Northern Affairs, A. A. Nunweiler, in calling for continued community involvement, noted that "Local needs must be planned for and accommodated with the active assistance of people in each of our northern communities" (p. 1).

ITEM 43

1. 14 November 1974
2. *Timber Products Stabilization Act—Bill 171.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Bill 171 was passed to allow government setting of the price of wood chips in the province, and to establish a Forest Products Board.

ITEM 44

1. 22 November 1974
2. *Highway Development in Northern British Columbia: Priorities, Timing and Beneficiaries.*
3. Centre for Transportation Studies, University of British Columbia.
4. Karl M. Ruppenthal, Director.
5. This study was prepared in order to assess the timing, priorities, federal-provincial benefit sharing and social impact of a northern highway development programme. It

was recommended that construction and improvements should be spaced over a minimum of ten years, with the highway from Kitwanga to Meziadin Lake and Highway 27 from Stewart to Watson Lake having top priority. It was concluded that adverse social consequences would be minimal, providing an extended timetable was used.

ITEM 45

1. 28 November 1974
2. *Stumpage Rates.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Due to economic difficulties experienced by interior sawmills, the stumpage rate was reduced to a minimal level.

ITEM 46

1. 6 December 1974
2. *North Drives Men to Drink.*
3. The Vancouver Sun, Vancouver, B.C., p. 4.
4. Tim Padmore.
5. A study prepared by a UBC psychologist showed that men in remote areas of B.C. were driven to alcohol by boredom and sexual frustration. The annual expenditure on alcohol in northern B.C. was \$250, while in southern B.C. it was \$150.

ITEM 47

1. December 1974
2. *Burns Lake Forest Development Meets Community Requirements.*
3. Northern Affairs Newsletter.
4. Hon. A. A. Nunweiler, Minister for Northern Affairs.
5. Using studies prepared by the Environment and Land Use Committee Secretariat and various departments, a community plan was being drawn up in conjunction with the announced Babine Forest Products mill.

ITEM 48

1. December 1974
2. *Northern Meetings Begin.*
3. Northern Affairs Newsletter.
4. Hon. A. A. Nunweiler, Minister for Northern Affairs.
5. Due to a feeling by northerners of a general shortage of factual information regarding government activity in the north, a general information newsletter was to be published on a regular basis, and a series of public information meetings were to be held. The public meetings were designed to allow the public to give criticism and express their feelings. Government involvement was seen as being necessary in:

. . . such matters as job stability, working conditions, opportunities for children, availability of services and the well planned development of our communities. Thus the role of Northern Affairs Minister involves social policy as much as it does economic and resource development (p. 1).

ITEM 49

1. December 1974
2. *Rail Line Studies Near Completion.*
3. Northern Affairs Newsletter.
4. Hon. A. A. Nunweiler, Minister for Northern Affairs.
5. It was announced that initial environmental and social impact studies of the CNR line connecting Terrace north to the BCR was nearing completion.

ITEM 50

1. December 1974
2. *Resource Demands Co-ordinated.*
3. Northern Affairs Newsletter.
4. Hon. A. A. Nunweiler, Minister for Northern Affairs.
5. Resource inventories were being prepared to co-ordinate resource utilization in northwest British Columbia. Studies were underway or completed for the Burns Lake area, the Smithers area, the Stewart-Cassiar highway, and the Houston-Ootsa corridor. Studies were anticipated for the Houston and Terrace-Kitimat areas.

ITEM 51

1. December 1974
2. *Social Needs Set Development Pace.*
3. Northern Affairs Newsletter.
4. Hon. A. A. Nunweiler, Minister for Northern Affairs.
5. Development would be timed to meet needs as they occur

and to incorporate those needs perceived and voiced by northern residents.

ITEM 52

1. Winter 1974
2. *Burns Lake.*
3. ForesTalk, British Columbia Forest Service, Victoria, B.C.
4. N/A
5. In discussing the merits of the "New Dimension" programme, Chief Ted Lowley of the Lake Babine Band stated: "The only way to stabilize the population and the work force is to make the north a more attractive place in which to live and work" (p. 12).

ITEM 53

1. 1975
2. *Prince Rupert Terminal.*
3. National Harbours Board.
4. N/A
5. As a part of the agreement in principle to undertake co-operatively a comprehensive programme of transportation, development work was progressing on construction of general cargo facilities at Prince Rupert. Forty acres of land with a 45-foot deep, 1,400-foot moorage was being developed.

ITEM 54

1. 11 January 1975
2. *Plunging Economy Drags Down B.C. Frontier.*
3. The Vancouver Sun, Vancouver, B.C., p. 7.
4. N/A
5. Due to slumping world markets for forest products, the northwest was experiencing the worst economic slump in the post-war period, with government spending keeping towns of the area alive. All of the major mills were closed and most communities were experiencing difficulties. Eurocan's Ootsa operation closed from 20 December 1974 until June 1975.

