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Report of the B. C. Manpower Sub-committee on N. E. Coal Development

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APPENDED DOCUMENTS

Reports Commissioned by the Manpower Sub-Committee:

1. Women in Mining, Syzanne Veit and Associates Inc., October 1976.

2. Day Care Services in the Proposed New Town with Reference to the North East Region, Edwin, Reid and Associates Ltd., September 1976.

3. North East Employment Survey, Cornerstone Planning Group Ltd., pending January 1977.

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TABLES - Continued

Conclusions and Recommendations

CONCLUSIONS AND RECOMMENDATIONS

The principal tasks assigned to the Manpower Sub-Committee were the estimation of prospective labour demand arising from any North East coal development and the analysis of ways and means of obtaining an adequate, stable labour force to meet such development needs.

PREFACE TO RECOMMENDATION 1

Chapter 3 presents estimates of quantitiative labour demand which could occur under various development outcomes. From this analysis and information provided in Chapter 5 it is concluded that a labour shortage in numerical terms is not likely. This conclusion directs attention to the possibility of qualitative labour supply/demand imbalances.

The absence of a numerical labour shortage should not allay all concerns over labour supply. Adequate numbers of people are potentially available but their current skill levels and consequent need for pre-employment training are not known. It is reasonable to expect that many mine positions can be filled from regional sources with relatively little training. Concern should be focused on the training effort required to fulfill the labour requirements of coal mines (particularly higher skilled positions such as maintenance trades and underground coal miners) from the regional labour force. Without careful attention to manpower training in project planning it is likely that labour supply and demand will be mismatched in qualitative terms. Should

a contingency would constitute a real manpower bottleneck to efficient economic development.

With people available to work and if necessary to be trained in the requisite skills, the qualitative nature of the potential labour force can be shaped to meet the needs of developments which will take place. Examining the ways and means of obtaining an adquate, stable labour force in the light of the numerical labour demands led the Manpower Sub-Committee to focus on the labour supply potential of the North East Region itself. Among the reasons for this regional emphasis is recognition of the fact that there exists a substantial untapped labour force potential in the North East. Also assumptions are made that the Province would seek a maximum involvement of the local populace in any North East development and that people already in the region are likely to be more stable employees on average than workers recruited elsewhere.

RECOMMENDATION 1: It is recommended that the Province adopt the following social goals for any North East coal development:

(a) Improve the employment opportunities of all British Columbia residents, with special emphasis on achieving significant employment advances for those living in the North East.

(b) Ensure enhanced employment prospects for selected target groups; specifically women, Native Indians, the unemployed, potential school leavers and any other population sub-group which may be designated.

(c) Foster maximum community stability.

(d) Reduce work force turnover to a minimum.

PREFACE TO RECOMMENDATION 2

Available information on the nature of skill and experience requirements for employees of possible coal mine developments indicates that approximately 60 per cent of the positions could be classified as lower and intermediate skilled. This proportion of all coal mine positions comprises those considered most amenable to training initiatives which may be mounted on behalf of specific coal mining projects. The most expansive development would entail no more than 1,600 total position being created in any five-year period from 1976 to 1991. Therefore the scale of training effort which could efficiently generate increased employment opportunities for regional residents would not have to be larger than to provide about 1,000 qualified individuals over a five year period.

Actually any training effort could be even smaller as in-migrants and residents employed in other industries will augment the supply of qualified labour available to coal mines. It is concluded that, in view of the apparent job requirements of coal developments, the Region itself has sufficient unutilized labour resources which can be mobilized through training programs to satisfy any foreseable needs. It is also reasonable to expect that access to employment opportunities is closely tied to access to training. To be consistant with Recommendation 1 training efforts should be concentrated in the region where development will occur.

RECOMMENDATION 2: It is recommeded that training programs necessary to fulfill development needs be mounted within the North East Region wherever costs and time permit this to be done.

PREFACE TO RECOMMENDATION 3

At this early juncture, when coal developments are either conceptual or at a preliminary design stage, it is not possible to identify in a precise way the types of training most appropriate to meet the needs of these future developments. Depending on mine technology, nature of the coal resource, corporate organization and project timing the kinds and amounts of training required will vary. Underground coal mines and skilled tradesmen may be in short supply currently but the future need for remedial actions by government or industry cannot be assessed unless future development characteristics are known in detail. For training to be successfully undertaken detailed, reliable information must be presented by mine developers in sufficient time; for example most trades apprenticeships have a duration of four years and some mining/ operating skills take as much time to acquire through suitable work experience. If labour supply planning commences immediately upon a decision being taken to proceed with any North East coal project, then there is sufficient time for suitable government training programs and complementary social services to be established.

Clearly close cooperation between the government and any coal mining company is necessary if North East residents are to be given appropriate qualifications for on-the-job training and employment in coal mine operations. A formal agreement, possibly as part of an omnibus agreement, dealing with manpower issues between the Province and each mine company should be negotiated well in advance of mine start-up.

An agreement would provide a vehicle for cooperation on many other issues such as provision of complementary social services to encourage work force availability and stability, delineation of responsibilities vis à vis manpower and related matters, cost-sharing for public and private efforts to enhance labour supply and formulation of commitments by all parties to assure maximum returns are obtained from investments made. Chapter 20 indicates that a joint agreement may be a necessity if adequate provision is to be made for risks which would be borne by public and private investments in manpower training and employment and related support services.

The establishment of a policy to require each coal mine company to negotiate an agreement with the Province on manpower and related issues would permit training efforts by all interested parties (including the Federal Government) to be efficiently organized for maximum cost effectiveness. The prevalence of on-the-job training as a necessary qualification for mine employment means that a substantial part of all training will have to occur with the full cooperation of the eventual employer or, in the case of a new operation, that of surrogate firms already involved in similar operations. The need for time to coordinate shared training responsibilities, mount complementary social programs and contact prospective trainees makes it imperative that an agreement be concluded well in advance of project start-up. The successful achievement of provincial objectives requires close coordination between eventual employment opportunities, training programs and

complementary social services. Failure to obtain advanced declaration of manpower needs by mining companies will undermine the ability of the Province to achieve maximum benefits for British Columbia residents.

RECOMMENDATION 3: It is recommended that the Province negotiate an agreement with each North East coal mine developer, at the earliest possible stage in the planning process, covering the following items, among others:

(a) concurrence with social goals for coal developments adopted by the Province;

(b) declaration of mine manpower needs by position by sufficient qualifications;

(c) coordinated efforts, including training, to assure achievement of agreed goals;

(d) assurance that employment will be available and offered to qualified persons in the agreed numbers for each skill level;

(e) commitments to solicit and hire qualified personel resident in the North East as a first priority;

(f) cost-sharing for manpower programs, including provision for penalties upon non-fulfillment of agreement in whole or in part;

(g) declaration that firm is an equal opportunity employer and, for example, will provide amenities to enable the full participation of women in all employment.

In any agreement the Province should specify its commitment to provide agreed amounts of training and complementary services in support of corporate manpower commitments.

PREFACE TO RECOMMENDATION 4

A policy to negotiate separate agreements on manpower with each coal company would also make feasible an efficient jointly planned project-by-project approach to training. Besides permitting manpower training efforts by all parties to be properly tailored to the particular needs of each mine

development, this approach may provide a more reliable basis for determining public training investments than might, say, an economic forecast of coal industry growth.

RECOMMENDATION 4: It is recommended that public training efforts be designed with reference to the needs of specific projects according to negotiated agreements between the Province and each coal mine developer.

PREFACE TO RECOMMENDATION 5

Part III of the Manpower Sub-Committee report reviews the labour supply potential of selected North East groups. Emphasis is placed on groups which are, to some degree, currently unutilized in the regional labour market. From the research undertaken by the Sub-Committee it appears that facilitating initiatives by government and coal developers could mobilize many persons to seek employment and training who are not now employed.

Significant potential for further employment exists among the following groups, in order of group size, women residents, in-migrants (a steady flow of persons who, of their own accord, take up residence in the North East), unemployed, prospective high school dropouts and Indians. Employable social assistance recipients are another group which offers somewhat less potential for further employment. Other sources of labour for coal mines include persons currently employed in other work within the North East and those workers who might carry-over as operating personnel from the construction phase of mine development. Persons from each of these groups should be made aware that opportunities exist for them to gain employment in coal mining.

Government knowledge of the current skill/experience qualifications of people in these groups is poor or completely lacking. Without such information it is not possible to estimate the scale of training effort and social service programs which would have to be implemented to achieve a certain presence of each group in the coal mine work force. Clearly special programs will have to be established to mobilize the employment potential of these groups. The costs of such programs would differ according to the personal qualifications of candidates from each group and the presence in the mine work force sought for each group.

RECOMMENDATION 5: It is recommended that the Province adopt specific goals with respect to the numbers of persons to be prepared for coal mine employment from each designated North East population group. Such goals are necessary to determine the allocation of resources among manpower programs and to estimate the costs of such programs.

PREFACE TO RECOMMENDATION 6

Policies designed to mobilize the employment potentials of various groups identified in the report will probably also enhance the participation of other groups. Considerable overlap exists between these groups.

RECOMMENDATION 6: It is recommended that public programs (along with physical facilities where applicable) be implemented or expanded where they are deemed necessary complements for increasing the mining employment opportunities available to all regional residents.

The following programs should be contemplated:

(a) Child day care services - as a support service for training and employment;

(b) Women in mining liaison officer - to advise on equal employment opportunity programs and coordinate efforts by government and companies to train and employ women in mining.

(c) Programs to publicize employment/training opportunities regionally including active recruitment office, say, in Dawson Creek - making information available in the Region to encourage labour supplies from groups not traditionally represented in mining and to help establish contact with all people who might want jobs.

(d) Programs to identify and counsel prospective high school dropouts - provide information and program of studies which will enable these people to obtain employment in their home region.

(e) Programs to establish understanding and communication between Native Indians, coal mine companies and training organizations - attitudinal barriers exist on all sides, these must be dismantled for significant Indian involvement to be possible.

(f) Programs to enable Native Indians to obtain sufficient qualifications for mine work - special efforts are required if low formal educational attainment and paucity of work experience, practically universal among these people, are not to remain barriers to Indian participation in the work force.

(g) Programs to provide social assistance recipients with sufficient qualifications for employment - special efforts are required to overcome low personal motivation, lack of education or lack of work experience.

(h) Programs to establish financial assistance for persons who would otherwise be unable to train for mine employment - existing sources of funding may have to be augmented; for example, the presince of dependents and other family responsibilities must be acknowleged in evaluating personal needs for financial support while training.

PREFACE TO RECOMMENDATION 7

A wide range of Federal Government manpower programs exists to support adult training and expand employment opportunities for groups which might otherwise be unemployed. The utmost use should be made of the financial support offered by these programs.

RECOMMENDATION 7: It is recommended that the Province coordinate with the Federal Government in developing manpower policies in the areas of adult training, on-the-job training, immigration of trained personnel and increased participation of groups who traditionally experience little involvement in economic developments.

PREFACE TO RECOMMENDATION 8

In order to reduce any uncertainties, potential North East coal mine companies may have about the role the Province is willing to take to assure adequate manpower supplies are available, it may be advisable for the Government to make a concise declaration of its interest, goals and policies and any requirements it may have of coal mine developers with respect to manpower issues. Increased knowledge in the private sector regarding provincial policies may encourage more concrete project planning and expedite substantive communications and discussions between the private and public sectors. A public policy statement could also foster interest in the North East about employment opportunities in any coal developments and make easier the job of mobilizing the potential regional labour force. Increased knowledge among the adult population could stimulate potential workers to seek training which would qualify them for mine employment.

RECOMMENDATION 8: It is recommended that the government make public its goals and policies with respect to manpower issues in any North East coal development. A public statement should describe the roles and responsibilities of both the public and private sectors.

PREFACE TO RECOMMENDATION 9

The research undertaken by the Manpower Sub-Committee has not been sufficient to settle a number of important questions

regarding manpower in North East coal developments. Further research is required to determine whether existing training programs are presently meeting the needs of British Columbia industry, what responses can be anticipated from each source of labour given particular government initiatives in concert with coal mine employment opportunities or what the attrition rates might be from training schemes which may be devised to provide qualified candidates for mine employment.

RECOMMENDATION 9: It is recommended that further research on manpower issues be undertaken in areas which may have a direct bearing on manpower policy for North East coal developments.

Topics requiring further investigations include:

(a) Examine the extent to which existing programs are appropriate (in terms of both quality and capacity) vehicles for pursuing government objectives with respect to training and employing North East residents and selected population groups.

(b) Determine whether a province-wide shortage of tradesmen exists in the trades involved in coal mining and whether any shortage, regional or provincial, could be alleviated by expanded apprenticeship training.

(c) Examine the potential for regional residents to gain access to employment in the construction phase of mine development.

(d) Examine the potential for regional residents to gain access to employment with reference to union, corporate and institutional constraints related to training and hiring.

PREFACE TO RECOMMENDATION 10

The emphasis on coal mine employment in the report should not be interpreted to mean that no public policies are required to maximize the access of regional residents to employment indirectly resulting from coal mining developments. Indirect

employment in the North East could be expected to equal or surpass the magnitude of coal mine employment as time passes. The employment benefits to be gained from programs which facilitate access to indirect jobs are likely to be large; this possibility should be reflected in all government initiatives undertaken in the North East.

RECOMMENDATION 10: It is recommended that the government, as part of all training and associated initiatives undertaken with respect to North East developments, make specific provision for the needs of persons in the region seeking employment in economic sectors other than coal mining.

Part I

Introduction

CHAPTER 1

THE MANPOWER SUB-COMMITTEE ON NORTH EAST COAL DEVELOPMENT

In recent years the real price of metallurical coal has risen causing renewed interest in the production of coal for the world market. The extensive coal bearing formations in the North East have attracted more attention under these auspicious conditions. The Government of British Columbia has initiated a comprehensive examination of the requirements for and effects of possible coal developments in the North East. The purpose of these efforts is to provide a basis for an informed response by government should coal development proposals affecting this region be received.

On February 6, 1976 a meeting was convened by the Department of Economic Development for the purpose of establishing a Manpower Sub-Committee on North East Coal Development. This group was given responsibility for analyzing all manpower issues involved in coal and associated developments which could occur in the North East.

THE MANPOWER SUB-COMMITTEE'S TERMS OF REFERENCE AND MEMBERSHIP

The Terms of Reference were adopted on March 30, 1976. It was the expressed intention that the scope of the Sub-Committee's work should of necessity extend beyond the geographic bounds of the North East in accordance with the extent of labour markets.

TERMS OF REFERENCE

Manpower Sub-Committee on North East Coal Development

1. Objectives

   (a) To identify the magnitude and composition of the labour force required for the construction and operation of the coal mining developments, the associated and spin-off industry and the planned social facilities in the North East coal development; and

   (b) To make recommendations as to the ways and means of securing and retaining the required labour force as a stable and viable community and, more specifically, to investigate ways and means of training, recruiting and retaining an initially stable and steadily expanding female labour force for the North East coal development.

2. Method

   In order to achieve these objectives it will be necessary and desirable:

   (a) To estimate the magnitude, occupational composition, and timing of the manpower requirements for every stage of the construction and operation of the mining development, the roads, the local railways, associated and spin-off infrastructure and facilities;

   (b) To identify and evaluate the various actual and potential sources for the estimated manpower requirements, and the social benefits and costs associated with the

use of each of these sources;

(c) To identify and evaluate the major factors which will or may affect the recruitment training and retention of this labour force. Given the geographic setting of these developments and the nature and image of the industry, such identification and evaluation should include specifically the issues of:

- labour turnover
- employment of non-traditional groups
- job rotation and job sharing
- health, safety and other working conditions;

(d) To examine and recommend ways of ensuring that all training and hiring of females will take place in an affirmative action setting. For the purpose of the Manpower Sub-Committee affirmative action is defined as any special measures which enable employers, unions and educators to demonstrate yearly improvement in the training, hiring and promotion of any designated target groups in their respective jurisdictions;

(e) To collect information related to the above points from primary and secondary sources and to organize and/or synthesize this information for the purpose of achieving the objectives;

(f) To identify areas where negotiations between the Provincial and Federal governments, the mining companies and unions concerning sharing of costs and/or

training responsibilities may be required; and

(g) To closely cooperate with other Sub-Committees and agencies.

3. Results

The results of the study shall be presented in the form of clearly defined alternative courses of action (when and where possible with associated cost-estimates) plus recommendations as to each of these alternative courses of action. These results to be presented in the form of an interim report by September 1, 1976, and in the form of a final report not later than October 15, 1976.

4. Funding

In order to meet the Terms of Reference, funds will be made available to the Sub-Committee from the $130,000 budget supplement for North East Coal in the Department of Labour budget for 1976-77.

The following Ministries participated in the work of the Sub-Committee:

MINISTRY OF LABOUR	- Ranjit Azad, Chairman
	- John Melville
	- Johan Schuyff
MINISTRY OF ECONOMIC DEVELOPMENT	- Eileen Caner
	- David Gray, Secretary and Final Report Editor
MINISTRY OF EDUCATION	- Dean Goard
MINISTRY OF ENVIRONMENT	- Cynthia Hawksworth
MINISTRY OF HUMAN RESOURCES	- Ron Willems
MINISTRY OF MINES AND PETROLEUM RESOURCES	- John Clancy

CHAPTER 2

SOCIAL GOALS AND NORTH EAST DEVELOPMENT

The Province, through its prior involvement in education and training and its prominent constitutional role in labour matters, is in a position to determine to a significant degree how the employment benefits from coal development are to be distributed. It should be possible to formulate a manpower policy which will achieve social goals while satisfying the industrial work force requirements of the development.

In the case of manpower issues, it may seldom be imperative that programs or special initiatives be undertaken unless specific social goals are sought. For example, a shortage of skilled labour could undoubtedly be overcome through competitive market adjustments which would involve, the reallocation of scarce labour resources among enterprises on the basis of ability to pay. Such a "hands-off" solution might mean that jobs would go to non-resident migrants, wages would rise, and firms would close down. Alternatively, if the government had as a goal the maximization of employment of British Columbia residents, an appropriate response to a prospective labour shortage could be the establishment of training programs. Clearly programs cannot be recommended without the prior determination of social policy goals.

If the decision-maker is indifferent as to the distribution of benefits from the public investment, then one social criterion will be followed, that of economic efficiency.

Efficiency requires that any project undertaken make the best use of the limited resources available to the economy. Theoretically a project is efficient if total benefits exceed total costs.

While the decision-maker must select a variant of the project which is efficient, attention may also be given to the distribution of project benefits and costs. Consideration of distributional effects can assist the decision-maker in choosing programs which make the optimal use of public funds.

The Manpower Sub-Committee has assumed that the government wishes to pursue the following social goals in the course of ensuring that the timing and scale of development projects are not hindered by work force constraints. As indicated in the discussion above, goals must be defined before programs can be recommended. Throughout this report reference is made to the regional populace, this is understood to consist of regional residents plus other people who may make themselves available in the region, such as migrants. In proposing that maximum employment of the regional population be a goal, there is no intention that access to work opportunities be restricted. The term is used to emphasize the North East as the area of first choice for hiring.

ASSUMED SOCIAL GOALS IN NORTH EAST DEVELOPMENT

1. Improve the employment opportunities of all British Columbia residents, with special emphasis on achieving significant employment advances for those living in the North East.

2. Ensure enhanced employment prospects for selected target groups; specifically women, Native Indians and the unemployed.
3. Foster maximum community stability.
4. Reduce work force turnover to a minimum.

Part II

Labour Demand

CHAPTER 3

ESTIMATED NUMERICAL MANPOWER REQUIREMENTS OF POSSIBLE NORTH EAST DEVELOPMENTS

In accordance with forecasts of coal production and other industrial activity in the North East, estimates of direct manpower requirements have been derived. Attention has also been given to the numbers of community and business service jobs which may arise in response to the expansion of the regional industrial base. The results of this analysis are summarized in Table 10, page 34.

DIRECT COAL MINE EMPLOYMENT: NORTH EAST REGION

Manpower requirements of coal mine operations have been translated from anticipated production volumes. On the basis of actual employment at existing British Columbia coal operations (Kaiser Resources Limited and Fording Coal Limited) and employment anticipated by Denison Mines at its proposed North East development, an average relationship between employment and production has been calculated.

Table 1 demonstrates the variations in labour content per million short tons of clean coal production; the average numbers of employees per million short tons amounted to 292 and 312 for Kaiser and Fording respectively. (This average is the actual mid-point between minimum and maximum employment for each year of production except the initial one. Due to significant deviation from the numbers in subsequent years, first year of production figures were excluded from calculations.)

For the purpose of simplicity, a figure of 300 persons per million short tons has been adopted. Profiles I to IV demonstrate the application of this employment conversion factor (or its equivalent, 330 employees per million metric tons of clean coal) to forecast production volumes for each possible coal developments. Production profiles appear as Tables 2 to 5 and employment profiles appear as Tables 6 to 9.

The question of whether this estimate is applicable to future developments must be addressed. There are a number of variables, outlined below, which may influence the magnitude of an employment conversion factor.

1. Geophysical parameters. It is assumed that stripping ratios from open pit mines and rates of resource recovery from under-ground mines are not likely to differ markedly from those found in current mining operations. Manpower requirements are positively related to the amounts of material moved, not simply to the volumes of shippable coal produced.
2. Technology. The nature of mining technology (open pit, conventional underground or hydraulic underground techniques are possible) and methods of materials handling and processing all have impacts on labour requirements. Technological change will affect future developments, tending to substitute capital investments for labour input. Available information reveals considerable variation in manpower requirements. The

assumption in this report is that an employment conversion factor of 330 persons per million tons applies.

TABLE 1

Personnel per Million Short Tons of Coal and Recovery Rates of Clean From Raw Coal
Kaiser, Fording and Denison

	1970	1971	1972	1973	1974	1975
Kaiser						
per MST raw coal	454	265	224	217	240	204
per MST clean coal	500	321	264	285	303	262
Recovery rate (in %)	90.8	82.8	84.9	76.1	79.0	77.8
Fording						
per MST raw coal	---	---	209	174	237	189
per MST clean coal	---	---	487	276	348	290
Recovery rate (in %)	---	---	42.9	63.0	68.1	65.4

	1979	1980	1981	1982	1983	1984
Denison[1]						
per MST clean coal	590[2]	872[3]	360	261	262	236
Recovery rate (in %)	(67 to 70 over entire period)					

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1 Data for Denison derived from letter to the Sub-Committee (dated April 2, 1976) and from Company prospectus.

2 Initial production of .28 million short tons would occur in final quarter of 1979. Manpower requirement prorated to annual equivalent.

3 Large labour requirement due to underground mine development without significant production.

TABLE 2

POSSIBLE PROJECT PROFILES, NORTH EAST DEVELOPMENT, 1979-1996

Profile I

	% Prod. U/G	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
COAL PROJECTS																			
Sukunka	90	.25	.50	.65	.75	.75	.80	→											
Wolverine	0	.25	1.0	2.0	2.0	→													
Babcock	33 1985-87 67 1990+				.75	2.0	2.5	3.0	→										
Bullmoose North	AREA A 80		.40	.90	1.2	1.5	1.65	→											
South	80				.20	.40	.50	.80	→										
Cinnibar																			
Carbon Creek																			
Belcourt																			
Saxon																			
OTHER PROJECTS																			
Gas Plant		C	C	0	→														
Peace PSYU Mill			0	→															
Moberley PSUY Mill					0	→													
Wapiti PSYU Mill							0	→											
Pulpmill, Taylor			C	C	C	0	→												
Peace Site C		C	C	C	C	C													

Note: C indicates construction phase.
O indicates operations phase.

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- production constrained by geological conditions and costs of access.
- government policy of full cost recovery of public investments attributable to coal production; Area A proirity.

Forestry Assumption - high prices for lumber and pulp.

TABLE 3

POSSIBLE PROJECT PROFILES, NORTH EAST DEVELOPMENT, 1979-1996

Profile II

	% Prod. U/C	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
COAL PROJECTS																			
Sukunka	90	.25	.50	.65	.75	.75	.80	→											
Wolverine	0	.25	1.0	2.0	→														
Babcock	{33 1985-87 {67 1990+			.75	2.0	2.5	3.0	→											
Bullmoose North	80		.40	.90	1.2	1.5	1.65	→											
South	80				.20	.40	.50	.80	→										
Cinnibar	90							.50	1.0	1.5	2.0	→							
Carbon Creek	80									.5	1.0	1.5	2.0	2.5	→				
Belcourt	100															.5	1.0	1.5	2.0 →
Saxon	20												.5	1.0	2.0	3.0	4.0	→	
OTHER PROJECTS																			
Gas Plant		C	C	0	→														
Peace PSYU Mill			0	→															
Moberley PSUY Mill					0	→													
Wapiti PSYU Mill							0	→											
Pulpmill, Taylor			C	C	C	0	→												
Peace Site C		C	C	C	C	C													

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- government policy to encourage full development.

Forestry Assumption - high prices for lumber and pulp.

TABLE 4

POSSIBLE PROJECT PROFILES, NORTH EAST DEVELOPMENT, 1979-1996

Profile III

	% Prod. U/G	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
COAL PROJECTS																			
Sukunka	90	.50	.80	.80	.80	.80	.80	.80	.80	1.0	1.5	1.75	2.0 →						
Wolverine	0												.25	1.0	2.0 →				
Babcock	33 1995-97 67 2000+														.75	2.0	2.5	3.0 →	
Bullmoose-North	80												.40	.90	1.2	1.5	1.65 →		
South	80														.20	.40	.50	.80 →	
Cinnibar	90		.25	.50	.80	.80	.80	.80	.80	1.5	2.0 →								
Carbon Creek	80														.5	1.0	1.5	2.0	2.5 →
Belcourt																			
Saxon																			
Loram	10	.25	.50 →																
Pine Pass	60	.50	.60 →																
OTHER PROJECTS																			
Gas Plant		C	C	0 →															
Peace PSYU Mill								0 →											
Moberley PSYU Mill										0 →									
Wapiti PSYU Mill												0 →							
Pulpmill, Taylor								C	C	C	0 →								
Peace Site C		C	C	C	C	C													

Coal Assumptions - coking coal price remains at $60/ton.
- no direct government involvement in infrastructure investment.
- central washing plant at Chetwynd, transport by truck until 1990.

Forestry Assumption - medium prices for lumber and pulp.

TABLE 5

POSSIBLE PROJECT PROFILES, NORTH EAST DEVELOPMENT, 1979-1996

Profile IV

	% Prod. U/G	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
COAL PROJECTS																			
Sukunka	90										.25	.50	.75	1.0	1.5	2.0 →			
Wolverine	0		.25	1.0	2.0 →														
Babcock	*				.75	2.0	2.0	2.0	2.0	2.0	1.75	1.25	1.0	1.0	1.0	1.5	2.0	2.0	2.0 →
Bullmoose-North	80										.40	.90	1.2	1.5	1.65 →				
South	80												.20	.40	.50	.80 →			
Cinnibar																			
Carbon Creek																			
Belcourt																			
Saxon																			
OTHER PROJECTS																			
Gas Plant		C	C	0 →															
Peace PSYU Mill																			
Moberley PSYU Mill																			
Wapiti PSYU Mill																			
Pulpmill, Taylor																			
Peace Site C		C	C	C	C	C													

Coal Assumptions - coking coal price falls to $50/ton by 1980, trend rise of~ 2% thereafter.
- government policy to give infrastructural front-end financing to Sukunka, Wolverine, Babcock and Bullmoose mines.
*- Babcock underground operations do not begin until 1993. Percent U/G for 1994+ is 50%.

Forestry Assumption - low prices for lumber and pulp.

TABLE 6

POSSIBLE EMPLOYMENT PROFILES, NORTH EAST DEVELOPMENT 1979-1996

Profile I

Standard of Conversion:
330 per Million Metric
Tons of Clean Coal

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Sukunka	150	200	220	250	250	264	264	264	264	264	264	264	264	264	264	264	264	264
Wolverine	200	400	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660
Babcock	-	-	350	660	825	990	990	990	990	990	990	990	990	990	990	990	990	990
Bullmoose - North	-	250	350	400	495	545	545	545	545	545	545	545	545	545	545	545	545	545
South	-	-	-	100	140	165	265	265	265	265	265	265	265	265	265	265	265	265
Cinnibar	NONE																	
Carbon Creek	NONE																	
Belcourt	NONE																	
Saxon	NONE																	
Total Coal	350	850	1580	2070	2370	2624	2724	2724	2724	2724	2724	2724	2724	2724	2724	2724	2724	2724
Other Development																		
Gas Plant	715	715	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Peace PSYU Mill		45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Moberley PSYU Mill				240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
Wapiti PSYU Mill						180	180	180	180	180	180	180	180	180	180	180	180	180
Pulpmill		500	500	500	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Peace Site C	875	1250	940	800	225													
Grand Total	1940	3360	3148	3738	3163	3372	3472	3472	3472	3472	3472	3472	3472	3472	3472	3472	3472	3472

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- production constrained by geological conditions and costs of access.
- government policy of full cost recovery of public investments attributable to coal production; Area A priority.

Forestry Assumption - high prices for lumber and pulp.

TABLE 7

POSSIBLE EMPLOYMENT PROFILES, NORTH EAST DEVELOPMENT 1979-1996

Profile II

Standard of Conversion: 330 per Million Metric Tons of Clean Coal

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Sukunka	150	200	220	250	250	264	264	264	264	264	264	264	264	264	264	264	264	264
Wolverine	200	400	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660
Babcock			350	660	825	990	990	990	990	990	990	990	990	990	990	990	990	990
Bullmoose - North		250	350	400	495	545	545	545	545	545	545	545	545	545	545	545	545	545
South				100	140	165	265	265	265	265	265	265	265	265	265	265	265	265
Cinnibar							200	350	500	660	660	660	660	660	660	660	660	660
Carbon Creek									200	350	500	660	825	825	825	825	825	825
Belcourt															200	350	495	660
Saxon												200	350	660	990	1320	1320	1320
Total Coal	350	850	1580	2070	2370	2624	2924	3074	3424	3734	3884	4244	4559	4869	5399	5879	6024	6189
Other Development																		
Gas Plant	715	715	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Peace PSYU Mill		45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Moberley PSYU Mill				240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
Wapiti PSYU Mill						180	180	180	180	180	180	180	180	180	180	180	180	180
Pulpmill		500	500	500	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Peace Site C	875	1250	940	800	225													
Grand Total	1940	3360	3148	3738	3163	3372	3672	3822	4172	4482	4632	4992	5307	5617	6147	6627	6772	6937

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- production constrained by geological conditions and costs of access.
- government policy of full cost recovery of public investments attributable to coal production; Area A priority.

Forestry Assumption - high prices for lumber and pulp.

TABLE 8

POSSIBLE EMPLOYMENT PROFILES, NORTH EAST DEVELOPMENTS 1979-1996

Profile III

Standard of Conversion:
330 per Million Metric
Tons of Clean Coal

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Sukunka	165	269	264	264	264	264	264	264	330	495	578	660	660	660	660	660	660	660
Wolverine												150	350	660	660	660	660	660
Babcock														300	660	990	990	990
Bullmoose - North												200	350	400	500	550	550	550
South																		
Cinnibar		125	175	275	275	275	275	275	500	660	660	660	660	660	660	660	660	660
Carbon Creek														200	350	500	660	825
Belcourt																		
Saxon																		
Loram		85	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
Pine Pass		165	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Total Coal	165	644	804	904	904	904	904	904	1195	1520	1603	2035	2385	3245	3855	4385	4545	4710
Other Development																		
Gas Plant	715	715	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Peace PSYU Mill							45	45	45	45	45	45	45	45	45	45	45	45
Moberley PSYU Mill									240	240	240	240	240	240	240	240	240	240
Wapiti PSYU Mill											180	180	180	180	180	180	180	180
Pulpmill							500	500	500	200	200	200	200	200	200	200	200	200
Peace Site C	875	1250	940	800	225													
Grand Total	1755	2609	1827	1787	1212	987	1532	1532	2063	2088	2351	2783	3133	3993	4603	5133	5293	5458

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- production constrained by geological conditions and cost of access.
- government policy of full cost recovery of public investments attributable to coal production; Area A priority.

Forestry Assumption - high prices for lumber and pulp.

TABLE 9

POSSIBLE EMPLOYMENT PROFILES, NORTH EAST DEVELOPMENTS 1979-1996

Profile IV

Standard of Conversion: 330 per Million Metric Tons of Clean Coal

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Sukunka										100	175	275	330	500	660	660	660	660
Wolverine		150	330	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660
Babcock				300	660	660	660	660	660	580	420	350	350	450	500	660	660	660
Bullmoose - North										150	325	400	500	545	545	545	545	545
South												100	150	175	265	265	265	265
Cinnibar																		
Carbon Creek																		
Belcourt																		
Saxon																		
Total Coal		150	330	960	1320	1320	1320	1320	1320	1490	1580	1785	1990	2330	2630	2790	2790	2790
Other Development																		
Gas Plant	715	715	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Peace PSYU Mill																		
Moberley PSYU Mill																		
Wapiti PSYU Mill																		
Pulpmill																		
Peace Site C	875	1250	940	800	225													
Grand Total	1590	2115	1353	1843	1628	1403	1403	1403	1403	1573	1663	1862	2073	2413	2713	2873	2873	2873

Coal Assumptions - coking coal price rises to $65/ton by 1980, remains at this level.
- production constrained by geological conditions and costs of access.
- government policy of full cost recovery of public investments attributable to coal production; Area A priority.

Forestry Assumption - high prices for lumber and pulp.

3. Economies of scale. Data from existing coal mines do not indicate significant economies of scale regarding employment within the range of annual production from 2.9 to 6.3 million metric tons. None of the proposed mines is larger than the upper limit, a number are smaller than the lower limit.

4. Internal organization of the mining firm. Employment regionally could change if, say, some maintenance activities were sub-contracted out of the region. Employment levels are also sensitive to the training effort which is undertaken by the firm.

According to available information, an employment conversion factor of 330 is reasonable. One study adopts a standard of 257 persons per million tons for a conventional underground thermal coal mine; the addition of preparation plant staff would raise this number to within a reasonable range of the number employed in this report.[1] This estimate fits well with one estimate and differs slightly from others made by companies proposing coal mines in the North East and South East areas of British Columbia: Utah Mines projects a factor of 330 for Carbon Creek; Denison projects a factor of 260 for Wolverine and Babcock; Kaiser projects a factor of 390 for Hosmer-Wheeler; Crowsnest Industries projects a factor of 340 for Line Creek and Rio Algom projects a factor of 290 for Sage Creek. Low estimates of manpower requirements may result from more optimistic assumptions regarding coal recovery rates, productivity rates and the presence of trainees in the work force.

OTHER DIRECT INDUSTRIAL EMPLOYMENT: NORTH EAST REGION

A review of the North East economy was undertaken in 1974 under the auspices of the Interim Planning Agreement. Background studies of each industrial sector compiled for that project have been re-examined in order that regional labour force requirements for sectors outside of coal mining could be taken into account in manpower planning.

In brief it was determined that major growth potential is limited to the forest industry, including sawmills and possibly a pulpmill, oil and gas exploration and construction activity (gas plant, hydro dam). These developments may, under the most optimistic circumstances, provide about 700 new, permanent jobs by 1985. Developments, particularly those in forestry, will be sensitive to market conditions and it is conceivable that little or no new employment may occur if product prices do not rise. There is not much potential for increased employment in North East agriculture.

Profiles I to IV, presented above in Tables 6 to 9 portray the numbers of jobs which could occur in the non-coal industries of the North East over the 1979-1996 period.

INDIRECT EMPLOYMENT STEMMING FROM INDUSTRIAL GROWTH: NORTH EAST REGION

Industrial employment growth will bring in its wake increased employment in the business and community services sectors. This effect, the automatic adjustment of the regional economy to new and expanded demands for goods and

services, is usually predicated using an employment multiplier. The reason for using this approach is that the service industry is diverse and comprises numerous, smaller firms which establish themselves with relatively little prior notice or dependence on government for special assistance. There is little hope of accurately forecasting the timing or locations of new jobs in the service sector; similarly the small scale, heterogenous and relatively lower skilled manpower requirements of this sector would render pointless any attempt at specific manpower planning by government on its behalf. For the purposes of this report, therefore, only passing consideration will be given to training requirements attendant upon pressures for service industry expansion.

Indirect employment in the whole region could be expected to equal or surpass the magnitude of coal mine and other industrial employment growth as time passes. Thus an ultimate regional indirect employment multiplier of 1.0 to 1.5 may be a reasonable guess. For a possible new North East community of about 5,000 population, an indirect employment multiplier of 0.3 to 0.4 has been adopted.* On a regional basis, Profile I in 1985, showing nearly 3,500 industrial jobs and assuming a multiplier of 0.6, implies total new employment of nearly 6,000 persons over what would exist in the absence of the developments indicated. Table 10 summarizes the employment implications by principal sector for various profiles and years. This discussion ignores some problems which are discussed on page 46 below.

* Communication received from C. Hawksworth, Townsite/Community Sub-Committee, October 1976.

TABLE 10

Summary of North East Regional Manpower Requirements by Development Profile, Selected Years

		Source of Employment			
		Coal	Total Industry (incl. coal)	Service[1]	Total (000)
Profile I	1981	1,580	3,148	2,203	5.4
	1986	2,724	3,472	2,430	5.9
	1991	2,724	3,472	3,472	6.9
	1996	2,724	3,472	3,472	6.9
Profile II	1981	1,580	3,148	2,203	5.4
	1986	3,074	3,822	2,675	6.5
	1991	4,559	5,307	5,307	10.6
	1996	6,189	6,937	6,937	13.9
Profile III	1981	804	1,827	1,279	3.1
	1986	904	1,532	1,072	2.6
	1991	2,385	3,133	3,133	6.3
	1996	4,710	5,458	5,458	10.9
Profile IV	1981	330	1,353	947	2.3
	1986	1,320	1,403	982	2.4
	1991	1,990	2,073	2,072	4.1
	1996	2,790	2,873	2,873	5.7

[1] Assumes an indirect regional employment multiplier of 0.7 to 1990 and 1.0 after.

FOOTNOTES:

1. Basic Estimated Capital Investment and Operating Costs for U.S. Underground Bituminous Coal Mines, U.S. Bureau of Mines, Information Circular 8689, 1975.

CHAPTER 4

SOME COMMENTS REGARDING CONSTRUCTION ACTIVITY

Coal mine developments entail large work forces in both the construction and operating phases. Peak work force requirements for mine construction are not likely to exceed 1,300 persons, this peak would only be achieved under the most auspicious circumstances (high coal prices and government initiatives to encourage full development). In long-run terms, the manpower content of construction is not likely to exceed 8,000 man-years, and could be as low as 3,000 man-years. The operating manpower requirements for the late 1980's range from 4,000 to 2,000 people depending on market conditions. The total operating effort required in the period to 1996 (this limit arbitrarily taken for purposes of comparison) could be as high as 63,000 man-years or as low as 28,000 man-years.

The above calculations serve to indicate the perspective in which these two development phases should be placed. In terms of total manpower effort the operating phase is at least 10 times greater than the construction phase. On the basis of this relative status it is deemed more appropriate that in this report analysis be concentrated on the permanent manpower requirements of possible developments.

Manpower availability for the construction of mines and associated infrastructure will depend on the level of construction activity in British Columbia and Alberta and the magnitude of overall requirements in the North East at

each point in time. It is very difficult to determine far in advance of construction what contemporary market conditions will be and to estimate the degree of labour supply/demand imbalance which might arise. No attempt has been made to examine whether construction manpower could be in short supply to an extent that would delay production.

There is a policy dilemma: The volatility of construction demand for labour can outstrip the response of labour on the supply side, thus some action by government to forecast demand/ supply imbalances seems plausible; on the other hand, the accuracy of forecasting is not good and the small, relative to the operating phase, manpower effort associated with construction would seem to make less necessary any direct government action.

In any North East coal development it is likely that up to 25 per cent of the mine construction work force will carry over to mine operations as permanent employees (see page 116) Government policies and initiatives should not overlook this significant potential source of mine workers.

CHAPTER 5

ESTIMATED NUMERICAL MANPOWER REQUIREMENTS OF INDUSTRIAL DEVELOPMENTS IN BRITISH COLUMBIA

It is not possible to examine the prospective manpower requirements of North East developments in isolation from economic activity elsewhere in the relevant labour markets. Labour supplies in the North East are affected by employment opportunities elsewhere. Limited time and resources permit only a cursory examination of this question.

Using forecasts of physical production for selected British Columbia resources and British Columbia population forecasts, estimates of total employment and employment growth for British Columbia have been derived. These estimates are to indicate the order of magnitude of the increased need for workers in British Columbia over the next fifteen years. Varying assumptions about the future growth rate of labour productivity give rise to different employment forecasts. The effects of increasing labour productivity have not been small in the past: Between 1963 and 1970 Canadian mining industry output increased by 70 per cent while the number of workers increased by only 16 per cent; the physical productivity of labour in mining rose by 46 per cent, or at an annual rate of 6.7 per cent.

The levels of activity in other geographic areas undoubtedly influence the labour market in British Columbia and the North East; unfortunately no attempt has been made

here to forecast the demand for labour in Alberta despite the fact that it will likely have a significant bearing on the supply of labour available for North East economic development.

COAL MINE EMPLOYMENT: BRITISH COLUMBIA, EXCEPT NORTH EAST

Projections of British Columbia coal production contained in the report of the Coal Task Force, Coal in British Columbia, have been used here. Volumes of coal anticipated from new mines in the North East have been subtracted from the provincial figures to obtain appropriate measures of coal mining in the rest of the Province.

Table 11 presents three forecasts of the level of employment in British Columbia coal mining (except North East) to 1991. Table 12 records the growth of employment over the previous period for five year intervals. These latter figures, if they are accurate, indicate that the demand for new entrants to the coal mining industry (and hence the capacity for training new personnel) will peak by 1981 and in the 1986-1991 period there will be little growth, or possibly a decline, in the numbers employed.

TABLE 11

Total Employment Forecasts for Selected British Columbia Industries
(thousands)

Industry	Assumed Average Annual Increase In Productivity[1, 2] (%)	Estimated 1973 Industry Employment	Forecast Employment 1976	1981	1986	1991
Coal Mining[3] (except N.E.)	0	2.5	3.8	7.4	9.5	9.5
	5		3.3	5.2	5.8	5.0
	7		3.1	4.7	5.0	4.2
Mining, except coal[4, 5]	0	10.5	11.4	16.5	23.1	22.7
	4		10.2	12.5	15.2	13.2
	6.7		9.5	10.7	12.3	10.3
Forestry, mainly logging[4]	0	16.5	17.8	19.5	20.7	21.7
	2.0		16.8	16.8	16.4	16.0
	3.0		16.3	15.7	14.9	14.1
Pulp and Paper Mills[4]	0	14.9	15.8	18.9	20.4	21.3
	2.5		14.7	15.8	15.4	14.7
	3.8		14.2	14.5	13.7	12.6
Wood Products[4]	0	45.1	46.0	48.3	49.6	51.0
	2.5		42.8	39.7	36.7	34.3
	2.7		42.6	39.7	36.7	34.3

1 Three rates of productivity increase are shown for each sector; the upper estimate (with the exception of Coal Mining) was obtained from regressions of time on real output per man-hour worked of the form (O/E) = A + BT based on 1961 - 1973 data. The highest rate for Coal Mining is merely assumed.

2 Productivity is assumed to increase linearly through time at the rate shown.

3 Based on production forecast obtained from Coal in British Columbia, Appendix 9.6.

4 Based on production forecasts obtained from British Columbia Energy Supply and Demand Forecast 1974 - 2006, various tables.

5 The trend of copper concentrate production forecast in the above cited source has been adopted as the trend for the non-coal minerals sector as a whole.

TABLE 12

Employment Growth by Five Year Intervals for Selected British Columbia Industries
(thousands)

Industrial Sector	Assumed Rates of Productivity Growth %	1976-1981	1981-1986	1986-1991
Coal Mining, except N.E.	0	3.6	2.1	0
	5	1.9	0.6	-0.8
	7	1.6	0.3	-0.8
Mining, except coal	0	5.1	6.6	-0.4
	4	2.3	2.7	-2.0
	6.7	1.2	1.6	-2.0
Forestry, mainly logging	0	1.7	1.2	1.0
	2	0	-0.4	-0.4
	3	-0.6	-0.8	-0.8
Pulp and Paper Mills	0	3.1	1.5	0.9
	2.5	1.1	0.4	-0.7
	3.8	0.3	-0.8	-1.1
Wood Products	0	2.3	1.3	1.4
	2.5	-2.5	-2.9	-2.2
	2.7	-2.9	-3.0	-2.4
Specified Primary Industry Subtotal	0	15.8	12.7	2.9
	Med.	2.8	0.4	-6.1
	High	-0.4	-2.7	-7.1
Secondary Sector Subtotal	0	153	179	151
	Med.	166	192	160
	High	169	195	161
GRAND TOTAL[1]	N/A	169	192	154

[1] Grand Total estimated according to procedure described in text and Table .