ITEM 55

1. 13 January 1975
2. *Silent Mills Rattle Terrace Lumbermen.*
3. The Vancouver Sun, Vancouver, B.C., p. 7.
4. N/A
5. Due to lack of lumber markets in the USA, all sawmills in Terrace area were closed.

ITEM 56

1. 18 January 1975
2. *It's Boom for the North, Gloom for the Indians.*
3. The Vancouver Sun, Vancouver, B.C., p. 18.
4. N/A
5. Due to increasing contact with white society because of

highway and railway construction, Indians of the northwest were found to be increasingly demoralized. Various reports relating to living conditions recommended that due to labour shortages and sparse population, highway development should occur on a phased basis over 10 to 15 years.

ITEM 57

1. 19 February 1975
2. *CN's Northern Route Should Equal Southern Traffic.*
3. The Herald, Terrace, B.C., p. 1.
4. N/A
5. Projections were made by CNR that if Fairview port facilities were built at Prince Rupert; if coal was shipped to Japan by way of Prince Rupert; if the CNR Meziadin line was built; and if normal growth occurred, then by 1990, northern tonnage could equal southern rail traffic.

ITEM 58

1. 2 March 1975
2. *The Myth of the Great Northwest?*
3. Iona Campagnolo, M.P. Skeena (speech to the Smithers and District Chamber of Commerce).
4. N/A
5. In a speech presented to the Smithers and District Chamber of Commerce, Mrs. Campagnolo outlined the extent of northwest development and reprimanded both the federal and

provincial governments for insincere development policies. Mrs. Campagnolo noted that promises of railway development; of massive resource development projects; of 25,000 new jobs; of \$500 million in expenditures; of new saw-mills, pulp mills and smelters and of concern for Native and community problems had not materialized. It was noted that although many proposals and schemes were put forth, few had reached fruition and answers were not available concerning the state of the others. Tangible federal involvement was stated as consisting of:

- (1) Declaration of Prince Rupert as a National Harbour and construction of general cargo facilities .
- (2) Rationalization of BCR-CNR running rates.
- (3) A federal highways enhancement programme consisting of \$5 million in 1974, which was described as being "peanuts."
- (4) The General Development Agreement, although the Department of Regional and Economic Expansion had designated only southeast British Columbia for attention.

The observation was made that although development proposals abounded, there was not a northern development scheme as such. Rather, levels of government operated through a system of rumours and almost commitments, without a comprehensive goal or awareness of local conditions.

ITEM 59

1. 12 March 1975
2. *The Myth of the Great Northwest.*
3. The Interior News, Smithers, B.C., p. 1.
4. N/A
5. As a part of the statement made by Mrs. Campagnolo on 2 March 1975, that northwest development was a hoax and a con game to keep northerners pacified, it was noted that the unemployment rate in the northwest was 16%.

ITEM 60

1. 19 March 1975
2. *Northwest Conference Slated.*
3. The Interior News, Smithers, B.C., p. 1.
4. N/A
5. An announcement was made of a three-day northwest study session to be held in Terrace, to discuss Indian land claims, northwest development plans, and the social and environmental impact of proposed industrial development on northern communities.

ITEM 61

1. 19 March 1975
2. *Northwest Development Does Exist.*
3. The Interior News, Smithers, B.C., p. 1.
4. N/A
5. A report was made of a speech given by Skeena MLA Hartley

Dent to the effect that northwest development does exist. Actions such as the government operation of CanCel, updating of lumber mills, improved working conditions, reduced freight rates and Prince Rupert port development were cited as being indicative of northwest development. It was noted that the decision to improve Peace River hydro project site 1 had relieved the need to build Kemano II. Any slowdown in northwest development was considered to be due to a lack of federal funding.

ITEM 62

1. May 1975
2. *The Report of the British Columbia Copper Task Force.*
3. The Copper Task Force.
4. John E. McMynn, Chairman.
5. In recognizing a need for a copper smelting capacity in British Columbia, the British Columbia Copper Task Force recommended that preliminary investigations be performed on the feasibility of a world-scale smelter complex located on the north coast, with operating capacity by 1983.

ITEM 63

1. May 1975
2. *Resolutions Passed by the Northwest Study Conference.*
3. N/A
4. N/A

5. A series of resolutions for forwarding to the various levels of government involved in northwest development were resolved by the Northwest Study Conference held in Terrace. Resolutions directly relating to northwest development were as follows:
- (a) that Indian land claims be supported by various labour and church groups;
 - (b) that local residents be given control over harvest and development of resources;
 - (c) that a judicial commission of inquiry be struck to mitigate all proposed development;
 - (d) that special consideration be given to the hiring of Native people and women;
 - (e) that proposed development should correspond to local social and employment conditions.

ITEM 64

1. May 1975
2. *Questions and Answers on Development in Northwest British Columbia.*
3. Minister for Northern Affairs.
4. Hon. A. A. Nunweiler.
5. In response to inquiries concerning the status and direction of northwest development, the Minister for Northern Affairs issued a series of answers to posed questions. It was stated that the objectives of northwest development were economic development; preservation of environmental

quality and stabilization and enhancement of living. The elements of development were identified as being:

- *Improved community facilities and social services in co-operation with local residents. These involve recreation facilities, hospitals, human resources and health centers, community resources boards, ambulance services, schools, parks, and major housing developments.
- *Rationalization of the forest industry including increased production on a sustained yield basis.
- *Railway development involving both the CNR and the BCR.
- *Development of a bulk loading facility at Prince Rupert.
- *Public ownership of CanCel ensuring economic and social stability to much of the northwest.
- *Transportation agreement with the CNR on chip and lumber shipments.
- *Interior sawmill expansion in Smithers and Burns Lake in accordance with local desires.
- *Upgrading of existing highways and construction of new highways and bridges where needed (p. 6).

It was noted though that several proposals had been abandoned, such as sawmills at Meziadin Lake and the Nass River. The CNR extension north from Terrace, the BCR line to Dease Lake, construction work on the Stewart-Cassiar highway, and development of mineral deposits, had been delayed.

ITEM 65

1. 9 June 1975
2. *Stumpage Relief Discontinued.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. Due to increasing lumber prices, it was considered that the interior forest industry should be able to again pay reasonable stumpage rates, so the relief rate was discon-

tinued.

ITEM 66

1. 12 June 1975
2. *Notes for an Address to the North Central Municipal Association.*
3. N/A
4. Iona Campganolo, M.P. Skeena.
5. In her speech, Mrs. Campagnolo identified the basic reason for northern development as being more efficient use of wood resources, with other aspects of development being secondary. It was noted that the BCR extension to Dease Lake bypasses forest and mineral resources and was originally planned by W.A.C. Bennett, past B.C. premier, to penetrate into the Yukon.

ITEM 67

1. 17 June 1975
2. *New Price for Wood Chips.*
3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. An announcement was made that the price for wood chips was set at \$35 per BDU (Bone Dry Unit). This was proclaimed to ensure that small scale operators could remain competitive.

ITEM 68

1. 2 July 1975
2. *Wood Chip Price Continues.*

3. Minister of Lands, Forests and Water Resources.
4. Hon. R. Williams.
5. The set price of \$35 per BDU for wood chips was to continue until 30 November 1975.

ITEM 69

1. 23 July 1975
2. *Steel Mill.*
3. Prince Rupert Daily News, Prince Rupert, B.C., p. 1.
4. N/A
5. An announcement was made by the Department of Economic Expansion, Trade and Commerce that detailed studies would be carried out on possible sites for a steel mill, centering upon Prince George and Kitimat. The studies were in response to a 1974 agreement signed between Nippon Kokan of Japan and the Province of British Columbia to conduct a joint steel mill feasibility study of various sites in B.C.

ITEM 70

1. 13 August 1975
2. *Kitimat Chamber Favours Steel Mill*
3. The Herald, Terrace, B.C., p. 1.
4. N/A
5. The Kitimat Chamber of Commerce stated that it was in favour of a steel mill in Kitimat.

ITEM 71

1. August 1975

2. *Steel Mill Study: Information Book.*

3. British Columbia/Nippon Kokan.

4. N/A

5. As the second phase of the feasibility study of a steel mill in B.C., social, environmental and regional economic impact were to be analyzed. Socio-cultural factors were to include the life styles of various groups in the area and the effects of a rapid influx of population with associated social change. Community facilities were to include an inventory of community resources, recreation, education, health, transport, housing, and social services. Annual production was projected at 4 million metric tons of crude steel from two blast furnaces utilizing 6 million metric tons of iron ore, 3 million metric tons of coal and 1.3 million metric tons of limestone. The mill site would cover 1,500 acres and require a 5,000 foot wharf facility. A single furnace, first stage, would employ 6,500 direct and indirect employees, while the second stage would employ an additional 5,500. Indirect employees included only those required for direct support activity, such as maintenance and repair work, lime calcining, engineering, and oxygen generating. Tertiary services and other social services were not included.

ITEM 72

1. October 1975

2. *Fort Nelson Gets Big Pay Day.*

3. Northern Affairs Newsletter, vol. 1, no. 4.

4. Hon. A. A. Nunweiler.

5. Economic Development Minister Gary Lauk, in presenting a provincial grant to the community of Fort Nelson, noted that:

. . . one of the best ways to encourage economic development in the more remote regions of the province is to ensure that community services consistent with the expectations of the people are provided (p. 4).

ITEM 73

1. October 1975

2. *Northwest British Columbia: A Social Perspective.*

3. N/A

4. Graham Farstad, Consultant.

5. This report was prepared as an analysis of the social ramifications of economic development in northwest B.C. Particular attention was paid to Native Indians. A series of recommendations were made, primarily stressing the need for phased development and local participation in the decision process.



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APPENDIX B

Department of Geography

COMMUNITY STUDY QUESTIONNAIRE

Your household has been randomly selected to participate in a study of community satisfaction in small communities in British Columbia. This study is being performed under the auspices of the Department of Geography, University of Victoria.