SOURCE: Table .

OTHER INDUSTRIAL EMPLOYMENT: BRITISH COLUMBIA

Employment projections for mining (other than coal), forestry (mainly logging), pulp and paper and wood products manufacture (lumber and plywood) have been formulated on the basis of physical output estimates made by the British Columbia Energy Commission. These specified primary industry estimates stem from detailed examinations of the potential for increased production from the existing resource base. In 1973 these industries accounted directly for about one fifth of all British Columbia employment; this is a very large share of primary industry employment, upon which much other employment depends.

Tables 11 and 12 show the employment prospects for specified primary industries, given alternative rates of growth in labour productivity. In absolute and relative terms the mining sector shows strong growth potential over the next decade. A cursory examination of Manpower requirements for potential new mines by the Department of Mines reconfirms the trend shown here for non-coal mining, except that continued employment growth is foreseen in the 1986-1991 interval, about 5,000 additional jobs could occur (unadjusted for growth in labour productivity or work force reductions at existing mines). Little or no employment growth is predicted in the forestry and related industries, substantial reductions in work force magnitude could occur if historical levels of labour productivity growth are achieved.

The subtotal of these specified primary industries, see Table 12, displays a fairly wide range of possible

employment increases. The variant which would place the greatest demands on the British Columbia labour market is one which assumes zero growth in labour productivity, a conservative assumption tending to overstate the number of new jobs to be created by future developments. The increase in industrial employment in these categories neglecting the North East, is not likely to exceed 3,000 positions per annum. With medium productivity growth these specified industries will not provide more than 500 additional jobs per annum.

Using a (medium) forecast of population growth drawn from British Columbia Energy Supply and Demand Forecast 1974-2006, which predicts 2.7 per cent average annual rate of increase over the 1976-1991 period, estimates of total British Columbia employment growth have been made. The assumptions, method and results are shown in Table 13 and the accompanying chart demonstrates that forecast employment growth will be similar to past experience. Activities in the dominant secondary sector (already defined) are linked closely to population and therefore it is reasonable to use a population growth trend as the determinant of secondary industry employment growth. If population growth follows the pattern given in Table 13 then, with various assumptions, such as assuming the unemployment rate will be 5 per cent, industrial and secondary sector employment growth must add up to the increase in total employment in the Province.

This analysis of the potential for employment growth in British Columbia has followed a disaggregated approach

TABLE 13

Projected Labour Force and Employment Based on British Columbia Energy Commission Population Forecast (Medium)

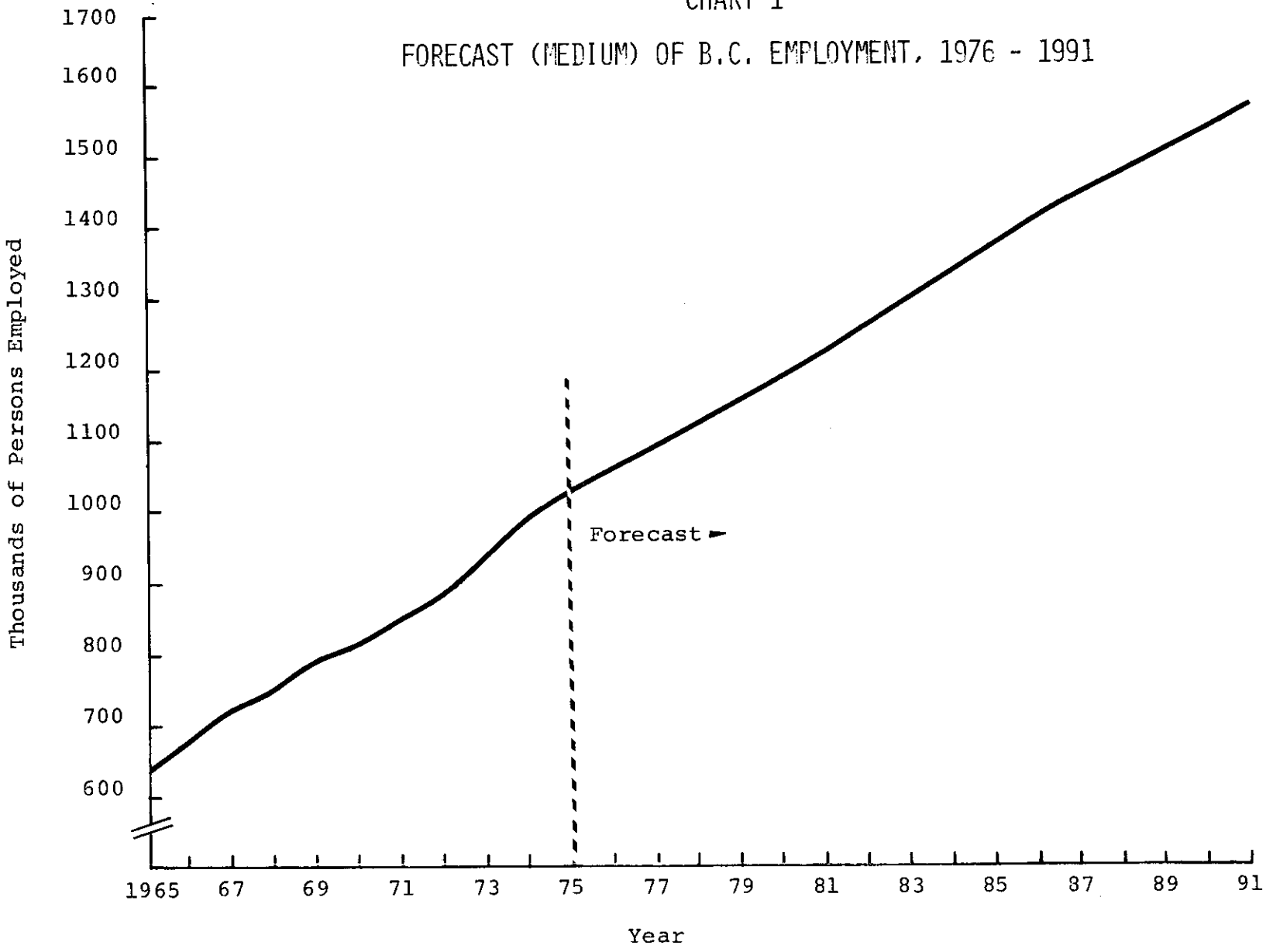
	1976	1981	1986	1991
Population (000)	2,519	2,866	3,211	3,553
% Population 15+ (assumed)	74%	74%	75%	75%
Part Rate (assumed)	.61	.62	.63	.63
Labour Force (000)	1,137	1,315	1,517	1,679

	1976-81	1981-86	1986-91
Five year growth of employed labour force (000)[1]	169	192	154

[1] Assumes 5% unemployment rate

CHART 1

FORECAST (MEDIUM) OF B.C. EMPLOYMENT, 1976 - 1991



for the primary industries, where sufficient production information was readily available, and an aggregate, population-oriented approach for the remaining sectors of the economy. The results are of a very preliminary nature but they do seem to indicate that the magnitude of future employment growth in British Columbia will not unduly strain the provincial labour market. In the previous two five-year intervals the average annual growth of British Columbia employment was in the range of 4-5 per cent; the forecasts presented here envision growth rates in the vicinity of 3 per cent. This does not permit any conclusion about qualitative labour shortages which might arise as a consequence of "structural" mismatching of job requirements and labour force skills but concerns about numerical shortages should be tempered until other, more reliable information can be found to contradict the findings of this analysis.

CAUTIONS REGARDING FORECASTS OF EMPLOYMENT INCREASES

The discussion above of new employment implicit in future economic developments, both in the North East and British Columbia overall, has ignored the effects of reduced employment in existing operations. The future demand for labour depends on the combined labour requirements of new and ongoing enterprises at the prevailing wage level. It is probable that newly created employment opportunities will, to some degree, replace other employment formerly available in the economy. Net job creation in the economy due to a particular

development will be smaller than the number of jobs created by that development. This effect arises from a normal economic adjustment: Limited labour resources are reallocated among competing demands on the basis of their highest valued use in production. The sensitivities of labour supply and demand to changes in the wage level jointly determine the size of this employment substitution effect which will tend to reduce any actual labour shortage.

It is not possible to estimate the magnitude of this effect either for the North East region or for the Province from information available at this time. The presence of such a dynamic adjustment should not be ignored when attempting to estimate the degree of labour market supply/demand imbalance stemming from particular economic forecasts.

One further caution is that forecasts of employment growth in numerical terms have uncertain implications for the future occupational (skill and experience) requirements of the economy. In a world of technological change and increasing labour productivity, the occupational structure of the economy undergoes continual change. Capital intensive production technology requires higher skill/experience qualifications from the work force. In circumstances of little or no growth of employment, the need may be to have large numbers of workers trained in new or improved skills if structural labour shortages are to be avoided.

MANPOWER TRAINING IMPLICATIONS OF NUMERICAL LABOUR DEMAND FORECASTS

The forecasts of industrial employment growth for the Province do not indicate any extraordinary increase in demand for labour in the period to 1991. The mining industry, coal mining in particular, is forecast to grow significantly over the coming decade. Mining may account for 50 percent or more of new employment in the specified primary industries which were examined; this contrasts with the 15 per cent share of current employment contributed by mining within this industry group.

On the basis of these findings and recognizing their limitations, it is concluded that special training initiatives by government should only be undertaken when they are deemed necessary to enable specific proposed developments to meet social goals. Before any training programs are contemplated to relieve anticipated general labour shortages in an industry, say, mining, intensive research should occur to determine the exact nature of prospective shortages and hence the need for training. Slow growth economy-wide may mean that a rapid expansion of one industry can occur without severe labour supply bottlenecks arising. Thus the forecast expansion of mining in British Columbia does not itself justify special government efforts to encourage training. Changed economic conditions or better information coud, of course, alter this conclusion.

CHAPTER 6

OCCUPATIONAL MANPOWER REQUIREMENTS OF NORTH EAST COAL DEVELOPMENTS

The anticipated occupational demands of coal mining projects in the North East have been garnered from an analysis of the work force at existing British Columbia coal operations and discussions with Denison Mines (British Columbia) Limited, the proponents of the Wolverine and Babcock developments in the North East.

Table 14 summarizes on a proportional basis the occupational requirements for an "average" open pit mine. Assuming the composition of workers at future mines in the North East conforms to this pattern, the numerical requirements for each occupational category and job function are presented in Tables 15 to 18. These possible occupational employment levels are predicated on the production and employment profiles given in Chapter 3 above.

MINE OPERATIONS MANPOWER

The largest group of workers consists of those in mining and processing occupations, approximately 60 per cent of the total work force.

A reading of collective agreements in the industry suggests the existence of three broad skill groups.

1. Lower Skilled, including labourers, trade helper, janitor, tool-room attendant, oiler and junior plant operators.

TABLE 14

Employment by Mine Function and Occupation
per Million Tonnes Clean Coal

	Number	Per Cent
Mine Personnel	214	65
Preparation Plant Personnel	50	15
Administrative & Technical Staff	66	20
Total Operations	330	100
Skilled Maintenance (incl. apprentices)	70	21
Heavy Duty Mechanics	28	9
Automotive Mechanics	6	2
Welders	12	3
Millwrights, Pipe and Steamfitters	12	3
Electricians	10	3
Others	2	1
Mining Occupations : Open Pit Mine	200	60
Lower Skilled (labourers, trade helper, junior plant operator)	30	9
Intermediate Skilled (haulage drivers, equipment operators, intermediate plant operators)	70	21
Higher Skilled (shovel and dragline operators, senior plant operators)	100	30
Staff (incl. first-line supervisors)	60	19
Senior Management	2	1
Supervisory (including foremen)	23	7
Engineers, Geologists, Surveyors	8	3
Administration, Clerical, Secretarial	18	6
Industrial Relations	4	1
Other	5	1

TABLE 15

Possible Employment in North East Coal Mines by Occupational Category, Selected Years

Profile	Skilled Maintenance	Mine Occupations	Staff	Total
Profile I				
1981	332	948	300	1,580
1986	572	1,634	518	2,724
1991	572	1,634	518	2,724
1996	572	1,634	518	2,724
Profile II				
1981	332	948	300	1,580
1986	646	1,844	584	3,074
1991	957	2,735	866	4,559
1996	1,300	3,713	1,176	6,189
Profile III				
1981	169	482	153	804
1986	190	542	172	904
1991	501	1,431	483	2,385
1996	989	2,826	895	4,710
Profile IV				
1981	69	198	63	330
1986	277	792	251	1,320
1991	418	1,194	378	1,990
1996	586	1,674	530	2,790

TABLE 16

Possible Skilled Maintenance Employment (Including Apprentices) in North East Coal Mines, Selected Years (Based on Estimates for Open Pit Mines

	Heavy Duty Mechanics	Automotive Mechanics	Welders	Millwrights Pipe and Steam Fitters	Electricians	Others	Total Skilled Maintenance
Profile I							
1981	142	32	47	47	47	16	332
1986	245	55	82	82	82	27	572
1991	245	55	82	82	82	27	572
1996	245	55	82	82	82	27	572
Profile II							
1981	142	32	47	47	47	16	332
1986	277	62	92	92	92	41	646
1991	410	91	137	137	137	46	957
1996	557	124	186	186	186	62	1,300
Profile III							
1981	72	16	24	24	24	8	168
1986	81	18	27	27	27	9	189
1991	215	48	72	72	72	24	501
1996	424	94	141	141	141	47	989
Profile IV							
1981	30	7	10	10	10	3	69
1986	119	26	40	40	40	13	277
1991	179	40	60	60	60	20	418
1996	251	56	84	84	84	28	586

TABLE 17

Possible Mining Occupations Employment in North East Coal Mines, Selected Years (Based on Estimates for Open Pit Mines)

		Lower Skilled	Intermediate Skilled	Higher Skilled	Total Mining Occupations
Profile I	- 1981	142	332	474	948
	1986	245	572	817	1634
	1991	245	572	817	1634
	1996	245	572	817	1634
Profile II	- 1981	142	332	474	948
	1986	277	646	922	1844
	1991	410	957	1368	2735
	1996	557	1300	1857	3713
Profile III	- 1981	72	169	241	482
	1986	81	190	271	542
	1991	215	501	716	1431
	1996	424	989	1413	2826
Profile IV	- 1981	30	69	99	198
	1986	119	277	396	792
	1991	179	418	597	1194
	1996	251	586	837	1674

TABLE 18

Possible Staff Employment in North East Coal Mines, Selected Years

	Senior Management	Supervisory (incl. foremen)	Engineers, Geologists, Surveyors	Administration, Clerical, Secretarial	Industrial Relations	Other	Total Staff
Profile I							
1981	16	111	47	95	16	16	300
1986	27	191	82	163	27	27	518
1991	27	191	82	163	27	27	518
1996	27	191	82	163	27	27	518
Profile II							
1981	16	111	47	95	16	16	300
1986	21	215	92	184	31	31	584
1991	46	319	137	274	46	46	866
1996	62	433	186	371	62	62	1,176
Profile III							
1981	8	56	24	48	8	8	153
1986	9	63	27	54	9	9	172
1991	24	167	72	143	24	24	453
1996	47	330	141	283	47	47	895
Profile IV							
1981	3	23	10	20	3	3	63
1986	13	92	40	79	13	13	251
1991	20	139	60	119	20	20	378
1996	28	195	84	167	28	28	530

2. Intermediate Skilled, including driller, blaster, haulage drivers and operators, bulldozer operators, grader operators, tiremen, repairmen, dispatcher, intermediate plant operators, miners, first-aid attendant, continuous miner facemen and service truckdrivers.
3. Higher Skilled, including front end loader operators, shovel and dragline operators and senior plant operators.

Half of the positions would be classed as lower and intermediate skilled jobs. The times required for training for these positions have not been estimated in this report; they are not likely to be lengthy for either lower skilled or some intermediate skilled jobs (e.g. haulage operators). In one study most employees at these levels were trained in less than one month (see page 148).

Operating functions are primarily filled through job posting and job progression; experience and training on-the-job are requisite for advancement, formal institutional training is not. Theoretically, people can move through a hierarchy of 12 - 15 job groups by obtaining a minimum three months experience in each job group.

Operating positions at a new coal mine in the North East would have to be manned with appropriately qualified personnel. With only 15 per cent of these jobs requiring little or no previous experience, the bulk of the positions, 85 per cent, must be filled by persons who have already been trained through relevant work in an operating mine. There are two

possible avenues which could be followed for staffing a new mine: Operations could be started on a small scale with a small core of experienced personnel and many early-starter trainees, gradual expansion to full scale production would be coordinated to utilize the newly acquired skills of the early-starters; alternatively, all positions could be filled with persons who already have the necessary training, they would be hired from other operations in British Columbia, Canada or abroad.

In view of the public policy goals outlined in Chapter 2 above, the former method would be preferrable to the Province. The feasibility of this approach, or a variant thereof, should be investigated thoroughly and the government should encourage cooperation among existing and prospective mine operators to ensure a timely and adequately trained supply of labour in mining and processing occupations.

A COMMENT ON MANPOWER FOR UNDERGROUND MINES

The question of manpower requirements for underground coal mine operations is difficult to determine with any accuracy. The employment factor of 330 persons per million tonnes of clean coal which has been adopted for this report is based on information from existing and proposed integrated (open pit and underground) mines. Depending on the technology utilized, an underground operation can be more labour intensive (conventional method) or less labour intensive (hydraulic method) than an open pit mine. At the time of writing it is unknown which technology would be applied to future underground

mines in the North East and therefore the employment characteristics of the "average" open pit work force are all that is available to be generally applied in the profiles of possible coal production.

It is probable that underground mine workers are more concentrated in lower and intermediate skilled occupations than would be workers in a surface mine. Indications are that the distribution of operating occupations between lower, intermediate and higher skilled classifications is 15, 35 and 50 per cent in open pit and 35, 40 and 25 per cent in a conventional underground mine.

The training and recruitment of underground coal miners may present special problems if large volumes of production are to come from underground workings. Currently there are only about 300 persons employed in mining coal underground in British Columbia. The view is held by the coal mines that underground workers are difficult to obtain. The small amount of underground coal mining presently done in British Columbia and the fact that most training is of a practical nature make it virtually certain that, should demand for these occupational skills increase rapidly, British Columbia residents would not be eligible for such employment in the absence of special training programs. Frequently underground coal miners are regarded as workers with a distinct identification with their occupations. The common bond between these people tends to be exclusive; training as well as socialization in fraternal attitudes are important aspects of this identity and these characteristics are only

acquired through practical experience.

To be effective, training of underground skills would have to begin well in advance of underground mine production in the North East. This could be accomplished using existing operating facilities (now found only in the Kootenays) if an acceptable industry training program could be devised. Alternatively, training of underground workers could be phased with underground mine development if expansion to full production were coordinated with skill availability within the operation. The former method might be unavoidable in cases where only underground workings are contemplated; the latter method could be followed in cases, such as the Quintette proposal, where initial underground production can be timed to follow and augment open pit production.

MINE MAINTENANCE MANPOWER

Maintenance occupations are the second most prevalent group of mine employees. Table 19 shows journeymen and apprentices combined for each of the major trades. Heavy duty and automotive mechanics form about half of the maintenance trades. The average length of apprenticeship is four years. The skill requirements of work in mine operations will necessitate the employment of apprentices at each level of apprenticeship; those in their third and fourth years will outnumber those in their first and second years. Traditionally an apprentice/ journeymen ratio of from 1:2 to 1:5 prevails. The application of the 1:5 ratio to the maintenance work force yields the

manning requirements by trade shown in Table 19. These detailed estimates should not be taken as being accurate, their purpose is to illustrate the concentration of manpower at the higher skill levels within maintenance occupations.

Entry to, and progression to full qualification in, a designated trade occupation occurs under the aegis of the Apprenticeship and Tradesmen's Qualification Act. No person may be employed in a trade designated under the Act unless he/she is under a contract of apprenticeship or holds a certificate of proficiency in that trade. The training program for each trade is prescribed in detail by legislative authority; a minimum age of fifteen years, the period of apprenticeship, standard of education, nature and number of educational classes to be attended, the course of practical training to be followed and examinations are specified. There is a rigid institutional structure governing the training and standard of qualification of tradesmen in the Province.

TABLE 19

Maintenance Manpower Requirements by Trade and Level, Per Million Tons Clean Coal

Trade	Year of Apprenticeship				Journeymen
	First	Second	Third	Fourth	
Heavy Duty Mechanics	1	1	1	2	23
Automotive Mechanics				1	5
Welders (3 year apprenticeship)[1]		1	1	N/A	10
Millwrights				1	7
Pipe & Steamfitter				1	3
Electricians			1	1	8
Others				1	1
TOTAL	1	2	3	7	57

[1] Welding is not a designated trade and an apprenticeship is not manditory.

This system of training will be imposed on the positions in designated maintenance occupations. As the system requires, in this case, an apprentice to be endentured to an employer and involves training commitments by apprentice, employer and the Province, training of maintenance personnel at a new coal mine cannot commence until operations are underway. This means that these occupations at new mines will have to be staffed by persons who have obtained their training (partial or full qualification) in other establishments within or outside of the Province. If these positions are to be filled by British Columbia residents and if shortages in these occupations are to be avoided, then efforts must be made to ensure that sufficient numbers of apprentices are being trained in each trade by existing British Columbia industry to meet the future requirements. Table 19 demonstrates that for 90 per cent of the maintenance work force (fourth year apprentices and journeymen) there is a lead time for training of three years minimum prior to employment with the mine.

Research should be undertaken to determine the magnitude of the loss, if any, which would be incurred by a firm which loses the employee to whom it had provided apprenticeship training. If any loss could occur then there might be some need for financial aid to encourage existing firms to take on more apprentices.

MINE STAFF MANPOWER

Staff occupations constitute about one fifth of the total work force. Many of these positions will be filled by persons with broad experience in the mining industry frequently in combination with formal training and certified industrial talents. The two largest groups are the supervisory and administration, clerical and secretarial occupations. Other groups are smaller and should be of lesser concern regarding regional employment as they involve highly specified, extensive qualifications. These latter occupations could play but a very minor role in training schemes, even on a province-wide basis.