The purpose of the questionnaire is to collect information regarding living conditions and quality of services. The data collected will be used to evaluate community services and to make recommendations for improvements.

Replies will be kept strictly confidential and at no time will answers be identified with individuals.

So as to take as little of your time as possible, most answers require only a check mark in a box, thus .

Please base your responses to questions on your own, personal values. Please answer all questions.

The information you provide will be greatly appreciated.
Thank you for your co-operation and assistance.

Sincerely yours

Wallace G. Bergen

COMMUNITY CHARACTERISTICS

Please check the appropriate box.

1. How long have you lived in this community?

Less than 6 months 7 - 10 years 6 - 12 months 10 years or more 1 - 3 years Have always lived here 4 - 6 years

2. Did you intend to settle permanently in this community when you first moved here?

Yes No

If no, how long did you plan to stay?

Less than 1 year 4 - 6 years 1 - 3 years Did not know

3. How much longer do you plan to stay in this community?

Less than 1 year More than 2 years 1 - 2 years Do not know

4. Why did you move to this community?

Most important reason _____

_____Second most important reason _____

5. If you intend to stay in this community, what are your main reasons?

_____6. If you DO NOT intend to stay in this community, what are your main reasons?_____

The following questions are designed to allow you to express your views on various aspects within your community. Please indicate your level of satisfaction on the provided scale, ranging from very satisfied to very dissatisfied.

For example, if you are moderately satisfied with the library facilities in your community and very dissatisfied with garbage collection, you would respond as follows:

	Very Satisfied	Neutral			Very Dissatisfied
Library Facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garbage Collection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

7. Using the provided scale, please indicate your level of satisfaction with the following characteristics of your community.

	Very Satisfied	Neutral			Very Dissatisfied
Educational Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employment Opportunities - Men	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Women	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Teenagers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Law Enforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost of Living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job Security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proximity to large urban area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Media Facilities (T.V., Radio, Newspaper)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation Facilities - Outdoor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Indoor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entertainment Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working Conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retail Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labour-Management Relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate your level of satisfaction with services provided in your community by the following.

	Very Satisfied		Neutral		Very Dissatisfied
Municipal Government	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Regional District	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Provincial Government	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Federal Government	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

9. Please indicate how satisfied you are living in this community.

Very Satisfied		Neutral		Very Dissatisfied
<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

10. Of the following, which THREE are most in need of improvement in your community? Please indicate your choices 1, 2, and 3, with number 1 being most in need of improvement, number 2 second most, and number 3 the third most in need of improvement.

Access to urban centers	_____
Police Protection	_____
Employment Opportunities	_____
Cost of Living	_____
Retail Facilities	_____
Recreational Facilities - Outdoor	_____
- Indoor	_____
Medical Facilities	_____
Housing and Accommodation	_____
Educational	_____
other (please specify)	_____

11. What characteristics would you look for in a new community if you were to move from your present community? _____

12. Do you consider personal involvement in decisions regarding the course of your community necessary?

Yes No

13. In your opinion, is public participation in your community encouraged, tolerated or discouraged by the following:

	Encouraged	Tolerated	Discouraged
Municipal Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional District	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provincial Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Federal Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Large Companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Do you feel isolated living in this community?

Only in winter	<input type="checkbox"/>	Never	<input type="checkbox"/>
Only in summer	<input type="checkbox"/>	Sometimes	<input type="checkbox"/>
Always	<input type="checkbox"/>	Undecided	<input type="checkbox"/>

15. What government sponsored programs could make this community a better place in which to live?

OTHER

16. Please check the box indicating your age:

15 - 19	<input type="checkbox"/>	30 - 39	<input type="checkbox"/>	50 - 59	<input type="checkbox"/>
20 - 29	<input type="checkbox"/>	40 - 49	<input type="checkbox"/>	Over 60	<input type="checkbox"/>

17. Sex: Male Female

18. What is your marital status?

Single	<input type="checkbox"/>	Separated	<input type="checkbox"/>	Widowed	<input type="checkbox"/>
Married	<input type="checkbox"/>	Divorced	<input type="checkbox"/>		

19. Where were you born?

Town _____
 Province _____
 Country _____

20. How much education have you completed?

Less than grade seven
 Grades seven to nine
 Grades nine to twelve
 Technical School
 Trade School
 University
 Postgraduate School
 Professional School

21. What is your present occupation (please be specific)? _____

22. What is your spouse's occupation? _____

23. How many children do you have living at home and under the age of 18?

None	<input type="checkbox"/>	Four	<input type="checkbox"/>
One	<input type="checkbox"/>	Five	<input type="checkbox"/>
Two	<input type="checkbox"/>	More than five	<input type="checkbox"/>
Three	<input type="checkbox"/>		

24. Please indicate your household's gross income for the preceeding year.

\$0 - 2,999	<input type="checkbox"/>	\$12,000 - 14,999	<input type="checkbox"/>
\$3,000 - 5,999	<input type="checkbox"/>	\$15,000 - 17,999	<input type="checkbox"/>
\$6,000 - 8,999	<input type="checkbox"/>	\$18,000 - 20,999	<input type="checkbox"/>
\$9,000 - 11,999	<input type="checkbox"/>	\$21,000 or more	<input type="checkbox"/>

25. Did you grow up in a:

Metropolitan area e.g. Vancouver (pop. 500,000 +)
 City e.g. Victoria (pop. 50,000 to 500,00)
 Town e.g. Kelowna (pop. 5,000 to 50,000)
 Rural area

26. What is your present place of residence?

House (owned)

Mobile Home

House (rented)

Condominium

Apartment or suite

Room and/or board

other (please specify) _____

27. Do you belong to any clubs or organizations in your community?

Yes

No

If yes, which ones?

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

28. Please express any further comments you may have regarding your community.

If you would like an abstract of the finished report, please provide your name and address below:

APPENDIX C

METRIC CONVERSION TABLE

LENGTH

1 foot = 0.304 m (meter)
 1 mile = 1.609 km (kilometer 10^3)
 1 nautical mile = 1,852 m (meter)

AREA

1 acre = 0.404 ha (hectare)
 1 square foot = 929.030 cm^2 (centimeter 10^{-2})
 1 square mile = 2.589 km^2 (kilometer 10^3)

MASS

1 ounce (avoirdupois) = 28.349 g (gram)
 1 ton (short) = 0.907 mg (megagram 10^{16})

VOLUME & CAPACITY

1 acre foot = 122.482 m^3 (meter)
 1 bushel = 36.368 dm^3 (decimeter 10^{-1})
 1 cubic yard = 0.764 m^3 (meter)
 1 board foot = 2.359 dm^3 (decimeter 10^{-1})
 1 cunit (100 ft^3 solid lumber) = 2.831 m^3 (meter)

ENERGY

1 kilowatt hour = 3.6 mj (mega joule 10^6)

POWER

1 horsepower (water) = 746.043 w (watt)

VOLUME RATE OF FLOW

1 cubic foot per second = 0.471 dm^3/s (decimeter 10^{-1})
 1 cubic foot per minute = 28.316 dm^3/s (decimeter 10^{-1})

Source: Canadian Standards Association, *Canadian Metric Practice Guide*, Rexdale, Ontario, 1976.

APPENDIX D

This appendix consists of a chronological sequence of major development events, commencing with the establishment of the first fur trade post. This summary recognizes only major events, and is intended to document the historical "boom" economy of the northwest. Documentation ceases at 1970, where Appendix A continues.

- 1805-1808 Simon Fraser, representing the North West Company, established fur trading posts in the Stuart Lake-Nechako region.¹
- 1812 Babine Lake explored by D. W. Harman and James MacDougall of the North West Company.²
- 1821 Fort Kelmaurs built on Babine Lake and Fort Connolly in the upper Skeena River to facilitate the fur trade with the local Indians.³
- 1834 Fort Simpson established in the Tsimpsonian Peninsula, to the north of the present city of Prince Rupert.⁴
- J. McLeod, representing the Canadian North West Company explored Dease Lake and a fur trading post was established there for a brief period.⁵
- 1839 The Hudson's Bay Company leased trading rights to the "panhandle" of Alaska from the Russian American Company and held them until 1867.⁶
- 1858 The gold discoveries of southern British Columbia drew

- prospectors and adventurers into northwestern British Columbia. The mainland of British Columbia was proclaimed a crown colony.⁷
- 1861 Placer gold was discovered on the Stikine River near Telegraph Creek. This resulted in the creation of the Stikine Territory under the administration of the Crown Colony of British Columbia.⁸
- 1863 The Stikine Territory was incorporated into the Colony of British Columbia.⁹
- 1865 The Collins Overland Telegraph Company attempted to construct an intercontinental telegraph line between Europe and the United States, and the Stikine by way of northwest British Columbia. Construction activity provided a brief flurry of development, but with the laying of the Atlantic cable in 1865 the scheme collapsed.¹⁰
- 1867 The United States of America purchased Alaska from the Russian Imperial Government. The boundary between British Columbia and Alaska was undefined.¹¹ British Columbia became a province of Canada.
- 1871 Gold was discovered on the Omineca River, northeast of Takla Lake. The Skeena River became one of the main routes to the goldfields, with the head of navigation at Hazelton, then by pack trail to the Omineca. Several farms were established in the area to provide for the miners, with Hazelton becoming an important supply