Supervisory personnel are often highly qualified in particular trades or mining skills. Many of the foremen, who may comprise about 30 per cent of all staff, will be fully qualified and experienced personnel, there will be certified tradesmen among them. The Coal Mines Regulation Act also specifies minimum qualifications for supervisory personnel:

> Section 23(2), where fifty or more persons are employed underground an official holding a second-class certificate of competency, or higher, shall be appointed to supervise all underground operations.
>
> Section 23(3), persons employed in open pit workings shall be under the daily supervision of a shift boss holding an open-pit shift boss certificate.
>
> Section 24, manager of an underground colliery shall hold a certificate of competency in accordance with various requirements - - - (c) where thirty or more persons are employed underground, the manager shall hold a first-class certificate.

Certificates are granted under the Act when all requirements as may be required by the board of examiners have been satisfied.

The training of Supervisory personnel would appear to involve a long period of wide experience, possibly in combination with the achievement of full qualification in some skills. The role of formal training is not likely to be great; there is probably little scope for government initiatives in enhancing the availability of people with suitable qualifications for supervisory positions. Most of these positions will be filled from the ranks of higher skilled workers within industry who have gained the necessary breadth of experience.

The *administrative, clerical and secretarial group* is one which requires some formal training of almost all personnel. This classification is too heterogeneous to enable skill-specific analysis at this stage but it is reasonable to expect that significant numbers in this group could be trained and hired within the North East region. These skills are likely to be in adequate supply within the region and there should be little concern about any shortage. Training programs for most of these occupations would vary in length from six to ten months for persons with a Grade 10 minimum education.

Part III

Labour Supply

PART III

LABOUR SUPPLY

This part of the Manpower Sub-Committee report is an investigation of all possible sources of labour supply for North East coal development. The research described herein has focused on North East sources of manpower and selected resident groups in order to conform with the broad social goals listed in Chapter 2. Special emphasis has been placed both on the numbers of people potentially available in the region from each source and the requirement for training and other programs which will have to accompany attempts to mobilize the potential of these people.

The discussion is limited to the labour force which can be expected under "non-development" circumstances within the Peace River-Liard Regional District alone. It is recognized that labour markets extend over broad areas of provincial and national dimensions in many cases. There is insufficient information to permit an estimation of the scope of the labour market which will exist should North East coal developments proceed. The induced effects on labour supply in the North East of new job opportunities in the labour market have had to be ignored. The labour supply response from major settlement areas in relatively close proximity to the North East (Prince George, 1971 population 33,100, Grande Prairie, population 13,000) and more distant but larger urban areas in Western Canada could yield significant

numbers of job seekers if development begins.

The population groups which are analyzed in Part III include the existing North East labour force, persons not now in the labour force (mainly women), unemployed persons, Native Indians, underemployed workers, highschool dropouts, construction labour as a source of operations employees, migrants from elsewhere in British Columbia and Canada and immigrants from overseas.

CHAPTER 7

GOVERNMENT CAPABILITY TO INFLUENCE REGIONAL MANPOWER SUPPLY

Some general characteristics of the North East economy and climate are discussed below because they have in the past influenced and will continue to influence population and labour force dynamics in the region. The scope for altering observed labour market conditions through government policy depends on the causal factors and their relative magnitudes. Community stability and work force turnover, say, may improve as a result of greater investment in infrastructure but whether such a program would be cost-effective depends upon the magnitude of the resulting benefits. Factors such as climate and the nature of the regional resource base must be taken as given and will exert a continuing influence over labour force and population stability regardless of government initiatives.

The population of the North East has fluctuated with the overall level of economic activity, see Table 20. The

TABLE 20

Five-Year Population Growth Rates,
North East, British Columbia

	1951-56	1956-61	1961-66	1966-71
		(percent)		
Peace River-Liard	+42.5	+51.4	+32.2	+ 6.2
B.C. Average	+20.0	+16.5	+15.0	+16.6

significant share of employment resulting from primary resource exploitation and construction activitiy has, in concert with

climatic and community factors, given rise to a population which is younger and where the presence of women is less in comparison with all British Columbia. It would appear that the potential for employment is a major factor influencing personal decisions over location and duration of settlement.

The region is characterized by cold, dry winters and fairly warm summers, considering the latitude. Winter is the longest and most dominant season. Five to six months have average temperatures below freezing. January temperatures average 10 to 20^{o} C and in midwinter there are up to 18 hours of darkness a day.

The primary resource base of the region is principally comprised of agriculture and forestry, these sectors accounted for about 10 and 6 per cent of the labour force in 1971. Commercial and service employment accounted for 42 per cent of the total, a significantly smaller proportion than the 52 per cent in the Province as a whole.

The area is sparsely populated, although the North East comprises one-quarter of the province's land area it holds only about 2 per cent of the provincial population. About 60 per cent of the 1971 population lived in incorporated centres, the major ones being Dawson Creek and Fort St. John with nearly half the total population. All communities are smaller than 3,000 persons with the exceptions of Dawson Creek (12,000) and Fort St. John (8,000).

The observation has been made elsewhere that labour shortages, especially in skilled and professional occupations,

are endemic in the North East. Such a condition could become manifest as a result of any or all of the following forces: general shortages throughout the economy, higher wages elsewhere, higher overall standard of living available elsewhere. At a personal level, all the determinants of satisfaction impinge on the decision to reside and work in a particular location. It may be within the power of government to independently affect, in a direct way, the attractiveness of communities to potential residents and workers.

Clearly the question of whether sufficient manpower will be available to meet development needs depends on many factors: availability of appropriately skilled labour in the economy, wages, standard of living available, opportunities elsewhere, awareness of opportunities, community and working conditions, physical and climatic attractiveness, etc. Some of these determinants can be assessed at this early stage and recommendations made; others, while identified, cannot be accurately evaluated at this time.

CHAPTER 8

CIRCUMSTANCES HAVING A BEARING ON THE AVAILABILITY OF LABOUR TO NORTH EAST COAL DEVELOPMENTS

Research on manpower in the Canadian mining industry provides evidence that mine site and community factors, as well as personal and job-related factors, have a bearing on the supply of labour to mining. Some studies focus on causes of labour shortages and others on causes of labour turnover; it is assumed here that these two phenomena, reputed to "now present a major and very costly problem for the mining industry,"[1] are both aspects of the broader labour supply topic. The presence of either acts to reduce worker availability. The attached chart, however, serves as a reminder that traditionally the mining industry's experience of labour turnover was better than all industries as a whole. Unfortunately this statistical service was discontinued in 1966 and the relative situation of mining vis-a-vis other sectors may have changed. There is a lack of information available for assessing the current relative status of turnover in mining and other industries.

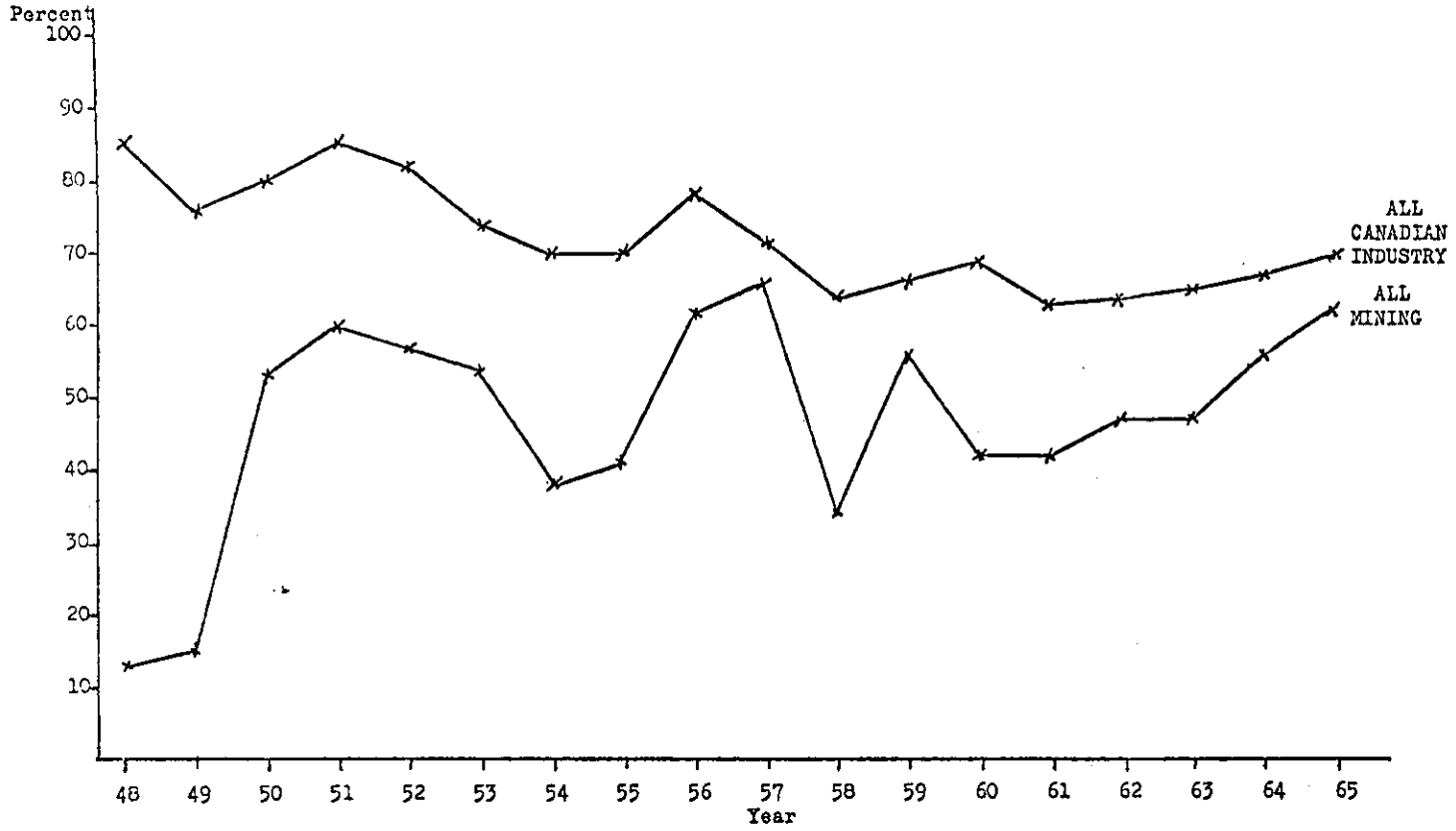
The following list of factors can be expected to influence the availability of labour in the ways described.

REGIONAL/COMMUNITY CONDITIONS

1. Harsh winters/geographic isolation as descriptive terms do not appear to coincide with resident perceptions of quality of life in Fort McMurray, a town 260 miles

CHART 2

Annual Turnover Rates for All Canadian Industries and Total Mining, 1948-1965



SOURCE: J. A. MacMillan, et. al., Determinants of Labour Turnover in Canadian Mining Communities, Center for Settlement Studies, University of Manitoba, 1974.

northeast of Edmonton. The author suggests that the fairly large population size, 6,000 at the time of the survey, may alleviate this circumstance.[2]

2. Effects of community isolation, size, age and infrastructure on the turnover rate are not significant according to an analysis of 30 mining firms.[3] This view is confirmed by tentative findings from a survey of resident satisfaction in selected British Columbia mining communities[4] and by the results of a survey of 80 mine managers across Canada.[5] An analysis of quits at Alcan's Kitimat smelter finds that job/company-related reasons for leaving (41%) significantly outweigh community-related reasons (26%).[6] There is evidence that wives' dissatisfaction may be a reason for households to leave communities.[6A] It is possible that such dissatisfaction could be reduced if women had greater employment opportunities.

MINING INDUSTRY WORKING CONDITIONS

A number of factors influence labour supplies for the mining industry as described below:

1. Earnings and fringe benefits in mining are not found to have the expected effect of bearing a negative relationship to turnover. It may be that with the existence of a standard pay scale across firms the availability of overtime attracts workers who prefer to work long hours, earn large amounts rapidly and then quit.[7] It is known that the industry fringe benefits often include production bonuses for

underground workers and meal, vacation transportation and housing subsidies.[8] While industry average wages and salaries are significantly above the industrial average a notable exception may be unskilled wage rates, these may not be sufficient to compensate for the associated working and living conditions. It has been suggested that the competitive position of mining vis-a-vis construction in the labour market is being eroded.[9]

2. Dissatisfaction with the work environment is one cause of turnover.[10] Residents of an isolated resource community are likely to perceive working conditions as very important once priority items such as income, housing and outside access are satisfied.[11] Working conditions are cited as a major factor in the termination decision for all length of service and skill categories in the Alcan study. Mining ranks with logging and construction as the industries with the highest accident rates.[12] "However measured, mining as a whole and each sub-sector of it including surface mining have some of the highest accident rates in industry, ranging from 1 1/2 to 10 times those for 'all industries' in the U.S. and Canada."[13] Statistics show that in 1970 the frequencies of both fatal and non-fatal accidents in British Columbia coal mines exceeded those in the metal mines and non-metallic mines and quarries. See the Appendix which follows

this Chapter. From another source, it is likely that there is a higher risk of having a compensable injury in the British Columbia mining industry relative to others; employer contributions to workers' compensation comprised 2.6 per cent of total labour costs in metal mining compared to a proportion of 1.4 per cent in durable goods manufacturing (which includes sawmills, smelting and refining and metal fabricating industries).[14]

3. Mining Industry public image. Mine managers seem aware,[15] and survey results reveal,[16] that mining as a career has a poor image in the eyes of the public at large and among potential workers. The poor image of the industry is among the five most frequently mentioned problems regarding the recruitment of young people. The image of the industry may not be wholly erroneous; poor health and safety records, discussed above, contribute to the industry's image.

4. Workers in mining should be enabled to satisfy higher order needs of self-esteem and self-actualization. The Alcan study concludes that recognition/appreciation is an important factor in the termination decisions of longer service, married and skilled employees. Experience indicates that insufficient attention is paid to individuals' needs to have satisfactory co-worker relationships; ignorance of this aspect of working conditions has given rise to dislocative tensions in a mine where personnel with widely

differing backgrounds and different nationalities were to work as a cohesive unit (even though English was the common first language).[17]

5. Analysis of negotiated working conditions in British Columbia mining collective agreements indicate significant differences between mining and the industrial composite. The effect of negotiated working conditions is expected to be greater upon the retention of manpower by the industry than upon recruitment from labour markets where knowledge of particular contract features is practically absent. On the basis of this information, mine employees are at a relative disadvantage in the following respects: Longer regular hours of work; lower rate for unskilled labour; less apt to get two consecutive days off per week; lower incidence of double-time premium pay for work on scheduled holidays; less vacation entitlement for workers with either less than 3 years service or more than 20 years service; weak or no provisions for maternity leave; lack of premium pay for hazardous, dirty or underground work; weaker provisions regarding impact of technological change; and, compared to construction, few provisions for reimbursement of moving or relocation expenses. On the other hand, mine employees tend to obtain better provisions in the following respects: Minimum pay for call-in; distribution of available overtime work; vacation entitlement after 10 years service; allowances

for educational leave, clothing and tools; life, accident and dismemberment insurance; dental plan (limited availability of dental services in outlying areas may restrict real value of benefits); job training or skill upgrading; portal-to-portal paid time; employment preference given to disabled workers; and joint safety committees. Many of these differences result from the nature of mining operations and the industrial relations history of the industry.

LABOUR MARKET STRUCTURE

1. The composition of the labour force changes over time; variations in the labour force growth rate, age structure and female participation rates have a direct bearing on labour supply. The percentage of males 24 years of age or younger has recently peaked and is a possible cause of the high rate of turnover experienced in recent years.[18] Rising female participation rates mean women are a growing presence in the labour force; a related feature is the increasing desire of both spouses in a household to work. Employment of the husband of a working wife may depend on a suitable job being available for the wife.[19] The future effects of labour market changes on the mining industry market have been summarized elsewhere as:[20]

(a) The decreased number of young mobile men will make it even more difficult to hire men in the future than it is now, but those who are attracted may stay longer because they will, on the average, be older and turnover rates have been shown to decrease with rising age of the workforce.

(b) Since male labour will, on the average, be older than has been the case in recent years, a larger proportion will have spouses.

(c) If couples are to be attracted, married quarters will have to be available.

(d) Since the majority of women will be in the labour force, it will only be economically attractive for most couples to move to a mining community if well paying jobs are available to women as they are in the city.

FOOTNOTES:

1. O. Fisher, The Labour Shortage in Mining, Department of Energy Mines and Resources, Ottawa, 1975, p. 1.
2. J. S. Matthiasson, Resident Perceptions of Quality of Life in Resource Frontier Communities, Center for Settlement Studies, University of Manitoba, 1970, p. 22.
3. J. A. MacMillan, et al., Determinants of Labour Turnover in Canadian Mining Communities, Center for Settlement Studies, University of Manitoba, 1974, p. 110.
4. Study by Cal Hoyt reviewed for the Manpower Sub-Committee on North East Coal Development, Minutes of a meeting held April 27, 1976.
5. Mining Association of Canada, Labour Turnover and Shortages in the Canadian Mining Industry: Principal Statistics of the Problem, 1974, p. 16.
6. Aluminum Company of Canada, Abridged Report of the Task Force on Hourly Employee Turnover, 1973, p. 11.

6A. J. B. Nickels and J. P. Kehoe, Northern Communities: Mental Health and Social Adaptation, Center for Settlement Studies, Occasional Paper No. 4, 1972, p. 21.

7. J. A. MacMillan, op.cit., p. 108.
8. Ibid., pp. 62 and 66.
9. Department of Manpower and Immigration, Research Projects Group, Recent Manpower Research in the Mining Industry: An Overview, 1975, p. 4.

10. D. Berry, et. al., Mining Communities in Canada (Preliminary), Department of Energy, Mines and Resources, 1975, p. 63.
11. J. S. Matthiasson, op. cit., p. 13.
12. Ibid., p. 62.
13. D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy Mines and Resources, Mineral Bulletin MR 125, 1972, p. 1.
14. Labour Costs in Canada, Statistics Canada, various volumes.
15. Mining Association of Canada, op. cit., p. 18.
16. Department of Manpower and Immigration, op. cit., p. 7.
17. D. Berry, et. al., op. cit., p. 70.
18. O. Fisher, op. cit., p. 5.
19. Ibid., p. 7.
20. Ibid, pp. 6-7.

APPENDIX TO CHAPTER 8

Material from several sources is presented here to indicate, in a summary fashion, that there are higher than average risks of personal injury associated with mining industry employment. No account is taken of occupational health hazards in this material. Also there is evidence that there are higher risks of injury in coal mining compared to other segments of the industry. For example, if the following observed measures were to apply to future British Columbia coal mines: 32.74 average days lost per nonfatal accident (1970, Canada); 67.47 nonfatal accidents per million man-hours worked; 2,000 hours per man-year; then a miner could expect on average to lose 4.4 days per annum due to nonfatal injury.

It should be noted that these statistics are representative of industries and not occupations or jobs, per se. Due to different occupational compositions across industries it is possible that risks of mishap are approximately similar within an occupation regardless of industry or employment. Historical experience may be an unreliable indicator of risks in a future operation as different and more modern methods and equipment are likely to be used in new activities.

TABLE A1

Employer Contributions to Worker's Compensation in B.C., All Employees*

Industry	Published Source Cat. No.	Data for the Year	% of total Compensation	Average Annual Expend. Per Employee ($)
Education, libraries and museums	72-616	1974	0.2	23
Trade	72-615	1972	0.5	35
Finance, insurance and real estate	72-610	1970	---	2
Manufacturing, durable goods	72-612	1971	1.4	132
non-durable goods			0.9	80
Transportation	72-611	1970	0.7	69
Communication, Storage and other utilities	72-611	1970	0.5	42
Metal mines	72-613	1972	2.6	288**
Mines, quarries and oil wells	72-613	1972	2.5	283

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* Surveys measure only the portions of the total compensation package which the employer contributes and not the value of the benefits received by employees and their dependents.

** The employer contributions to worker's compensation per wage earner employee equals 17¢ per hour worked, or approximately $340 per annum.

Source: Labour Costs in Canada, Statistics Canada, volumes cited.

TABLE A2

Canadian Employment Fatality Rates by Industry, 1961-1970 **

Year	Agriculture		Forestry		Fishing		Mining		Manufacturing		Construction *	
	R[1]	E[2]	R	E	R	E	R	E	R	E	R	E
1961	1.0	681	11.5	86	22.2	18	16.9	80	1.2	1,452	6.3	376
1962	0.9	660	17.2	74	5.2	23	18.6	81	1.4	1,502	5.2	393
1963	0.8	649	15.3	80	13.6	25	22.6	72	1.4	1,552	5.8	406
1964	1.1	630	18.9	82	14.2	26	18.5	87	1.4	1,650	6.1	410
1965	0.8	594	14.0	77	17.4	23	13.1	134	1.4	1,636	6.0	463
1966	1.0	544	14.5	76	14.2	26	12.1	121	1.3	1,744	5.9	499
1967	0.5	559	12.5	79	13.2	25	16.1	114	1.1	1,756	4.3	475
1968	0.5	546	12.8	80	7.9	24	11.5	117	1.0	1,754	4.6	470
1969	0.6	535	11.0	80	8.6	21	14.0	116	1.1	1,819	4.9	482
1970*	0.3	511	11.1	72	10.5	20	9.6	125	0.8	1,790	3.6	471
Average 1961-1970	0.8	591	13.9	79	12.6	23	14.6	105	1.2	1,666	5.3	444

	Transportation		Trade		Finance		Service		Public Administration		Total	
	R	E	R	E	R	E	R	E	R	E	R	E
1961	3.3	563	0.5	1,025	0.1	239	0.2	1,178	1.9	356	1.9	6,055
1962	3.6	588	0.6	1,049	0.1	248	0.1	1,244	2.2	362	1.8	6,225
1963	3.5	597	0.6	1,062	0.1	254	0.2	1,306	2.9	371	1.9	6,375
1964	4.0	591	0.6	1,105	0.1	264	0.4	1,386	1.4	377	2.0	6,609
1965	4.7	617	0.6	1,145	0.1	280	0.3	1,489	1.3	403	1.9	6,862
1966	4.0	620	0.5	1,180	0.0	302	0.3	1,622	0.7	419	1.7	7,152
1967	3.4	659	0.5	1,224	0.2	312	0.3	1,732	0.8	443	1.5	7,379
1968	2.6	673	0.5	1,260	--	327	0.2	1,830	1.4	458	1.3	7,537
1969	3.0	693	0.5	1,292	0.1	350	0.3	1,918	1.4	474	1.4	7,780
1970*	2.0	692	0.4	1,320	0.1	365	0.2	2,025	1.3	486	1.1[3]	7,879
Average 1961-1970	3.4	629	0.5	1,166	0.1	294	0.2	1,573	1.5	415	1.6	6,985

R = Fatality rate (number of fatalities per 10,000 workers employed).

E = Workers employed, in thousands. DBS estimates, Special Surveys Division, special tables, 12-month averages (figures may not add to the totals shown because of rounding).

Rate for 1970 includes 7 fatalities in unspecified industries.

Preliminary

* Fishing includes trapping and hunting; Mining includes quarrying and oil wells; Transportation includes storage, communication, electric power, gas and water utilities; Finance includes insurance and real estate; Service includes community, business and personal service; and Public Administration includes defence.

Source: The Labour Gazette, Vol. 71, No. 7, July 1971, pp. 502 - 503.

TABLE A3

FATAL INJURY EXPERIENCE IN THE CANADIAN MINERALS INDUSTRY, 1970

	Fatalities	Man-hours Worked (thousands)	Frequency per Million Man-hours
Surface Operations			
Newfoundland	0	7,730	0.00
Nova Scotia	1	2,280	0.44
New Brunswick	1	1,770	0.57
Quebec	4	34,630	0.12
Ontario	7	42,090	0.17
Manitoba	1	9,330	0.10
Saskatchewan	3	5,060	0.59
Alberta	1	1,670	0.60
British Columbia	12	24,420	0.49
CANADA	30	128,980	0.23
Underground Operations			
Newfoundland	1	3,320	0.30
Nova Scotia	3	6,820	0.43
New Brunswick	2	2,880	0.69
Quebec	12	24,870	0.48
Ontario	18	33,670	0.53
Manitoba	6	11,550	0.51
Saskatchewan	2	5,760	0.35
Alberta	0	2,160	0.00
British Columbia	4	4,690	0.85
CANADA	48	95,720	0.50

Source: Calculated by authors from provincial sources.

Source: D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy Mines and Resources, Mineral Bulletin 125, 1972, Appendix B.

TABLE A4

NONFATAL LOST TIME INJURY EXPERIENCE IN THE CANADIAN MINERALS INDUSTRY, 1970

	Accidents	Frequency Per Million Man-hours	Total Days Lost
Surface Operations			
Newfoundland	141	18.23	2,777
Nova Scotia	117	51.09	3,276
New Brunswick	125	70.74	3,192
Quebec	823	23.77	32,097
Ontario	1,071	25.45	29,988
Manitoba	301	32.26	8,616
Saskatchewan	168	33.22	4,368
Alberta	62	37.13	1,659
British Columbia	480	19.66	25,606
CANADA	3,288	25.50	111,579
Underground Operations			
Newfoundland	158	47.61	3,242
Nova Scotia	1,596	234.02	44,688
New Brunswick	232	80.42	5,376
Quebec	440	17.69	17,160
Ontario	1,947	57.82	54,516
Manitoba	243	21.04	8,235
Saskatchewan	109	18.93	2,834
Alberta	311	143.98	12,340
British Columbia	611	130.28	32,594
CANADA	5,647	58.99	180,985

Source: Calculated by authors from provincial sources.

Source: D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy, Mines and Resources, Mineral Bulletin 125, 1972, Appendix B.

TABLE A5

ACCIDENTS IN CANADIAN METAL MINES, 1970

		Man-hours Worked (thousands)	Fatal Accidents	Nonfatal Accidents
Newfoundland	I	8,840	0	233
	f	-	0.00	26.35
Nova Scotia		*	*	*
New Brunswick	I	3,730	2	259
	f	-	0.54	69.39
Quebec	I	30,580	13	488
	f	-	0.43	15.96
Ontario	I	60,270	21	2,703
	f	-	0.35	44.85
Manitoba	I	19,820	7	496
	f	-	0.35	25.02
Saskatchewan	I	3,320	2	148
	f	-	0.60	44.54
Alberta		*	*	*
British Columbia	I	22,690	11	848
	f	-	0.48	37.37
CANADA	I	149.250	56	5,175
	f		0.38	34.67

Source: Calculated by authors from provincial sources.

I - Incidence; f - frequency per million man-hours; * industry not present in province.

Source: D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy, Mines and Resources, Mineral Bulletin 125, 1972, Appendix B.

TABLE A6

ACCIDENTS IN CANADIAN NONMETALLIC MINES AND QUARRIES, 1970

		Man-hours Worked (thousands)	Fatal Accidents	Nonfatal Accidents
Newfoundland	I	2,210	1	66
	f	-	0.45	29.88
Nova Scotia	I	1,470	0	41
	f	-	0.00	27.84
New Brunswick	I	390	0	12
	f	-	0.00	31.05
Quebec	I	28,920	3	775
	f	-	0.10	26.80
Ontario	I	15,490	4	315
	f	-	0.26	20.34
Manitoba	I	1,070	0	48
	f	-	0.00	44.76
Saskatchewan	I	7,020	2	98
	f	-	0.28	13.95
Alberta	I	830	0	16
	f	-	0.00	19.51
British Columbia	I	3,930	1	75
	f		0.25	19.08
CANADA	I	61,330	11	1,446
	f		0.18	23.58

Source: Calculated by authors from provincial sources.

I - incidence; f - frequency per million man-hours.

Source: D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy, Mines and Resources, Mineral Bulletin 125, 1972, Appendix B.

TABLE A7

ACCIDENTS IN CANADIAN COAL MINES, 1970

		Man-hours Worked (thousands)	Fatal Accidents	Nonfatal Accidents
Newfoundland		*	*	*
Nova Scotia	I	7,630	4	1,672
	f	-	0.52	219.02
New Brunswick	I	530	1	86
	f	-	1.88	161.42
Quebec		*	*	*
Ontario		*	*	*
Manitoba		*	*	*
Saskatchewan	I	470	1	31
	f	-	2.13	66.16
Alberta	I	3,000	1	357
	f	-	0.33	119.00
British Columbia	I	2,490	4	168
	f	-	1.61	67.47
CANADA	I	14,120	11	2,314
	f	-	0.78	163.88

Source: Calculated by authors from provincial sources.

I - Incidence; f - Frequency per million man-hours. * Industry not present in province.

Source: D. Brooks and D. Berry, Mine Health and Safety as an Analytic Problem, Department of Energy, Mines and Resources, Mineral Bulletin 125, 1972, Appendix B.

CHAPTER 9

OVERSEAS IMMIGRANTS AS A SOURCE OF LABOUR

Only brief consideration is given to this potential source of manpower. The analysis of domestic sources of labour indicates that the need for immigrant workers should be minor in relation to the total work force. Furthermore, in view of the goals adopted in Chapter 2, immigration should be the source of last resort, only to be used when needs cannot be reasonably met through domestic training.

It must be recognized that where mining technology (underground mining for example) requires skills and experience not readily available in British Columbia or Canada some workers may have to be obtained from overseas. With domestic training programs and advanced declaration of labour requirements by mines the extent of reliance on immigration will be minimized; even under the best circumstances a "core work force" of foreign workers may be necessary for mine start-up and domestic training programs.

Estimates by one company were that 10-15 per cent of open pit and preparation plant personnel, 60 per cent of underground personnel and 75 per cent of supervisory and clerical personnel would have to be highly qualified from the start of operations.[1] The maintenance function will require about 90 per cent of the workers to be fourth year apprentices or journeymen, see Table 19. It is reasonable to expect that few of the highly qualified mining skills are available in the

North East and the people to fill these positions may have to come from elsewhere including overseas sources.

The federal government exercises sole jurisdiction over immigration. The Department of Manpower and Immigration has administrative mechanisms in place which are designed to regulate immigrant flows. The Designated Occupations System is designed to alleviate shortages of manpower in specific occupations, in specific areas in Canada. A Regional Director General is empowered to designate an occupation without consultation with the Province. Proposals to designate may be received from any source, public, corporate or private.

A separate system of "arranged employment" for a particular employer (overseas clearance) operates independently of the Designated Occupations System. In this case too the Province of eventual employment need not be consulted.

Clearly, a provincial policy which seeks to avoid unnecessary resort to overseas sources of labour would require firm commitments of cooperation from employers and the federal government. Domestic training of persons to alleviate occupational shortages will only be cost-effective if employers hire these people rather than turning to immigration as the answer.

Research shows that contrary to some views, immigrants may not offer a ready, low-cost solution to labour shortages in mining. The suggestion is occasionally made that the industry's labour problem might be eased if more immigrants were allowed to come to Canada. However, studies by the Department of Manpower and Immigration, as well as the 1971 Census, indicate

that mining does not appear to be attractive to the immigrants coming here now. In fact, the proportion of recent (1961-71) immigrants among miners is only half that of all occupations.[2]

The observation that immigrants may accept working and living conditions of the mining industry more readily than Canadians is not supported by findings of one survey. Non-Canadian born workers, comprising 15 per cent of employment, accounted for 22 per cent of total quits in the mining industry.[3]

FOOTNOTES:

1. Report of Meeting with Denison Mines (B.C.) Ltd., June 1-2, 1976, to Manpower Sub-Committee.
2. O. Fisher, The Labour Shortage in Mining, Department of Energy Mines and Resources, 1975.
3. J. A. MacMillan, et. al., Determinants of Labour Turnover in Canadian Mining Communities, Center for Settlement Studies, University of Manitoba, 1974, Table 18, p. 57.

CHAPTER 10

PRESENT RESIDENTS OF THE NORTH EAST REGION

The 1971 Census estimates of the North East population are the most current and comprehensive available. At the time of writing, a survey of North East residents is underway; results from this survey may add new dimensions or indicate where changes from 1971 conditions have occurred.

The demographic characteristics of the regional population and labour force have been recorded in The North East Report, 1975 and the associated background studies performed by the Department of Economic Development. The purpose here is to briefly discuss the potential labour supply which may be available for economic developments in the North East.

The core area of interest is the area enclosed by the communities of Dawson Creek, Fort St. John to Hudson Hope, Chetwynd and the proposed townsite, see Charts 3 and 4. For statistical purposes, this area excludes Subdivision A, and Indian Reserves from Census Division No. 23 (Peace River-Liard).

PROFILE OF THE CORE REGION POPULATION

Population Size

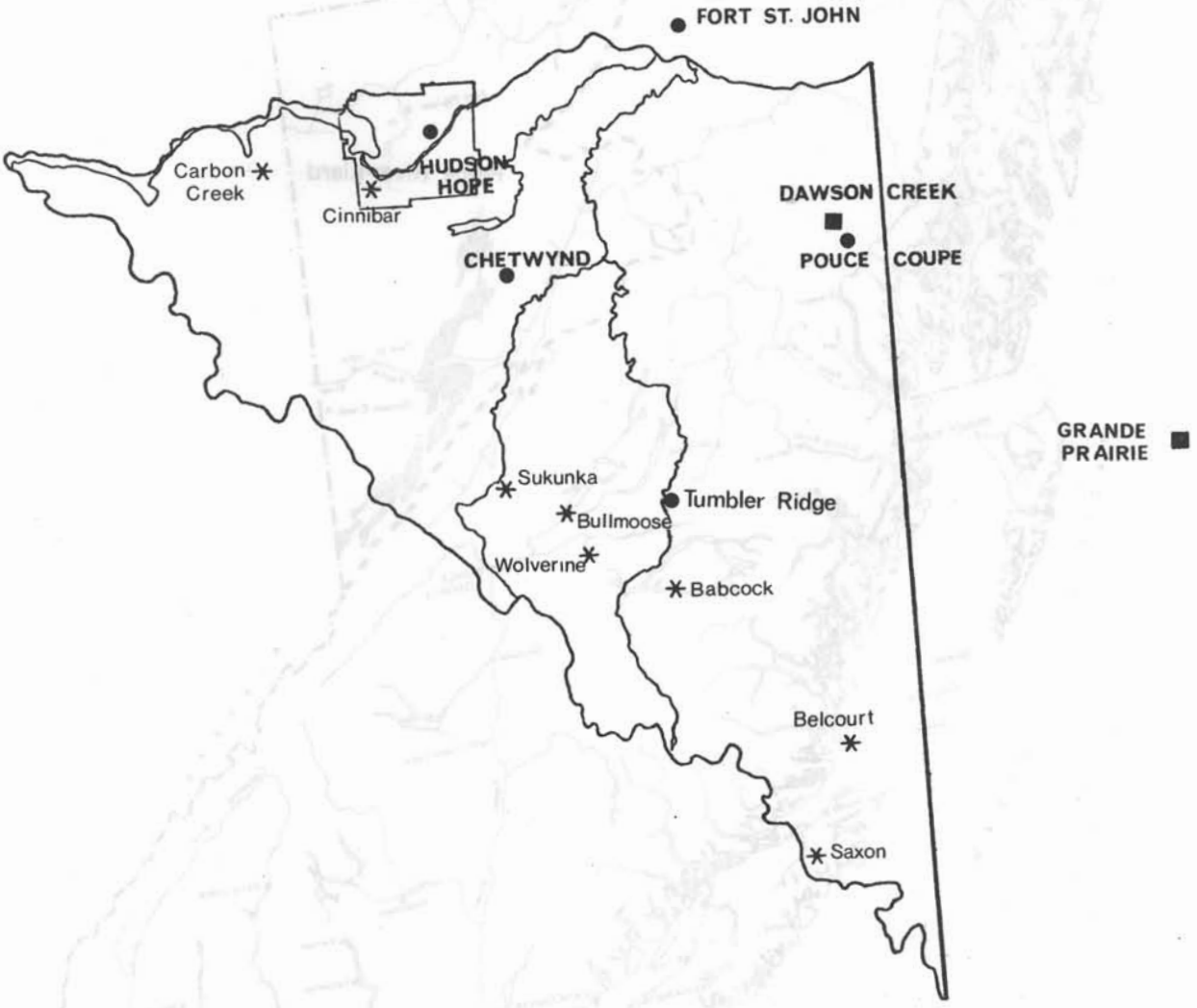
In 1971 the core region (Subdivision B of the Peace River-Liard Census Division) had a population of approximately 39,000 of which 29,095 or 71 per cent lived in seven population centres, the largest of which is Dawson Creek with a population of 11,885.

CHART 3

MAJOR COAL BEARING FORMATIONS
NORTH EAST REGION

CHART 4

POSSIBLE COAL MINE SITES*
NORTH EAST CORE REGION ADOPTED
FOR MANPOWER REPORT



The three major centres of Dawson Creek, Fort St. John, and Chetwynd account for approximately 89 per cent of the population of the core region, or 49 per cent of the population of the Regional District. For the entire District, some 30 per cent of the population is rural, the remaining 20 per cent being distributed between a number of secondary settlements, Hudson Hope, Pouce Coupe, Taylor, and Fort Nelson in the northern part of the Region. Population for the entire Peace River-Liard Regional District appears to have remained almost constant over the past decade following a period of rapid growth in the early 1960's, see Table 21.

The Region is characterized by high average family size; 4.1 persons compared to the provincial average of 3.5 persons per family. The high incidence of large families is further demonstrated by the fact that 47 per cent of the population in the North East is contained in families of five or more persons as compared to the provincial average of only 33 per cent.

Age

As indicated in Table 22, the Region has a youthful population. Approximately 70 per cent of the 1971 total population was under the age of 35, compared to a provincial average of 59 per cent.

Sex

Of the Census population fifteen years and over, 53 per cent is male, which amounts to a surplus of 129 males. For the single population age 15 and over the male-female ratio is 65/35. This surplus is spread over the Region but is

TABLE 21

Population of the Peace River-Liard Regional District by Incorporated Center, 1961, 1966 and 1971 and Preliminary 1976

Description	1961	1966	1971	1976[1]	% Change 1966-71
City:					
Dawson Creek	10,946	12,392*	11,885*	10,316	-4.1
Town:					
Fort St. John	3,619	7,738*	8,264*[2]	8,872*	+0.8
Villages:					
Chetwynd**	-	1,368	1,260*	1,462	-7.9
Fort Nelson**	-	-	2,289	2,870	-
Pouce Coupe	669	602*	595	492*	-1.2
Taylor	438	595	605	595*	+1.7
Aennofield	-	989	-	-	-
District:					
Hudson's Hope**	-	3,068	1,741	1,307	43.3
Total Regional District	31,352	41,441	43,996	43,841	+6.2

---

1 Preliminary figures exclude people enumerated at a temporary address (hotels, general hospitals, construction camps, etc.) and people who temporarily live outside of Canada.

2 Includes Aennofield

* Denotes changes in boundaries since previous census

** New incorporation

TABLE 22

Population of Peace River-Liard Regional District
By Specified Age Groups, 1971

Total	43,995
0 - 4	4,900
5 - 9	5,995
10-14	5,565
15-19	4,450
20-24	3,625
25-39	6,335
35-44	5,330
45-54	3,630
55-67	2,365
65-69	705
70+	1,075

Source: Statistics Canada, Census, Volume 1, Advance Series, Catalogue No. 92-756

particularly pronounced in rural areas and on Indian Reserves.

Education

The population of the Census division has considerably lower levels of educational attainment than for provincial average. Within the Region attainment is considerably higher at all levels of education amongst the population living in the major centres.

While some 25 per cent of those in the labour force completed high school, 22 per cent of the total population did so; 7 per cent of those in the labour force have some university training, compared to 6 per cent of the population as a whole. Not surprisingly the rate of participation increases with the level of education, see Table 23.

Table 24 indicates that younger people are generally more highly educated than their elders. Approximately 38 per cent of those in the 20-24 age bracket have completed high school (or at least have some high school), while only 19 per cent of those in the 35-44 age bracket, and 17 per cent of those in the 45-54 age bracket have completed high school (40.0 per cent and 34.1 per cent, respectively have some high school training). Five per cent of those in the 25-34 age bracket have done so. The implication is that, given the relatively youthful population of the North East, there may exist a real potential for further vocational or career training of regional residents.

Table 25 illustrates that there are significant differences in levels of education attained by males and females. Proportionately more women have some or complete high school

TABLE 23

Peace River-Liard Regional District
Labour Force By Level of Education and Rate of Participation, 1971

Level of Education	Number	%	Participation Rate
Completed Elementary School or Less	4,755	27.4	56.8
Some High School	6,595	38.0	61.5
Completed High School	4,230	24.4	69.7
Some University	1,175	6.8	78.4
University Degree	595	3.4	86.9
TOTAL	17,350	100.0	

educations, 67 per cent of females compared to 57 per cent of males. Women have stayed in school longer than men. The relative lack of job opportunities for women in the area is likely a contributing factor, males may have dropped out of school earlier than females to join the labour force.

Ethnic Background

The population of the Region is 99.9 per cent English speaking.

TABLE 24

Incidence of Selected Educational Attainment by Age Group, Population of Peace River-Liard Regional District 1971

Level of Education Attained	All Ages	15-19	20-24	25-34	35-44	45-54	55-64	65+
				(percent)				
Completed Elementary School or less	30.5	19.0	14.1	19.0	33.8	42.2	53.7	68.5
Some High School	39.6	58.1	35.7	41.4	40.4	34.1	29.3	17.8
Completed High School	22.1	20.7	37.6	27.3	18.8	17.0	11.4	9.5
Some University	5.5	2.3	10.3	7.3	4.7	4.1	4.4	3.1
University Degree	2.5	---	2.2	5.0	2.3	2.8	1.5	1.4

TABLE 25

Population of Peace River-Liard Regional District By Level of Education and Sex, 1971

Level of Education	Male	Female
Completed Elementary School or Less	35.2	25.0
Some High School	37.1	42.4
Completed High School	19.7	24.8
Some University	5.0	6.0
University Degree	3.0	1.8

CHAPTER 11

THE GENERAL LABOUR SUPPLY CAPABILITY OF THE NORTH EAST LABOUR MARKET

The entire population of the region is sensitive to changes in labour market opportunities. Should coal developments proceed there will undoubtedly be significant dynamic adjustments to the "still life" picture of the labour market depicted by censual data. Increased demand for labour services attendant with coal developments would cause some people to: change jobs; change occupation; become employed; obtain training in order to get hired; or reconsider previous decisions regarding labour force participation. There is simply no way that the magnitudes of these changes can be predicted from existing information. To some degree every economic development draws labour from each of the sources which will be discussed below. The government may be interested to assure that any coal development tap a significant proportion of the total potential labour supply from each source identified herein.

THE INDUSTRIAL AND OCCUPATIONAL STRUCTURE OF THE LABOUR MARKET

The labour resources of the North East are distributed across numerous occupations and industries. There were nearly 16,000 people employed in the region in 1971. A basis for further economic development exists within the regional labour market in terms of skills and experience.

The labour force in the core region comprised 13,485 people in 1971, made up of 9,280 males and 4,195 females. For

the Peace River-Liard Regional District the comparable figures were 17,325, 12,080 and 5,260, respectively, see Table 26. Percentage distribution of the labour force by occupation and sex is given in Table 27.

In 1971 service industries accounted for approximately 40 per cent of the labour force in the Census Division and close to 55 per cent in Dawson Creek. Agriculture accounted for less than 10 per cent of the total labour force. Construction and Transportation accounted for 11 and 14 per cent, respectively, in 1971. Their share of the labour force was particularly pronounced in Hudson Hope and Fort Nelson, most likely due to Hydro projects under way at the time. Manufacturing and other primary industries accounted for 6-7 per cent each for the Census Division.

LABOUR FORCE PARTICIPATION

Participation rates for both sexes in the North East are generally above the provincial averages, see Table 28. Female participation rates in the 20-34 age group are significantly lower than in the Province overall. Male and female participation rates for various centres in the Region are given in Table 29. The three largest centres in the North East, where 54 per cent of the female population aged 15 years and over reside, had a female participation rate of 47 per cent, significantly above those for the region or British Columbia overall.