- center.¹²
- 1873 Gold was discovered in Thibert and Dease Creeks adjacent to Dease Lake, and MacDame Creek at the present-day site of Cassiar. Access was by way of riverboat up the Stikine River to Glenora, then by pack trail to Dease Lake, and finally by boat to the diggings.¹³
- 1876 The first salmon canneries were opened on the Skeena River. By 1920, 36 fish-storage and processing plants were active along the north coast.¹⁴
- 1891 Sternwheeler service began on the Skeena River and ran until 1912.¹⁵
- 1897 The Klondike gold rush drew a large number of miners and adventurers into the Yukon.
- 1898 Prospectors staked gold claims on Pine Creek, leading into Atlin Lake.¹⁶
- 1899 By the end of the year 10,000 people had arrived in the Atlin region and Atlin was a major city. These deposits still produce, with gold production exceeding \$16 million.¹⁷
- 1901 The Dominion Government used the right-of-way to the Collins Overland Telegraph to run a telegraph line to the Yukon. This provided a stimulus for settlement in the Bulkley Valley.¹⁸
- 1908 A wagon road had been built between Hazelton and Telkwa, otherwise travel out of the area was by sternwheeler on the Skeena River.¹⁹

- 1907 Construction work began on the Grand Trunk Pacific Railway, stimulating the local economy. Prince Rupert was selected as the terminus of the line and was surveyed and established. Terrace was selected as a junction point for a spur line to Kitimat arm. Smithers was selected as a division point and due to the availability of relatively flat land, became a focal point of settlement. Logging was stimulated by the need for rail ties, poles and lumber.²⁰
- 1914 By the time the Grand Trunk Pacific Railway was completed, agriculture and forestry were well established in the Bulkley and Skeena Valleys.²¹
- 1920-1939 The northwest was relatively stable, with little growth.
- 1940-1945 During World War II the northwest underwent a boom of construction activity. Airfields and troop training bases were established at Terrace and Smithers. Ship construction, troop embarkment and material transport occurred through Prince Rupert.²²
- 1942 The Alaska Highway was built, providing road access to the northern portion of the province.²³
- 1944 The Trans-Provincial Highway between Prince George and Prince Rupert was completed.²⁴
- 1948 Roadway to Cassiar Junction completed.
- 1956 The Wenner-Gren British Columbia Development Corporation, a subsidiary of Wenner-Gren of Sweden, announced

plans to build a \$25 million (1959) monorail through northwestern British Columbia into the Yukon. Due to financial and political difficulties, this scheme fell through in 1963.²⁵

1958 Under the Government of Canada Roads to Resources Programme, a roadway was completed connecting Stewart to the Alaska Highway.

Footnotes

¹ Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, *The Prince Rupert-Smithers Bulletin Area* (Victoria: Queen's Printer, 1974), p. 8.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Government of the Province of British Columbia, Department of Lands, Forests and Water Resources, *The Atlin Bulletin Area* (Victoria: Queen's Printer, 1974), p. 6.

⁶ Ibid.

⁷ *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 8.

⁸ *The Atlin Bulletin Area*, op. cit., p. 7.

⁹ Ibid.

¹⁰ *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 8.

¹¹ *The Atlin Bulletin Area*, op. cit., p. 7.

¹² *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 9.

¹³ *The Atlin Bulletin Area*, op. cit., p. 8.

¹⁴ *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 9.

¹⁵ Ibid.

¹⁶ *The Atlin Bulletin Area*, op. cit., p. 8.

¹⁷ Ibid., p. 9.

¹⁸ *The Prince Rupert-Smithers Bulletin Area*, op. cit., p. 9.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid., p. 10.

²² Ibid.

²³*The Atlin Bulletin Area, op. cit., p. 9.*

²⁴*The Prince Rupert-Smithers Bulletin Area, op. cit., p. 10.*

²⁵Government of the Province of British Columbia,
Department of Transportation and Communication, personal
communication, 23 September 1975.

APPENDIX E
RESIDENTIAL, INDUSTRIAL, COMMERCIAL,
INSTITUTIONAL AND GOVERNMENT CONSTRUCTION,
NORTHWEST BRITISH COLUMBIA 1966 - 1975
(Thousands of Dollars)

Location	Residential	Industrial	Commercial Institutional and Government	Total	% Change Over Previous Year
<u>1966:</u>					
Houston	N/A	N/A	N/A	N/A	N/A
Smithers*	716	0	980	1,696	-
Terrace*	1,614	64	1,675	3,353	-
Kitimat	460	559	141	1,160	-
Prince Rupert	4,601	562	1,233	6,396	-
<hr/>					
Total N.W. B.C. Communities	7,391	1,185	4,029	6,423	
Squamish*	701	0	424	1,182	-
British Columbia	215,112	43,347	159,854	418,313	-
<hr/>					
<u>1967:</u>					
Houston	N/A	N/A	N/A	N/A	N/A
Smithers*	908	8	929	1,845	+8.8
Terrace*	2,253	461	5,819	8,533	+154
Kitimat	1,307	447	1,872	3,626	+212.6
Prince Rupert	1,265	1,107	3,618	5,992	-6.3
<hr/>					
Total N.W. B.C. Communities	5,733	2,025	12,238	19,996	+58.6
Squamish*	1,078	159	49	1,286	+8.8
British Columbia	283,761	38,811	195,809	518,381	+23.9