TABLE 26- Labour Force By Age, By Sex, For North East Region, 1971

	Labour Force			15 - 24				25 - 44				45 - 64				65 +			
	M	F	Tot.	M	F	Tot.	%	M	F	Tot.	%	M	F	Tot.	%	M	F	Tot.	%
North East	12,080	5,260	17,325	2,920	1,620	4,540	26.2	5,795	2,265	8,060	46.5	2,930	1,230	4,060	23.4	320	85	405	2.3
Core Region	9,280	4,195	13,485	2,270	1,330	3,600	26.7	4,525	1,895	6,460	47.9	2,170	1,015	3,210	23.8	235	75	310	2.3
Dawson Creek	3,080	1,765	4,835	700	580	1,280	26.5	1,525	685	2,210	45.7	820	465	1,285	26.6	60	40	100	2.1
Fort St. John	2,345	1,105	3,435	630	380	1,010	29.4	1,250	545	1,795	52.3	430	210	640	18.6	55	10	65	1.9
Chetwynd	285	135	415	80	50	130	31.3	135	55	190	45.8	50	30	80	19.3	-	-	-	-
Fort Nelson	695	340	1,035	160	110	270	26.1	370	175	545	52.7	135	40	175	16.9	10	5	15	1.4
Pouce Coupe	145	80	220*	40	20	60	27.3	40	35	75	34.1	60	20	80	36.4	5	-	5	2.3
Taylor	130	70	200	25	20	45	22.5	90	35	125	62.5	15	20	35	17.5	5	-	5	2.5
Hudson Hope	505	155	670	75	35	110	16.4	175	70	245	36.6	115	25	140	20.9	-	-	-	-
Subdivision A[1]	2,615	875	3,470*	615	285	900	25.8	1,230	370	1,600	45.8	635	215	850	24.4	85	10	95	2.7
Subdivision B	2,120	720	2,850*	550	135	685	24.0	835	295	1,130	39.6	545	205	750	26.3	100	20	120	4.2
Indian Reserves[2]	160	15	175	35	5	40	*	40	*	*	*	25	*	*	*	-	-	-	

[1] Previously defined.

[2] Previously defined.

* Rounding generates an error term approaching - 40% and therefore no meaningful percentages can be calculated.

Source: Statistics Canada User Summary Tapes 1971 Census

TABLE 27

Percentage Distribution of Labour Force by Occupation, by Sex, North East Region, 1971

	Managerial		Teaching		Medicine		Technical		Clerical		Sales		Service		Farming		Primary		Processing		Machining		Construction		Transport	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
North East	2.5	0.8	1.7	8.2	0.8	5.9	3.7	1.1	3.6	30.9	9.3	7.2	6.2	23.6	11.0	7.4	6.1	0.1	3.0	0.3	9.9	0.3	14.5	0.2	9.1	0.8
Dawson Creek	4.2	0.6	2.9	9.0	1.3	6.6	3.9	1.2	4.7	36.7	14.5	7.8	7.7	22.9	3.7	0.6	3.4	-	3.2	0.9	11.1	0.3	14.8	-	9.2	1.2
Fort St. John	2.9	0.5	1.7	6.8	1.7	10.8	5.2	1.5	4.0	35.6	12.8	8.6	7.1	23.4	3.6	0.5	7.8	0.5	1.7	-	12.2	0.5	13.4	-	9.2	-
Chetwynd	1.8	-	3.6	9.1	-	-	3.6	-	1.8	31.8	3.6	13.6	9.0	40.9	-	-	7.2	-	14.4	-	10.8	-	18.0	4.5	7.2	-
Fort Nelson	0.8	-	0.8	8.3	0.8	3.3	3.1	-	5.4	40.0	7.8	1.7	9.3	30.0	-	-	3.9	-	0.8	-	11.6	-	22.5	-	13.9	-
Pouce Coupe	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Taylor	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hudson Hope	1.1		1.1	14.3	-	-	7.7	-	2.2	39.3	3.3	3.6	6.6	28.6	3.3	3.6	3.3	-	1.1	-	16.5	-	30.8	-	7.7	-
Subdivision A*	1.7	2.9	0.6	10.3	-	1.1	3.9	1.1	2.3	20.0	5.8	6.9	4.1	21.7	22.1	17.7	7.8	-	2.3	-	7.9	0.6	11.6	0.6	10.7	1.7
Subdivision B	1.3	-	1.0	3.9	-	4.7	1.3	-	3.3	18.9	5.1	6.3	3.8	18.1	23.8	29.9	6.1	-	3.3	-	6.9	-	12.5	-	6.1	-
Indian Reserves	*	•	*	*	*	*	*	*	*	*	*	*	*	*	•	*	*	*	*	•	*	*	•	*	*	*

* Previously defined

[1] Previously defined

Source: Statistics Canada: User Summary Tapes, 1971 Census

* Unreported because rounding process resulted in "0"

TABLE 28

Participation Rates by Sex and Age Group For British Columbia and the North East, 1971

Age Group	Peace River - Liard Regional District			British Columbia		
	Male	Female	Total	Male	Female	Total
15 - 19	.56	.36	.46	.54	.42	.48
20 - 24	.91	.50	.71	.89	.61	.75
25 - 34	.95	.39	.68	.95	.45	.70
35 - 44	.94	.47	.73	.95	.46	.72
45 - 54	.93	.50	.73	.92	.47	.69
55 - 64	.78	.41	.62	.81	.36	.58
65 +	.32	.12	.24	.19	.07	.12
TOTAL	.82	.41	.63	.78	.40	.59

SOURCE: Statistics Canada Census, 94 - 704 Vol. 3 Part 1, 1971

TABLE 29

Labour Force Participation rates* By Sex, North East Region, 1971

	M & F	M	F
North East	.63	.82	.41
Dawson Creek	.64	.80	.47
Fort St. John	.66	.86	.45
Chetwynd	.54	.70	.37
Fort Nelson	.73	.91	.52
Pouce Coupe	.52	.64	.41
Taylor	.65	.84	.45
Hudson's Hope	.62	.86	.32
Subdivision A[1]	.63	.84	.36
Subdivision B[1]	.61	.81	.36
Indian Reserves[1]	.36	.51	.09
BRITISH COLUMBIA	.59	.78	.40

* Proportion of persons 15 and over in the Labour Force

[1] Previously defined.

SOURCE: Statistics Canada User Summary Tapes 1971 Census

THOSE NOT IN THE LABOUR FORCE

Of some interest is an analysis of the data pertaining to those 15 years and over and not in the labour force for the 1971 census. This group consists of three categories: those who have never worked, those who have worked in past years prior to 1970) and those who have worked during the current year (1971). Approximately 30 per cent of the total population, 15 years and over for the Regional District fall in the first category. This is likely to be the group still in school and/or living with parents. For the second and third categories there are four groups which merit consideration with respect to labour supply: Women, drop-outs, native population, and unemployed-employables. Unfortunately censual information is only adequate to permit an analysis of the first group; the other groups are considered in Chapters 14, 15, and 16 of this report.

In the North East almost 50 per cent of the females 15 years of age and over not in the labour force have worked prior to 1970 as compared to just over 30 per cent of the males. In numerical terms 3,440 females and 775 males were in the labour force prior to 1970 and were not in the labour force in 1971, see Table 30.

There were 3,465 single, widowed, and divorced women who need to support themselves and their families and 2,020 married women who are without children and may be more able to enter the labour force; this data indicates that there is a significant potential female labour force in the North East.

Females comprise nearly 75 per cent of all persons not in the labour force. A combination of lack of real

TABLE 30

Population 15 Years and Over, By Sex and Labour Force Activity
Peace River-Liard Regional District

	Population 15 Years And Over	Total Labour Force			Unemployed			Not In Labour Force		
		Total[1]	% of Population 15 Years And Over	Employed	Total	% of Labour Force	No Experience Or No Recent Experience[2]	Total	Worked Since Jan 1/70	Did Not Work Since Jan 1/70
Total	27,515	17,360	63.1	15,860	1,547	8.9	265	10,155	2,715	7,435
Male	14,770	12,090	81.8	11,010	1,080	8.9	120	2,680	1,070	1,605
Female	12,745	5,270	41.3	4,850	465	8.7	145	7,475	1,645	5,830

[1] Experienced Labour Force - 17,085 Total
11,965 Male
5,120 Female

[2] Includes persons looking for work, who last worked prior to January 1, 1970 or who never worked.

opportunity, due to mismatched work requirements and personal qualifications, and lack of complementary social services have effectively reduced the labour force attachment of women. A more detailed discussion of the potential for increased female participation is in Chapter 12. Table 31 indicates that the untapped potential of the North East labour force is concentrated in women. About 40 per cent of all women have work experience but are not in the labour force whereas only 12 per cent of men can be so classified. If the existence of past labour force attachment is any indicator, there could be a strong positive response by women given the opportunity to obtain employment. Assuming that 25 per cent of experienced females not now in the labour force were to begin seeking employment, then they would number about 1,000 in the core area and 1,300 in the North East as a whole.

UNEMPLOYED

Unemployment is usually defined as not having a job but actively seeking work. The most well-known data on unemployment are those collected by the Labour Force Survey of Statistics Canada. For small population subprovincial areas such data are unavailable due to the fact that they would be too unreliable. This report will therefore explore two other sets of data. One source to be used are unpublished statistics from the Unemployment Insurance Commission, the other is the numbers of registrants at Canada Manpower Centres.

At the beginning of May 1976 the core-region had 2,350 U.I.C. claimants. The Dawson Creek office of U.I.C. which

TABLE 31

North East Region Population 15 Years and Over, Distribution By Sex By Labour Force Status, 1971

	Female	Male
Total 15 Years and Over	12,745	14,770
Percent of Total		
Employed	38	75
Unemployed	4	7
Experienced Non-Labour Force, Prior 1970	27	5
Experienced Non-Labour Force, Since 1970	13	7
Remaining Non-Labour Force	19	6

covers the whole North East region had 2,727 claimants at that time. These unemployed were heavily concentrated in Dawson Creek (987), Chetwynd (224), Fort St. John (749) (all in the core-region) and in Fort Nelson (203). According to U.I.C. data, the number of claimants increased from 2,405 to 2,727 between March and May 1976. The majority of these were in the clerical, sales and service occupations (28.1 per cent) and in construction (23.6 per cent). Of all claimants 14.6 per cent have no clearly defined occupation.

The second source of data on unemployment is Canada Manpower (Canada Department of Manpower and Immigration). Two related factors, seasonality and coverage, make the CMC data not directly comparable with the U.I.C. data. Of particular relevance in this context is the fact that unionized construction workers do not have to register with CMC because their union hiring hall takes care of all construction trades placements.

The Dawson Creek CMC office had 1,459 registrants without employment at the end of February 1976 (1,617 in July 1975), see Table 32. Eighty-five per cent of the women were in the clerical, sales and service occupations and 35 per cent of the men were classified as construction workers. Mining and processing accounted for 9.1 per cent of the men, while forestry and logging accounted for 5.6 per cent.

The larger North Central CMC region, covering virtually the whole Northern part of the Province (Williams Lake is included) had almost 21,000 unemployed registrants (12,200 males) again with heavy concentrations in the sales, service and clerical occupations (6,359 or 73.2 per cent of the females and 1,242 or 10.2 per cent of the males) and forestry,

TABLE 32

CMC Registrants Without Employment by Sex and Occupation
For Two Selected Months Dawson Creek Area*

Two Digit Occupation	February 1976 Male	February 1976 Female	July 1975 Male	July 1975 Female
11 Managerial	8	-	6	6
21 Natural Sciences	22	3	6	2
23 Social Sciences	2	2	1	6
25 Religion	-	-	-	-
27 Teaching	-	9	2	7
31 Medicine	6	19	5	13
33 Artistic, Literary	-	-	2	4
37 Sports & Recreation	19	-	12	-
41 Clerical	30	171	26	126
51 Sales	35	49	36	33
61 Service	44	162	43	110
71 Farming	28	1	14	1
73 Fishing	-	-	-	-
75 Forestry	57	1	112	1
77 Mining	20	1	15	-
81/82 Processing	72	9	75	8
83 Machining	33	-	31	-
85 Product Fabricating	49	1	39	-
87 Construction	352	1	331	7
91 Transport Equipment	88	5	78	7
93 Material Handling	15	1	19	-
95 Other Crafts	6	-	7	-
99 Occupations N.E.C.	114	5	79	-
100 Students	11	8	178	169
TOTAL	1011	448	1117	500
CMC North Central Region Total	12196	8692	12633	7284

* Region includes Dawson Creek, Chetwynd, Census Subdivision B, Indian Reserves/Special Areas 407, 517-419, 463-466 and Electoral District 915. Census population 1971 for this area was 21,265.

processing and construction (8.7, 11.4, and 34.6 per cent of the males, respectively.)

From available information it appears that with a provincial unemployment rate (S.A.) of 9 per cent and in the absence of major industrial developments locally there were above 2,000 experienced workers unemployed and available for work, approximately 75 per cent of them were in the vicinities of Dawson Creek, Chetwynd and Fort St. John. It is estimated that of this number of unemployed approximately one quarter held occupations in the construction industry while approximately 30 per cent could be grouped in the categories of clerical, sales and service occupations. The remainder are mainly in industrial occupations (70 per cent), unspecified occupations (15 per cent), forestry and logging (4 per cent) and 6 per cent in predominantly professional white collar occupations. In recent years for the Province overall it is estimated that about 70 per cent of those unemployed were unemployed for less than four months; this would indicate that about 600 unemployed persons in the North East would maintain their unemployed status for over four months.

REGIONALLY UNDEREMPLOYED

Underemployment is an economic concept indicating to what extent a person is working less than the full employment level of work. Potentially underemployed people in the core region or in the larger Regional District might be found in agriculture, forestry, services and other industries among part-time and

seasonal workers. The major question of practical importance in assessing the underemployed as a source of manpower is to what extent these people are underemployed by choice. If they would prefer additional employment, then the reasons they have been unable to obtain it must be discovered. For some, higher earnings and/or full-time employment will be a sufficient direct incentive to change jobs. For most of them there will be major constraints such as moving, changing life style or subjective barriers related to the image they have of coal mining.

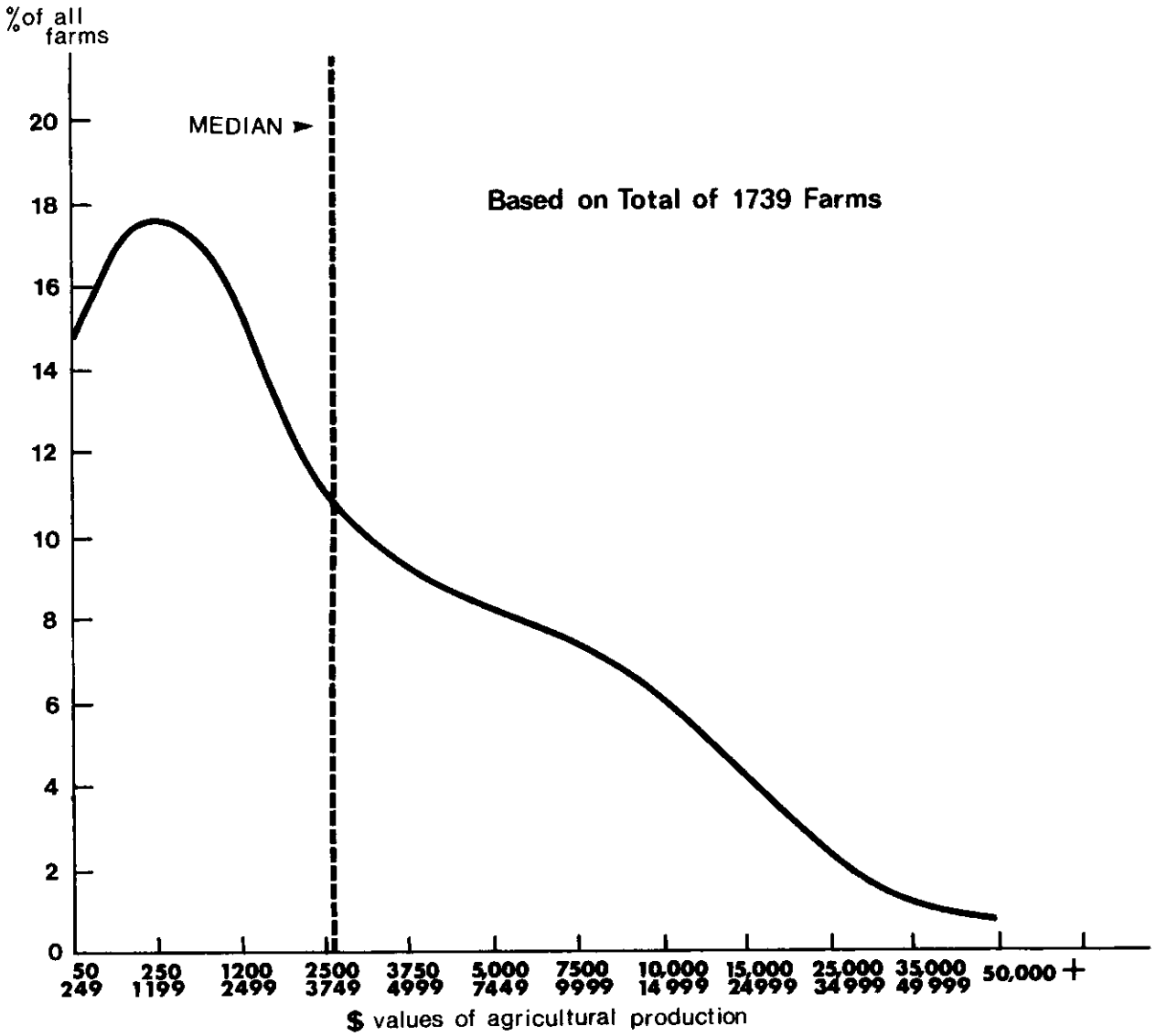
The question of underemployment in some sectors may be more easily understood through a discussion of farm operators in the North East. It can be argued that a significant number of farm operators do not earn an adequate living from agriculture and as a result these people seek other work to supplement their incomes. Unfortunately there is a scarcity of data from which an examination of underemployment in other North East industries can be made.

Underemployment in North East Agriculture

As economic ventures, it is apparent that many farms are marginal. Approximately half the farms in the region reported total revenue from the sale of agricultural products at less than $2,500 in 1970. The accompanying chart indicates the proportions of all farms reporting values of sales at different dollar levels. There is a concentration of farm units at the lower range of income from product sales. Other evidence of the marginal economic viability of many farms is the observed incidence of extended (6 months or more) off-farm work in the

CHART 5

FREQUENCY DISTRIBUTION OF FARMS BY VALUE OF PRODUCT SALES, PEACE RIVER-LIARD, 1970



North East. During 1970, 567 out of 1,745 farm operators reported off-farm work in excess of six months duration (Statistics Canada, Catalogue #96-711, Table 46).

The implication of prevalent, extended off-farm work is that many persons in the agricultural labour force may be available for coal mine and associated employment. The availability of these people could be subject to their prior commitment to farm work, that is they might be prepared to be part-year (agricultural off-season) coal mine employees. Those firmly attached to the agricultural labour force could be a seasonally reliable source of mine labour. Unfortunately there is insufficient information to permit an estimation of the magnitude of potential inter-industry labour flows. Note that it is likely that farm workers who now seek work in other industries on a seasonal basis will have a choice of employment between existing openings and those created by coal developments; in such a competitive situation existing economic activities which rely on seasonal labour may experience greater difficulty and higher costs in satisfying their requirements for workers.

Of 1,745 Census farms in 1971, 895 were located in Subdivision B of the Peace River-Liard Census Division, this is the core area potentially most affected by North East coal developments.

HIGH SCHOOL STUDENTS

Most of the probmems facing high school students, at least as far as their integration into the labour force is

concerned, centre around their lack of "proper" experience and skills. Because of this, many end up as unemployed, underemployed or not in the labour force. This group is not only of concern as a potential source of labour but also because appropriate policies will encourage their involvement in the mainstream of society in cases where they would otherwise drop out, possibly limiting their own future opportunities.

The South Peace River School District, which is roughly equivalent to the region has approximately 475 students in grade 10. This number decreases rapidly towards graduation with only 200 actually graduating. In each of the past five years about 500 persons have left school in the core area. The incidence of unemployment in this age group is high irrespective of graduation. If 25 per cent of the potential core area dropouts and 10 per cent of the graduates could be channeled into mining occupations, the result would be a supply of nearly 150 employees per year. Provided that regional training were available this group would not have to leave the region and could make a significant contribution to the creation of a locally based and stable labour force.

MINE OPERATIONS WORKERS FROM THE MINE CONSTRUCTION WORK FORCE

Commonly some workers for new industrial developments are recruited from among those employed to construct and install plant facilities. The extent of such carry-over employment depends on the similarity between construction and the work involved in operations. For the mining industry, particularly open pit mines, there is a high degree of similarity to construction;

in fact, the construction sector is generally considered to be one of the major competitors for mine manpower.[1]

Discussions with people familiar with mine development indicate that about 25 per cent of a surface mine's labour force can be expected to come from the construction phase. Of the people employed in this phase about 50 per cent have skills which are appropriate to the actual mining operation, and of this number it is estimated that one half would remain. Included in this carry-over group are the following:

truck drivers
dozer operators
grader operators
labourers
supervisory personnel

No data were available on the actual numbers in each job activity that could be expected to carry-over.

It has also been suggested that the 25 per cent carry-over could be greater if the same contractor was engaged in the development and operating phases of the mine. The reasons for this were the presence of company loyalty and the likelihood that the development labour force would have become "acclimatized" to the mine site.

As much of the labour turnover at a new mine takes place within the first three months of employment, the people from the carry-over group may be a fairly stable workforce by the time production is scheduled.

Obviously, the larger the "core" group and the more secure it feels, i.e., continuously employed by same firms for a period of two to three years, then the lesser will be the turnover rate. It is

therefore concluded that stability of the mine labour force can be enhanced by retaining the same contracting firm for mine development and the actual mine operations; and by actively encouraging members of the development labour force to remain for the operations phase.

Construction carry-over effects may also be enhanced by a large participation of regional residents in that first phase of mine development. Little attention has been devoted in this report to construction employment but an examination of the access to construction jobs which will be afforded regional residents would be advisable in view of these findings on carry-over workers. The observation has been made that craft unions generally have fairly restrictive hiring-hall procedures, aimed at securing employment for their most senior members. Some of these hiring-halls have large geographical areas under one jurisdiction and this may mean reduced construction employment for local labour. Such constraints are generally much less for lower skilled groups.

MIGRANTS TO THE NORTH EAST FROM WITHIN BRITISH COLUMBIA AND CANADA AS A SOURCE OF REGIONAL LABOUR SUPPLY

Migrants represent a potential source of manpower and population to the North East Region. The implications of this analysis for North East manpower policies are presented on page 122 It is estimated that annual migration of working age persons to and from the region equals about 10 per cent of its population. These flows of people are a normal economic phenomenon having a bearing on community and work force size and stability.

Migrants can bring skills to or be trained within the region, thus they constitute a labour pool from which workers can be recruited and trained. Migrants should be viewed as a population sub-group from which a portion of the labour force required for economic developments may be secured and retained.

Migration as a Labour Market Phenomenon

Migration is the movement of people within a country when such movement involves a change in permanent residence. People migrate for reasons which are economic (e.g. to seek employment, education, broader experience, career advancement, high income, etc.) and non-economic (e.g. to live in a preferred climate, to be near friends and relatives, to have access to desired amenities such as parks, night life and other cultural activities, etc.). Available information on why people have migrated bears heavily on the economic factors involved; little is known about the strength of personal preferences, with regard to non-economic factors, in determining what people will do when confronted with opportunities which to be realized would require them to migrate.

Migration plays an important role in the economy. Efficient allocation of resources requires that labour, as a factor of production, seek out the economic opportunities which offer the maximum net return to labour. Migration frequently involves not only a change of region of employment, but also a change of occupation and/or industry of employment. Labour mobility can be viewed as one mechanism which contributes to an efficient allocation of the limited manpower resource among

the competing demands of the economy. A smooth working labour market can be expected to move workers between industries, occupations and regions in an efficient manner by providing the appropriate incentives to migrate.

Definition of Migration

Migration is measured in absolute numbers of people moving between two areas. For statistical purposes, the Canadian census defines migrants as those persons who move from one municipal area to another. Gross migration records the actual movement of people in each direction. Net migration is, as the name implies, the net of all gross flows of people and it indicates the change in an area's population due to migration.

Return migration occurs when people, having moved from region A to region B in one year, return to their initial region of residence, region A. There is evidence that 20 per cent of the people who migrated to British Columbia in 1966-67 returned in the following year to the province from which they had moved.[2]

The time period of analysis for migration, 5 years for census data, can affect estimates of population mobility. The longer the time period of analysis the less will multiple movers be picked-up by the data and consequently the observed mobility rates will be below actual mobility rates. In view of the very significant magnitudes of year to year return migration flows, it is apparent that migration measured over a 5 year period necessarily obscures the considerable movement within the period of people who are recorded as residing in

the same municipal area in the two reference years.

Analysis of Migration and Migrant Characteristics

This report focuses mainly on gross migration flows as these have a direct bearing on community stability and turnover rates of the employed. Gross migration may affect the returns obtained from public supported training investments if migrants move out of the jurisdiction which financed the training (say the Province).

Net migration is of interest since it represents the change in the size of the population and hence the potential labour supply available for training and/or employment; net migration (either positive or negative) has implications for community size and may lead to changes in the demographic characteristics of the regional population. It should be noted that net migration can be very small or even zero in the presence of large gross migration flows, all that is required for zero net migration is a balance of gross flows, regardless of their magnitude.

The findings of the working paper on migration undertaken in the course of the deliberations of the Manpower Sub-Committee are summarized in point form below.

1. Migration assists the allocation of labour among the competing needs of all industries within the economy.
2. Most migrants move for job related reasons.
3. Employment opportunities and competitive incomes encourage in-migration more than high unemployment rates discourage it.

4. Information, or the lack thereof, is an important factor in the selection of a migration destination.
5. In 1971 there were 6,395 persons aged 15 years and over living in the North East region who lived elsewhere in 1966; 7,970 persons who resided there in 1966 were living outside the North East in 1971. An additional 1,755 persons 15 years and older moved within the region.
6. A rough calculation, taking account of the estimated 20 per cent annual return migration rate in British Columbia, shows that annually about 2,400 working age persons may migrate into the region, taking up residence there.
7. Migrants are not a cross-section of the population. They tend to be:
    - younger, twice as many are aged 20-24 as in the general population,
    - more highly educated,
    - married,
    - more strongly attached to the labour force.
8. Table [33] below illustrates the make-up of the migrant population as it appears from a variety of sources. Data has been employed which will reflect the particular qualities of migrants in the North East wherever this has been possible.

Implications of Findings

1. Migrants are potential residents of the region just as residents may migrate. They offer a significant local

TABLE 33

Anticipated Composition and Characteristics of Migrants in the North East Region Under "Normal" Conditions[1]

Out of every 100 migrants, each category would contain the number of people shown. Where sex is not indicated it is because approximately half of the category would be female and half male.

Migrant Characteristics	Expected Number of Persons Per Hundred Migrants	Population From Which Data Obtained
Personal Characteristics		
Age 0-4 years	10	1976 B.C. Medicat Migration Statistics[2]
Age 5-14 years	26	Census, C.D.[3]
Working age, 15 years and over, male	35	
female	29	
Age 15-29 years	31	Census, B.C.
Sex, male	53	Census, C.D.
female	47	
Age 15-19, Attending School Full-Time	5	Census, B.C.
Labour Force Status		
Male, in labour force	30	Census, C.D.
Female, in labour force	13	Census, C.D.
Male, unemployed prior to move	1	Labour Force Survey, Canada[4]
Male, employed prior to move	28	Labour Force Survey, Canada
Reasons for Migrating		
Male, move to take a job	11	Labour Force Survey, Canada
Male, move due to job transfer	6	Labour Force Survey, Canada

TABLE 33 - Continued

Migrant Characteristics	Expected Number of Persons Per Hundred Migrants	Population From Which Data Obtained
Male, move due to look for a job	5	Labour Force Survey, Canada
Marital Status		
Male, married, aged 17-34 years	13	Labour Force Survey, Canada
Not married (includes single, widowed and divorced, male	14	Labour Force Survey,
female	9	Canada
Household head, male	21	Labour Force Survey,
female	3	Canada
Education[5]		
Less than grade 9, no other training, male	6	Census, B.C.
female	4	
Grade 9-13, no other training	25	Census, B.C.
with vocational or post-secondary training	12	
Grade 12-13	20	Census, B.C. Labour Force
Origin		
From N.E. region, male	12	Census, C.D.
female		
From elsewhere in B.C., male	19	Census, C.D.
female	17	
From Alberta, male	13	Census, C.D.
female	11	
From Canada excluding B.C., male	24	Census, C.D.
female	19	

FOOTNOTES TO TABLE 33:

1. The breakdown of an "average" 100 migrants is intended to illustrate what migrants would be like if the information gathered from these several sources is applicable to migrants in the North East region. Census data (1971) for the North East and British Columbia have been supplemented with material from a survey of the Canadian labour force (1965); the definition of migration is different in each case, in the former source a five-year interval is used, whereas a one year interval is used in the latter. This picture of the migrant population will change with economic conditions, if 1971 and 1965 could be taken as "normal" years in the North East then this table depicits the migrant population in the absence of unusual economic growth.

2. Unpublished Administrative Statistics of the British Columbia Medical Services Plan.

3. C.D. means Census Division of the 1971 Canada Census.

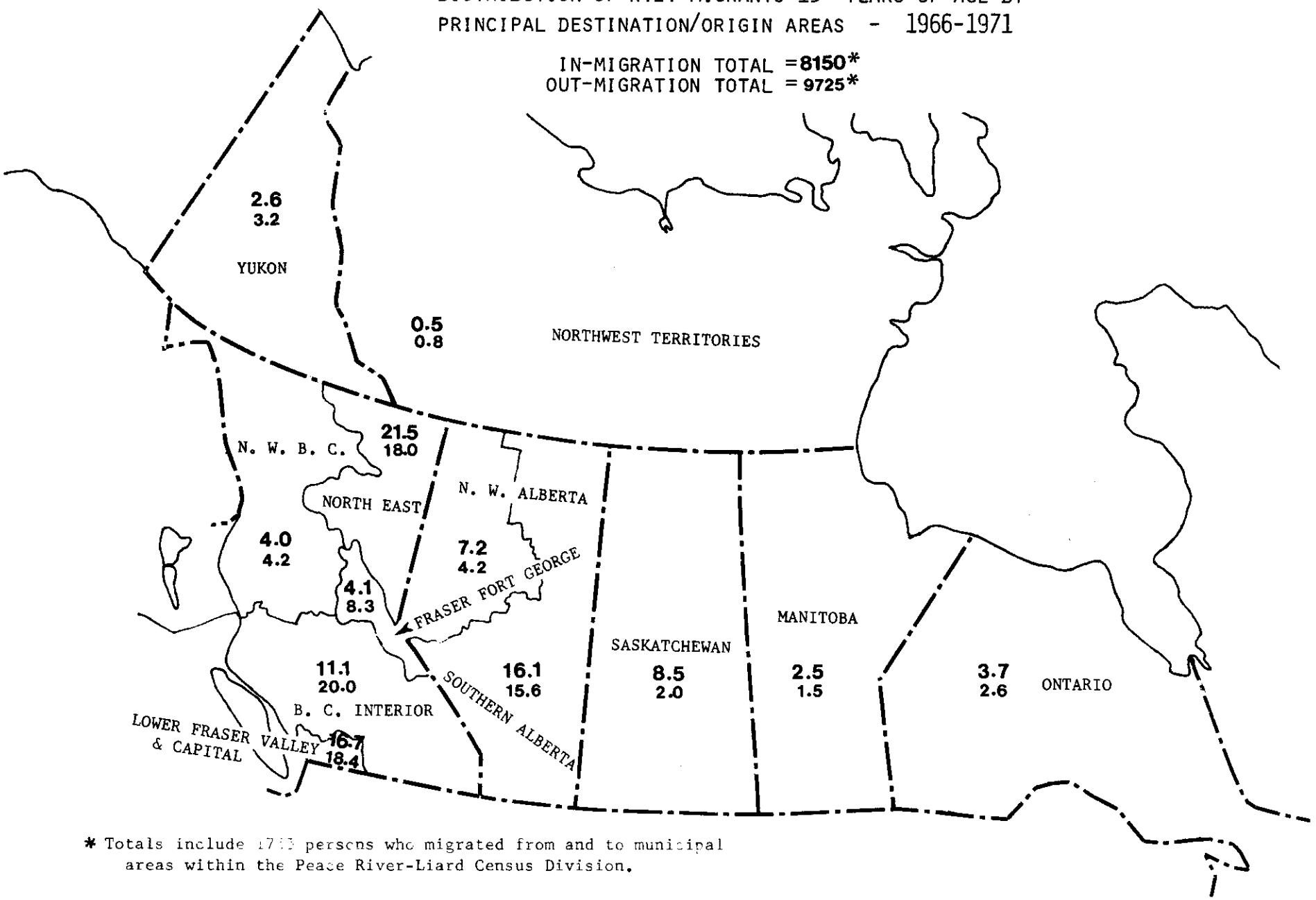
4. Nickson, M. "Georgraphic Mobility in Canda, October 1964 - October 1965". Special Labour Force Study No. 4, Statistics Canada Cat. 71-508, April 1967.

5. Education of persons not attending school full-time.

CHART 6

DISTRIBUTION OF N.E. MIGRANTS 15+ YEARS OF AGE BY PRINCIPAL DESTINATION/ORIGIN AREAS - 1966-1971

IN-MIGRATION TOTAL =**8150***
OUT-MIGRATION TOTAL = **9725***



* Totals include 1713 persons who migrated from and to municipal areas within the Peace River-Liard Census Division.

source of skilled and/or trainable labour available for employment. Social policies should, as far as possible, not inhibit migration but attempt to direct and accomodate the voluntary flow of persons which now exists and is likely to swell should North East coal developments proceed.

2. Migrants are very nearly equally divided among females and males. These people constitute a sizeable pool from which to draw existing and potential regional residents and females into permanent employment in the North East. With adequate time for local training there is little doubt that regional residents and migrants together could provide necessary manpower for proposed developments to proceed.

3. If significant numbers of jobs, at competitive wages, are made available locally, then many of the local applicants will be newly arrived in-migrants (4/5 from outside the North East, see Chart 6). A well developed program for establishing initial contact with and deploying these persons to jobs and training programs will be a necessity if this flow of migrants is to be efficiently tapped. For migrants whose job searches are not greeted positively and actively there will seem to be little reason to remain in the area and they may move on without much delay. The immediate needs of recent migrants should not be overlooked, some form of room and board may be a desirable support service which could slow the

attrition of potential employees/trainees while their qualifications were being assessed.

4. Information about the opportunities for employment and settlement in smaller areas is often lacking. A simple PR leaflet directed at potential migrants, say in British Columbia and Alberta, which together provided 80 per cent of the region's in-migrants betweel 1966 and 1971, would give them greater confidence about relocating in the North East in comparison with larger centers which they know more about through everyday media. The fact that the origins of earlier migrants are likely to be the origins of further migrants, due to personel communications and ties which give security of knowing someone at the new location, should make a modest PR campaign sufficient.

5. In view of the significant numbers of migrants which can be expected to accompany a major development (both new arrivals and the retention of those who might otherwise have left the region), an energetic local program of training and hiring will be necessary if migrants including female migrants are to become permanent employees in any development. Similarly, such local hiring/training programs will help promote the carry-over employment of workers from the construction phase in project operations.

It is estimated that in Canada 15 per cent of boys leaving school and entering the labour force migrate

within a year, therefore local hiring and training of school leavers would give these people an opportunity to remain in what for many of them may be a preferred region of residence.

Local hiring and training could encourage greater work force and population stability because people voluntarily presenting themselves in the region will have demonstrated a willingness to live and work there.

6. Migrants have characteristics which should be conducive to their full involvement as employees and trainees in North East development. Migrants are frequently married, are young and have above average educations; most migrants in the labour force are experienced workers. Migrants appear to have characteristics which are often associated with a stable community and work force.

The mobility of migrants itself will benefit the North East by bringing much needed skills and residents to the region. Maximum benefit will be gained through the quick identification of and communication with migrants in order to make them aware of employment/ training opportunities; in this way the reverse flow of disappointed migrants from the region will be kept at a minimum. It should be remembered that those migrants who are the most attractive prospective employees/trainees in the North East are probably the most likely to have alternative opportunities elsewhere, thus they may not remain long in the region

if they are not contacted and reassured about local opportunities.

FOOTNOTES:

1. Department of Manpower and Immigration, Recent Manpower Research in the Mining Industry: An Overview, 1975.
2. J. Vanderkamp, "Return Migration: Its Significance and Behaviour", Western Economic Journal, December 1972, p. 463.

CHAPTER 12

POTENTIAL FOR EMPLOYMENT OF WOMEN

The review of possible sources of labour in the North East, Chapter 11, indicated that a large number of women residents, many of whom have at one time been, but are not currently in the labour force, are available in the region as potential workers. The analysis of migrants also revealled that large numbers of women are included in the annual flows of people to and from the North East.

It will be recalled that the numbers involved are large enough to warrant serious consideration of women as a principal source of labour in any North East developments. In 1971, it is estimated that approximately 5,000 women residents not in the labour force had worked in the past. Among the migrants entering the North East annually there are estimated to be about 600 females of working age, not in school who might be interested in obtaining work.

For the work capability of the female population to realize its maximum potential various initiatives must be taken jointly by government and employers. The ability of women, appropriately skilled, to participate fully in the mining work force must be acknowledged, social services which are complementary to female labour force participation must be available and training programs must be developed which will provide women with appropriate qualifications for entry to mine employment.

As these concepts evoke a rather different presence of women in the industrial work force than prevails at present, the Manpower Sub-Committee undertook studies to contribute objective and substantial insights for the formulation of sound government policies regarding the employment of women in North East development.

Two consultant studies were solicited. One is an examination of women employed in jobs in the mining industry not traditionally held by females; its purpose was to provide information and recommendations as to the ways and means of securing and retaining an initially stable and steadily expanding female labour force for North East coal development. The other study is an examination of the appropriate structure and level of child care services for a possible new town and other selected communities in the coal development area.

THE WOMEN IN MINING STUDY

The complete study is appended to this report. The discussion here will briefly describe the study, its findings and only those recommendations which the Sub-Committee views as warranting attention at this stage. (See page 157).

In order to provide information about the personal, work and community characteristics associated with women holding non-traditional jobs in the mining industry, the following areas of enquiry were investigated:

1. The specific personal and work characteristics of women who work in non-traditional mining positions.
2. The social service infrastructure of mining communities

and the perceptions of these women regarding the community.

3. The types of companies which employ women in non-traditional positions and the managements' comments on associated costs and benefits.
4. The views and roles of union representatives and male co-workers with regard to non-traditional women workers.
5. The characteristics of women who leave non-traditional positions and their reasons for doing so.
6. The views of women presently working at home or in clerical and office positions with mining companies with regard to employment in non-traditional employment.
7. The position of companies which do not at present have women in non-traditional positions.

For the purposes of the study, non-traditional includes all non-office and non-administration personnel at a given mine. Traditional staff includes clerical workers, secretaries, accountants and personnel or management staff. Most of the non-traditional workers are on hourly wages and are unionized by a non-office union. They work in the surface or underground area of the mine, in unskilled or semi-skilled positions, in the preparation plant, mill or warehouse. In essence, non-traditional positions are those in mining outside the office which have been traditionally held by men.

The study encountered some problems in obtaining information on women in non-traditional mining jobs. There were virtually no female underground workers to interview;

there were few women outside of unskilled positions among non-traditional workers and none had held apprenticeship positions. Hypotheses about different labour turnover rates for males and females could not be tested as no company sampled maintained sex specific turnover or absentee statistics. No women who applied for but were not hired to work in non-traditional positions are included, so no assessment of the problems they may have encountered has been possible. Fewer interviews were conducted than had been initially hoped for as a labour dispute prevented interviews with people at one mine employing the largest number of women in non-traditional positions in coal mining in British Columbia.

Study findings and recommendations are based on the results of an interview program conducted during the summer of 1976. Interviews were held with seven different categories of people: women in non-traditional mining positions, women previously working in non-traditional positions, women in clerical positions, male co-workers and union, company and community representatives. A total of seventy-six interviews were completed in five communities.

Of 23 major coal and metal mines registered in British Columbia in 1974, only twelve include women in non-traditional positions. Of this number, only one coal company and four metal companies have more than ten women working in non-traditional jobs in their operations, see Table 34.

TABLE 34

Number of Women in Non-Traditional Positions in 23 Major Mining Companies in British Columbia (1976)

	Coal	Metal	Total
Companies with no women in non-traditional positions	4	7	11
Less than five women	-	6	6
Five to ten	-	1	1
More than ten	1	4	5
TOTAL	5	18	23

SOURCE: Telephone survey, Suzanne Veit and Associates Inc., July 1976

The companies selected for the study were chosen primarily because they have at least ten women employed in non-traditional positions.

In addition, one coal company was selected because it hires no women at all in non-traditional positions. All but one mine (located in Western Canada but outside of British Columbia) are in British Columbia and they include coal and metal mining as well as surface and underground operations.

Eight company management officials were separately interviewed for this study. They consisted of four personnel directors, three mine managers and one work supervisor. Several foremen were also interviewed but under the male co-worker category.

The companies varied in workforce size from just over 300 employees (hourly and staff) to almost 800. Hourly staff made up about 2/3 of this total. It is interesting to note that in no case did women make up more than 8 per cent of the total hourly staff, see Table 35.

TABLE 35

Number of Women in Non-Traditional Positions

Company	A (coal)	B (M)	C (M)	D (M)	E (M)**
Non-Traditional					
Hourly Male	487	418	235	612	1,485
Hourly Female	8(3)*	36(11)*	16(8)*	17(13)*	nil
Hourly Staff Total	495	454	251	629	1,485
Women as per cent of Total Hourly Staff	1.62%	7.93%	6.37%	2.70%	nil
Total Staff (includes Hourly Staff & Administrators)	689	615	333	778	1,485

* Number interviewed for this study

**For comparative purposes the company with no non-traditional women workers is also included.

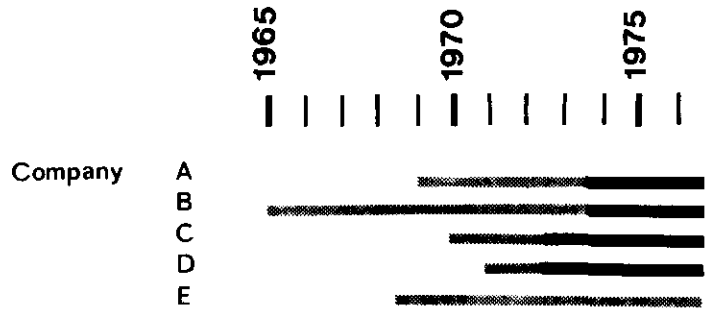
Mining Companies' Experiences with Women Working in Non-Traditional Positions

Most mining companies in British Columbia do not hire women in non-traditional positions. Among the minority of companies that do hire women, most have stated that they do so in order to take advantage of a readily available stable labour pool. Only one company specifically stated that its

primary reason for hiring women in non-traditional positions was to become an "equal employer". All the women were initially hired at the same time either 1973 or 1974. This did not vary even in mines with longer production histories, see Table 36.

TABLE 36

Women's Entry Into Non-Traditional Positions



Women employed in non-traditional positions

Years of production

Companies may be motivated to hire women because other sources of labour are closed off to them. One company stated that because it needs a stable source of labour and because provincial government policy discourages hiring from abroad, it has become oriented towards exploring the potential of women as a source of labour. This orientation is in contrast to the company which hires no women in non-traditional positions. Located in another province it is still hiring some minworkers from Great Britain.[1]

A. Special Induction Procedures for Women Workers

In only one mine was a special hiring procedure developed for the first non-traditional women workers. At this mine an "interest" survey among women in the community was conducted by the local Canada Manpower Office. Sixty-two women expressed interest, and from this group 13 women were hired to work on the surface (primarly in the preparation plant) or underground. The women interested in underground mining were given an orientation tour underground which served two purposes: To allow self selection to occur and to give staff a chance to see how the women reacted. At this mine the company funded an extra Manpower worker to assist with the initial screening.

At all other companies no special recruiting or screening procedure have been developed for the new non-traditional workers although one company said the women are "told of the difficulties of the job" at the initial hiring interview.

B. Women in the Work Force Hierarchy

Women seem to be concentrated in certain specific positions. For example, truck drivers, dump supervisors and lab workers comprise nearly half the total number of positions held by women. It also appears that while the presence and hiring of women has enjoyed acceptance with some companies, the prospect of underground women workers has not been as well received.

Just as women are over-represented in certain of the more unskilled, tedious positions (at one mine, five out

of 16 women are employed as dump supervisors), they are notably absent from certain skilled jobs particularly in the trades. For example, in the study sample there are no maintenance workers, dozer or grader operators, welders, or millwrights and few women working as heavy equipment operators, blasters or drillers.