APPENDIX E CONTINUED

Location	Residential	Industrial	Commercial Institutional and Government	Total	% Change Over Previous Year
<u>1968:</u>					
Houston	N/A	N/A	N/A	N/A	N/A
Smithers*	818	7	116	941	-48.9
Terrace*	931	321	1,063	2,315	-72.9
Kitimat	1,756	2,655	1,223	5,634	+55.4
Prince Rupert	1,142	124	600	1,866	-68.9
Total N.W. B.C. Communities	4,647	3,107	3,002	10,756	-46.2
Squamish*	771	152	403	1,326	+ 3.1
British Columbia	339,245	58,789	150,258	548,292	+ 5.8
<u>1969:</u>					
Houston	N/A	N/A	N/A	N/A	N/A
Smithers*	581	28	150	759	-19.3
Terrace*	1,601	168	3,274	5,043	+117.8
Kitimat	6,513	15,659	1,314	23,486	+316.9
Prince Rupert	2,185	203	5,359	7,747	+315.2
Total N.W. B.C. Communities	10,880	16,058	10,097	37,035	+244.3
Squamish*	677	799	644	2,120	+59.9
British Columbia	384,490	63,416	201,850	649,756	+18.5

APPENDIX E CONTINUED

Location	Residential	Industrial	Commercial Institutional and Government	Total	% Change Over Previous Year
<u>1970:</u>					
Houston	2,506	514	2,445	5,525	N/A
Smithers*	308	37	438	783	+67.6
Terrace*	2,214	604	950	3,768	-25.3
Kitimat	1,509	1,018	1,108	3,635	-84.5
Prince Rupert	736	245	2,621	3,602	-53.5
<hr/>					
Total N.W. B.C. Communities	7,273	2,418	7,562	17,802	-51.9
Squamish*	999	113	160	1,272	-40.0
British Columbia	337,769	89,255	117,170	604,194	- 7.0
<hr/>					
<u>1971:</u>					
Houston	498	98	903	1,499	-72.9
Smithers*	476	58	866	1,400	+10.0
Terrace*	2,684	272	1,626	4,582	+21.6
Kitimat	1,318	2,208	863	4,389	+20.7
Prince Rupert	1,098	132	889	2,119	-41.2
<hr/>					
Total N.W. B.C. Communities	6,074	2,768	5,147	13,989	-21.4
Squamish*	2,388	22	428	2,838	+123.1
British Columbia	454,879	44,796	285,826	785,501	+30.0

APPENDIX E CONTINUED

Location	Residential	Industrial	Commercial Institutional and Government	Total	% Change Over Previous Year
<u>1972:</u>					
Houston	125	22	61	208	-86.1
Smithers*	543	16	3,073	3,632	+159.4
Terrace*	1,584	223	2,743	4,550	- 0.7
Kitimat	1,374	864	837	3,075	-29.9
Prince Rupert	1,819	130	1,006	2,955	+39.5
Total N.W. B.C. Communities	5,445	1,255	7,720	14,420	+ 3.0
Squamish*	3,768	1,654	922	6,344	+123.5
British Columbia	524,988	51,393	287,918	870,299	+10.8
<u>1973:</u>					
Houston	304	33	300	637	+206.3
Smithers*	888	199	3,180	4,267	+17.5
Terrace*	4,541	210	3,422	8,173	-79.6
Kitimat	1,190	121	2,613	3,924	+27.6
Prince Rupert	2,874	3,717	4,685	11,276	+281.6
Total N.W. B.C. Communities	9,797	4,280	14,200	28,277	+96.0
Squamish*	5,981	1,310	1,414	8,705	+37.2
British Columbia	732,111	84,058	410,370	1,226,539	+40.9

APPENDIX E CONTINUED

Location	Residential	Industrial	Commercial Institutional and Government	Total	% Change Over Previous Year
<u>1974:</u>					
Houston	396	87	13	496	-22.1
Smithers*	1,210	405	853	2,468	-42.2
Terrace*	3,091	173	2,247	5,511	-32.6
Kitimat	2,672	1,449	1,485	5,606	+42.9
Prince Rupert	3,092	1,222	5,973	10,287	- 8.8
Total N.W. B.C. Communities	10,461	3,336	10,571	24,368	-13.8
Squamish*	8,675	1,635	1,581	11,891	+36.6
British Columbia	762,630	87,782	409,421	1,259,839	+ 2.7
<u>1975:</u>					
Houston	291	19	188	498	+ 0.4
Smithers*	1,577	47	1,424	3,048	+23.5
Terrace*	3,736	-	7,212	10,948	-98.6
Kitimat	2,692	60	755	3,507	-37.4
Prince Rupert	6,286	247	1,763	8,296	-19.4
Total N.W. B.C. Communities	14,582	373	11,342	26,297	+ 7.9
Squamish*	6,793	107	1,035	7,935	-33.3
British Columbia	971,434	76,868	491,545	1,539,847	+22.2

*Study Communities

B.C. Department of Economic Development, Personal Communication.

APPENDIX F

The following appendix provides data relating to quality of life component goal areas as identified in Figure 3.2. Quality of life components are identified as consisting of three broad types: political; social; and economic. All data presented consist of quantitative measures and are intended as a reference for the interpretation of subjective responses to satisfaction with the study communities.

APPENDIX F

POLITICAL COMPONENTS OF QUALITY OF LIFE (1975)

	Terrace	Smithers	Squamish
<u>Government Representation</u>			
Federal Representation:			
Riding	Skeena	Skeena	Coast - Capilano
Member	Iona Campagnolo	Iona Campagnolo	Ron Huntington
Party	Liberal	Liberal	Conservative
Provincial Representation:			
Riding (August 1975)	Skeena	Skeena	West Vancouver - Howe Sound
Member	Hartley Dent	Hartley Dent	Allan Williams
Party	NDP	NDP	Social Credit
Municipal Representation:			
Mayor	G. Rowland	G. L. Williams	D. Stewart
<u>Religious Freedom</u>			
Denominations	13	10	5
<u>Legal Rights</u>			
Police Protection:			
Agency	RCMP	RCMP	RCMP
No. of Officers	29	16 ¹	10
No./1000 Population	1.6	2.0	1.0
Legal Representation:			
No. of Lawyers	5	3	9
No./1000 Population	.27	.38	.9
Probation Service:			
No. of Officers	2	1	1
Case Load	78	53	55
Case Load/Officer	39	53	55

APPENDIX F CONTINUED

	Terrace	Smithers	Squamish
<u>Public Safety</u>			
Fire Protection:			
Fire Fighting Complement	7	1	1
Volunteer	23	30	n/a
No. of Vehicles	5	4	n/a
Fires (1974)	114	92	n/a
Damage	\$225,780	\$293,000	n/a
Ambulance Service:			
Complement	7 (firemen)	1 plus volunteer	n/a
No. of Vehicles	1	1	n/a
Calls (1974)	395	n/a	n/a
<u>Information</u>			
Public Library	1	1	1
Collections	20,500	15,000	n/a
Newspapers	2	2	2
<u>Mill-Rate</u>			
General Purpose	50.14	39.982	35.23
School District	38.23	42.680	39.517
B.C. Assessment	1.17	1.170	1.17
Regional District	1.87	1.922	.93
Municipal Finance	.018	.018	.018
Hospital	1.97	3.290	.90
Total	93,398	89.062	77.765
<u>Water Supply</u>			
Source	Skeena River	Bulkley River	n/a
Water Treatment	Chlorination Fluorination	Chlorination Fluorination	Chlorination Fluorination
Sewage Treatment	Primary	Primary	Secondary

APPENDIX F CONTINUED

	Terrace	Smithers	Squamish
<u>Land for Industrial Development</u>	80 acres	40 acres	200 acres
<u>Building Lots Available</u>	300	n/a	200
<u>Expansion of Municipal Boundaries</u>	Possible (Thornhill)	none	none
<u>Man-Made Environment</u>			
Shelter (1974):			
Housing Units	2,309	892	1,864
Duplex	86	none	n/a
Rental Units	329	150	382
Mobile Homes	201	55	180
<u>Cultural Facilities</u>			
Theatre	R.E.M. Lee Theatre	none	none
Museum	none	1	none
<u>Sport and Recreation</u>			
Swimming Pool:			
Indoor	1	none	none
Outdoor	none	none	1
Curling Rink	1	1	none
Skating Rink	1	1	none
Civic Center	School Facilities	School Facilities	School Facilities
Golf Course	1	1	1
Crafts Center	1	1	1
Youth Center	none	1	none
Youth Hostel	none	1	none
Tennis Courts	4	4	4
Bowling Facility	1	1	1

APPENDIX F CONTINUED

	Terrace	Smithers	Squamish
<u>Discretionary Time</u>			
Clubs and Organizations	111	63	n/a
<u>Community Services*</u>			
Business and Professional	56	44	30
Contractors and Equipment	90	49	48
Transport and Travel	19	9	9
Merchandise	205	118	120
Accommodation	18	10	12

*Obtained by totalling businesses listed in the yellow pages of telephone directories.

¹The Smithers Detachment is used for training officers and therefore has a larger complement.

VITA

Surname: BERGEN Given Names: WALLACE GEORGE

Place of Birth: PRINCE RUPERT, B.C.

Date of Birth: APRIL 27, 1946

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UNIVERSITY OF VICTORIA, B.C. 1974 to 1977

_____ to _____

_____ to _____

Degrees, Diplomas, Etc., Awarded,
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Title of Thesis/Dissertation

AN EVALUATION OF THE PERCEPTION OF QUALITY OF LIFE

IN NORTHWEST BRITISH COLUMBIA

Author


Signature

WALLACE GEORGE BERGEN

Name

May 27, 1977
Date