The extremely low participation of women in trade apprenticeship courses related to mining is one of the more serious obstacles to the advancement of women in the mining workforce hierarchy.

Langan (1976) notes that there are no women apprentices among industrial electricians, machinists or millwrights. In 1975 there were 497 female apprentices out of a total of 12,334 in British Columbia but 80 per cent of these worked as barbers or hairdressers.

C. Growth Rate of Non-Traditional Workers

One of the most significant study findings is that only one company in the sample has maintained the same number of women as it started with in its first year of hiring women in non-traditional positions. Two of the companies have today only half the number of women they had one or two years ago. The other has slightly few women than it did at its peak. Companies seem to have experienced a major growth in the number of non-traditional female workers during the 1973-1975 period. After a growth "peak" this number has declined or, in one case, remained stable.

Several explanations for this trend have been postulated but none is conclusive. In one of the companies

there has been an 18 per cent decline in the total hourly workforce since 1974. Yet this company has half the non-traditional workers it had at one time. Where there are layoffs, however, women are likely to be laid off in disproportionate numbers because they are unskilled workers with little seniority. At all the other companies there has been an increase in the hourly workforce (from 28-50 per cent) yet at only one has the number of female non-traditional workers been maintained.

One company suggested that after an initial burst of enthusiasm women have ceased applying for mining positions. However, this same company had, at the time of the interview, 50-60 applications from women on file.

A more likely explanation is that women who leave their positions are simply being replaced by men. This appears to indicate a natural reversal to old hiring patterns in the absence of strong managment directives to recruit and hire women as a priority company policy. At one mine which has significantly fewer women now than it did a year ago, the mine manager was unaware of the trend. He had assumed that women were being hired and that no special effort would be needed to maintain this orientation.

D. Attitudes and Perceptions of Mine Management

Company representatives stress two basic problems they experience in hiring women. The first is that few women are eligible for the better-paying jobs as they have no previously acquired mining skills. They are therefore over represented in most unskilled positions. The second problem from the company's point of view, is that most women's previous

background and work experience appear to be unrelated to the work situation in mining. As one personnel officer put it:

> ... If an unskilled man and an unskilled women came through the door looking for a labouring job, the women already has two counts against her: usually her past conditioning hasn't prepared her for a physical job and she has probably had no contact with machinery.

At two of the companies the trend is to hire married, not single women because the latter are seen to be as unstable as single, male workers. Most preferred are women with husbands working at the mine because such couples are more "stable". They are less likely to jeopardize their high family income by quitting their jobs or going on strike.

Other problems mentioned by company representatives relate more overtly to the traditional sex-segration of occupations and appear to reflect personal biases against women in certain positions on the basis of their sex. For example, four personnel officers stated that hiring women in non-traditional occupations tends to stimulate sexual gossip and scandal among the workers and in the community. On the basis of a few isolated incidents and in order to minimize potential "unpleasantness", women are sometimes excluded from certain remote location jobs with men or from positions where incidents have been rumoured to occur. The sexist attitudes of certain supervisors and other co-workers (such as older miners) are also cited as problems in introducing women to non-traditional positions.

Other problems associated with the hiring of women in non-traditional jobs are also cited by company representatives as insufficient physical strength for certain occupations, the lack of community child care resources, and the additional cost to the company of providing extra training facilities.

One interesting phenomenon that appears to be present in all companies is an informal "resistance level" that determines to some extent the percentage of women in the mine work force. One personnel manager stated that the level of tension among workers and particularly among supervisory personnel is manageable as long as only a limited number of women are hired. In this case, 40 women out of a total hourly labour force of 454 (8.8 per cent) was considered to be the limit beyond which there would be many new problems and staff resistance, especially at the lower management levels.

The main benefits of hiring women are the savings in accommodation costs for the company (this applies only to husband-wife teams) and the perceived lessening in turn-over and absenteeism rates. It was also mentioned that women improve the general "tone" of the operation and that they are more safety conscious and prompt in having their equipment maintained and kept in good order.

Company officials were asked to describe the women who would be most effective in non-traditional positions. The following characteristics were identified: Experience in remote communities, farming background, experience with shift work, and being married to a man who works at the mine. In

summary, companies would prefer to hire older married women with mine worker husbands.

Women Working in Non-Traditional Positions: Personal Characteristics

A. Age and Marital Status

Slightly more than half the women in the sample are under 25 years, a trend which parallels the growth since 1956 of the proportion of men miners 24 years and younger. There are no women over 55. About half the women are married and of those who are married the great majority are married to men who work at the same mine.

B. Numbers and Ages of Children

Most of the women interviewed do not have children. Of the 15 (42.9 per cent) who do, almost half had three children or more and 12 have children in the under 16 age bracket. Five women have children under six years. It would appear that despite the unavailability of child care services in most resource communities a minority of women with pre-school age children will want or have to seek employment in mining.

C. Educational Level

More than half the sample have completed Grade 12 or have attended some university. Two women had taken courses at the Rossland Mining School.

D. Physical Size

No physical "type" is clearly apparent in the sample. The majority of women describe themselves as "medium" in height

(5'4" to 5'6") and weight, and almost one-third consider themselves small in stature (5'2"). Two of the smallest women (around 5'1") drive trucks of over 100 tons.

E. Husbands of Non-Traditional Women Workers

The great majority of all the husbands of the women sampled work at the same mine as their wives, mainly in hourly positions. Most of them earn more than $12,000 per annum and most are in the 26 - 35 age bracket with only a small number over 46.

The majority of the husbands feel positive about their wives working in mining. They consider the extra money to be the major benefit. The men who feel negative about their wives working have young children and feel their primary role should be in the home. However, in both bases the extra money was needed to buy a house.

Women Working in Non-Traditional Positions: Work Characteristics

A. Occupational Background of Sample

A large number of women had previously been employed in clerical and service jobs, see Table 37. It is noteworthy that most did not have previous industrial experience although they had participated in the labour force in other sectors.

B. Reasons for Working

Women in the sample were asked their reasons for working, for working in mining and for working specifically in a non-traditional as opposed to a traditional position. For the majority of women, the need for money is the single greatest motivating force for working and for working in mining.

More than half of the sample say that it was the "challenge" which motivated them to attempt a non-traditional position.

TABLE 37

Occupational Background of Sample

Managerial, Professional	11.4%	4
Clerical, Sales	45.7	16
Service, Recreational (includes waitressing)	28.6	10
Unskilled labourer	11.4	4
Farming, Agriculture	8.6	3
Craft, Production, Industrial	8.6	3
Women with more than one type of background	20.0	7
No background prior to mining	5.7	2

C. Length of Time Mining Position Held

Since the companies sampled began hiring women in 1973 and 1974, no woman could have worked at the mine longer than five years. However, one-quarter of the sample has been employed from three to five years and the greatest percentage of the sample has been employed from one to three years.

Most of these women have had two or more positions, and twelve have had three or more since being employed at the mine. This is a typical pattern for unskilled workers who may stay in an area for a brief time before being promoted to another by a foreman, because they have mastered the job, or

because they have successfully bid into another position.

D. Wage Levels

None of the women in the sample earns under $10,000/year. The greatest percentage earns between $12,000 - $15,000, see Table 38.

When one considers the heavy concentration of females in low-paying jobs in British Columbia (Labour Research Bulletin, 1976), it is not difficult to appreciate the financial incentive expressed by most women in non-traditional mining occupations.

TABLE 38

Annual Income Levels of Non-Traditional Women Based on Hourly Wage Rate

Under $8,000		
$8,000 - $9,999		
$10,000 - $11,999	28.6%	10
$12,000 - $14,999	48.6%	17
$15,000 +	22.9%	8
	100.0%	35

E. Hiring

With very few exceptions, the women were hired locally at the mine office or the local Canada Manpower Centre. Most companies also use the services of the Manpower Centres in Edmonton and Alberta particularly for interviewing skilled workers who have to migrate to the area.

F. Training for Mining Positions

Most women were trained on-the-job for their current position in less than one month (in most cases 3 to 7 days), see Table 39.

TABLE 39

Training of Women for Mining Positions

On-the-job	85.7%	30
Technical	5.7	2
Professional (University)	5.7	2
Nil		1
Under one month	77.1	27
Over one month	22.9	8

G. Upgrading and Job Mobility

Slightly more than half the women in the sample (19 out of 35) changed positions and earned promotions since starting at the mine. They have moved from unskilled to semi-skilled occupations but none of the respondents are presently apprenticing for the better-paying, skilled jobs. Two of the women, one of whom later quit her job at the mine, had considered apprenticeship positions but both were discouraged by their supervisors. In one case, the woman was told that she should "stay home and have children". In another, the woman was advised to "think carefully before making a four-year commitment". These discouraging comments by supervisors reinforced the women's own indecision regarding the value of a four-year commitment and both eventually decided not to attempt the apprenticeship. However,

despite the lack of women bidding on apprenticeship positions, more than half did bid on other positions in the mine and almost all of these were successful.

H. Shift Work

Three-quarters of women work shifts. Of those who are married, half are on the same shift as their husbands. One company stated that it has attempted to find women with children jobs which required no shift work although it is worried about showing favouritism. Most other companies, while acknowledging that shift work is difficult for mothers, stated that women will have to make their own childcare arrangements if they want to work.

I. Required Physical Strength

Non-traditional jobs are often assumed to be primarily physical. However, most of the women in the sample say that physical strength demands are moderate to nil. At the same time a minority of women do agree that there is a preponderance of heavy labour in their jobs. This likely reflects the fact that different mining occupations require different degrees of strength. As mining is becoming more automoated there is also less dependence on hard physical labour.

J. Job Satisfaction

The majority of the sample are positive or very positive about their jobs. Information from this sample on job satisfaction may be misleading, due to the fact that extremely displeased women may have quit their positions.

Despite the high level of overall job satisfaction, slightly more than half the women are dissatisfied with their

specific position at the mine and wish to move into another job or area within the mine. Some also wish to change their job shift. Most of the women wish to change because they are bored with their present job or want to change their work crew.

K. Future Career Interests

Half the sample (8 single and 10 married) plan to continue working and they intend to stay and develop a career in mining. A small minority (4) wish to move out of the labour force entirely and become fulltime housewives and mothers. The others intend to stay in the labour force but want to move out of the mining industry.

Among the jobs most sought after by the women who plan to stay in mining are those in the assay or research lab (see Table 34). The career goals of these women match almost exactly the jobs other women hold at the same mine. At the company where there is a preponderance of female lab workers, other women chose this as their carrer goal. Only two women wish to be on the blasting crew and this is at the only mine which has female blasters. This pattern shows the importance of role models for women in the determination of their career goals.

Lab work is also considered to be "most suitable" for women by company officials and women. It is a relatively clean job, often meticulous and requires little physical labour. In other words, it reflects commonly held stereotypes about "womens' work". Interest in it may reflect the limited role women are expected to adapt to within mining operations.

L. Major Problems Women Face On The Job

Women were asked about major problems on the job in relation to themselves, the company, male co-workers, the union, their community and family. The problems most commonly mentioned are nervousness and lack of self confidence, resentment of supervisors and teasing from co-workers and sexual jealousy and gossip from workers wives (see Women in Mining study, Table 40). It is interesting to note that most of these problems are related not to the job per se, but to the fact of being a female performing in a non-traditional job.

The Question of Skill and Experience

The women interviewed for this survey exemplify the adaptability of women to non-traditional work environments. Though only about one tenth of the women had previous industrial experience over three-quarters of them were able to fill positions with less than one months training.

Among the problems experienced by most women in non-traditional positions seems to be an initial lack of self confidence. Many feel increased pressure to perform because they are among the first women employed by the company. Others have never worked with a large number of men before.

The fears of women in this position have been succinctly summaried elsewhere as follows (Van M. Evans, 1975):

> ...fear of the unknown...workers are usually very unfamiliar with the actual job content of opposite-sex jobs; fear of failure, heightened in new job surroundings; fear that the new work group, composed of opposite-sex persons, will not accept the new addition; fear that the old work group will criticize the move; and, especially in small communities, fear that the community will ostracize the worker or make life difficult in more subtle ways.

The anxiety these women feel toward their job environment could be relieved by the provision of appropriate induction techniques which would better introduce them to the work and fellow workers. Poor training of women on-the-job could exacerbate feelings of insecurity. Interviews with co-workers of women in non-traditional positions stressed that poor training was a major obstacle to the satisfactory integration of women in non-traditional positions. It was felt that poor training handicaps all inexperienced workers, not just women, and it contributes to their lack of self-confience. As one worker who has trained several women workers put it:

> ...Training is the key. Many trainers are hard on new people. Women particularly seem to need reassurance. I tell each new person I train everything about the job in complete detail. This seems to help women. Most trainers want to be quick so that the company will be able to use workers very quickly, but often people are not ready so they hurt themselves, they screw up and get fired. Some women who worked in certain positions at this mine perhaps did not do well. So very few women have been placed in these positions since. The trainers who are competent keep women on the job.

Women Living in Resource Communities as Source of Mine Labour

Results from a separate study (Langin, 1976) indicate that there is a large percentage of non-working women in one resource community who are interested in some form of employment. Almost half of this group are interested in some form of employment. Almost half of this group are interested in exploring non-traditional mining jobs and this interest is also shared by women already working in the community. The most likely

source of mining employees is among the women who are committed to fulltime employment but there is a large percentage of women, unsure of their work commitment, who might be attracted by more flexible hours of working opportunities. However, there does appear to be another group of women who are oriented to being fulltime housewives and mothers and who are not interested in working outside the home.

The interest expressed by women in this one resource community in non-traditional positions have been confirmed in other places. In one small community, women, specifically unemployed wives, were encouraged to apply for openings at the local mining company. Despite limited publicity, 69 women applied. Several community respondents noted that many women in small resource communities wish to work in order to counter their feelings of loneliness and depression, but simply can't find jobs.

Interest of Female Clerical Employees in Mines in Non-Traditional Mine Work

The number of female office staff interviewed (five) is too small to be a representative sample but the results are interesting. Two distinct sets of attitudes emerged and several women said these are shared by most of the clerical staff.

One group is not interested in non-traditional work. According to this group, extra pay is the only incentive for working outside the office. (In two out of three cases the pay incentive is not that great. Because these women are highly

trained in their field, they earn comparatively high wages for office workers.) For this group the extra pay could not compensate for the shifts, monotony, dirt, dust and low prestige of non-traditional work. All stressed that non-traditional work "has no future". These women consider themselves to be career oriented, and in two cases the company helped pay for their training.

The other attitude is typified by two clerical workers who expressed some interest in non-traditional work primarily because of higher wages. However, both said that their husbands were not enthusiastic about the change in work environment and both admitted that in the final analysis, the wage differential between their existing jobs and a non-traditional job would not be high enough to compensate for what they consider to be the less pleasant work environment of non-traditional work.

At least two of the companies in the sample have encouraged women in clerical positions to move into non-traditional positions. At one company this was done before any non-traditional employees were hired. Although no exact data is available, few women seem to have taken advantage of the offer. At one company a payroll clerk moved into the plant because she was acutely aware of the wage differentials and because a supervisor strongly encouraged her.

It seems that lower skilled office workers would be more likely to be responsive to non-traditional job opportunities, particularly if at the point of initial job interview these women were made aware of the alternative.

Principal Findings of Women in Mining Study

The major findings of the study of women in non-traditional mining positions are summarized below. It is concluded that many more women are willing and able to assume non-traditional positions in the mining industry.

In order to recruit and hire significant numbers of women, special strategies will have to be developed to eliminate the major barriers to non-traditional female employment. These are: Company employment policies; lack of appropriate skills among women; lack of child care services and attitudinal biases. Unless specific programs are developed to eliminate or minimize these barriers, the North East Coal Developments will not feature a large female work force.

The major findings are:

1. The percentage of women non-traditional workers in the total labour force of most mining operations in British Columbia is lower today than it was two years ago. Women are not an important part of the mining labour force in the province. Most companies do not have women non-traditional workers on their payroll and even where they are hired, women comprise less than 10 per cent of the total hourly work force.
2. Most women non-traditional mining workers hold positions that require a low level of training. They are conspicuous by their absence in the more skilled, better-paying trades jobs.

3. Despite certain initial difficulties on the job, most women enjoy their work and many intend to stay in the mining industry.
4. The money incentive is the single most important motivating force for women in non-traditional mining positions.
5. Child care is perceived as one of the most essential community services in resource communities.
6. Most companies do not have special procedures for promoting the hiring of women in non-traditional positions.
7. A significant number of women presently living in resource communities are interested in non-traditional positions.
8. Most mining companies that do hire women in non-traditional positions think that women have lower absenteeism and turn-over rates than men. There is, however, a lack of supporting evidence to document that claim.
9. Women and mine management representatives acknowledge that the most active resistance to women workers lies at the lower supervisory levels. However, resistance to women also exists at the hiring level and this appears to take the form of an unofficial quota.
10. Although companies are required by law to establish facilities for women workers, the cost of adding new facilities or the redistribution of old ones is a major rationale for not hiring significant numbers of women workers.

Recommendations of the Women in Mining Study

In view of the fact that women comprise a major component of the potential resident manpower supply in the North East region available to work in North East developments, and that special efforts will be required to secure and retain a stable and expanding female labour force for North East coal development, the following are some of the recommendations that have been made by the consultant to the Manpower Sub-Committee.

1. It is recommended that the provincial government enter into a development agreement with each company seeking permits applicable to coal mine development in British Columbia. In the development agreement, the company should state:
   (a) its policy commitment to the hiring of women in all phases of the mining operation;
   (b) the specific plan of action it proposes to develop in order to achieve such a policy commitment;
   (c) agreement to having such a plan of action monitored by the Provincial Government.

   Without the formulation of specific strategies to promote the recruitment and hiring of women non-traditional workers, policy commitments are not achieved. By recognizing the special situation of non-traditional workers, the coal companies can begin to resolve their particular problems, thereby easing any labour shortages, enhancing regional residents' involvement and increasing

the numbers of women in mining.

In the Development Agreement, the company plan of action related to women in mining should include such items as the special recruitment measures that will be used to attract potential local and other women employees, a definition of the process that will be followed to involve all levels of the company in the hiring and training of women miners, and the design of an internal monitoring system of the effectiveness of the action plan.

2. To assist the companies and the government in their efforts to implement the plan of action regarding women in mining as defined in a development agreement, it is recommended that the Government of British Columbia create the special position of women in mining Liaison Officer.

   The Liaison Officer could perform a number of functions such as:

   (a) acting as a resource person with industry personnel on strategies to hire women,
   (b) advising government agencies on the pre-employment training needs of women in mining,
   (c) monitoring the results of government and industry efforts to increase the female mining work force.

3. It is recommended that the appropriate provincial and federal departments of Labour and Manpower develop a special program aimed at involving women in mining

pre-apprenticeship and apprenticeship programs.

Women are conspecuous by their absence in the most skilled trades job. Companies cannot be faulted for not hiring women in these positions if they are unqualified. There are very few women presently trained or training in trades important to coal mining such as heavy duty mechanics, automotive mechanics, electricians, machinists, carpenters and instrumentation mechanics. Special measures are needed initially to attract women to these trades.

4. It is recommended that the provincial government hire a full-time child care organizer in the North East as soon as a commitment is made to develop the coal resources in the area.

Workers at all levels of the mining industry agree that child care is the community resource most needed by women workers. Most small communities have only limited babysitting services and this is often not available for women on shifts. There are many ways and means of providing child care service other than the conventional day care centre. The child care organizer could work with company and municipal officials and potential service users to develop appropriate delivery mechanisms.

5. It is recommended that the development agreement include a clause specifying that provision for washrooms and dries for women be available in all areas of the

of the mining operation and that such units be installed during the construction phase.

Difficult as it is to believe, many companies maintain that their reluctance to hiring women in mining, particularly underground, is based on the additional cost and installation difficulties of wash and dries for women. Perhaps if such facilities were installed automatically, as a matter of course during the initial construction of the mine site, subsequent difficulties could be avoided.

OTHER STUDIES OF WOMEN IN MINING

Two other studies are available which examine the potential for women workers in the mining industries. One is The Labour Shortage in Mining by O. Fisher, the other is Women in Mining: The Progress and Problems by R. Santi; both studies were produced by the Department of Energy Mines and Resources.

Fisher describes the increasing female presence in the overall labour force and the prevalence of households in which both husband and wife wish to work. Participation rates of Canadian women increased markedly in the past two decades, from 11 per cent in 1951, 22 per cent in 1961, 37 per cent in 1971 to 41 per cent in 1975. The mining industry has a relatively youthful work force. Among British Columbia married persons in the 20-24 age group, 48 per cent of the women and 94 per cent of the men were in the labour force;

for this age group about half the married couples are seeking work for both husband and wife.

The author states that while there may be many reasons for providing job openings for women in mining, such as improving the male/female ratio in mining towns, filling vacancies for which qualified men cannot be found, or anti-discrimination legislation, the most compelling is the need to attract and hold married people.

It is not economically attractive for a man to accept employment in a mine if this were to involve significant loss of income for his working wife. Thus the continuing employment of the husband of a working wife may depend on a suitable job being available for the wife.

Recent experience in the employment of women in mine and mill appears to have been favourable, though there are complications other than the rather obvious physical ones. The scheduling of shifts and holidays, for instance, is likely to become more complex. However, the compensating advantages should be considerable in that a mine that can hire a man with a spouse who works can, in fact, get two workers. Furthermore, the propensity to quit is much lower among married people than among single men. In order to attract married women into its work force, a mining company may have to provide special facilities such as day care centres or allow two women to share one shift. Such practices are relatively new to the mining industry, but have been used successfully in labour-starved European countries for many years.

Santi also observes that women are increasingly interested in mine employment and seem to be transferring to the industry from a variety of backgrounds, including from a position of not being in the labour force. Mining work is attractive to women because of higher pay and the challenge and opportunities it offers.

Several companies have reported that a great many women are being recruited locally and are wives of men already employed at the company. One company spokesman says that in terms of female applications it receives 58 per cent from married women who are simultaneously applying with their husbands or are wives of present employees, and 42 per cent from single women. The admitted preference of some companies to hire married couples may provide an inducement for a family to come to a mining community. There may also be benefits here in terms of coping with the housing shortages as the company and community would find that two employees could be accommodated "for the price of one".

Mining Companies and Women in Non-Traditional Work

Although there are indications that most mining companies which are hiring women are doing so on an experimental basis, there are no comprehensive figures showing how many women each company in Canada has employed. One survey of 33 firms in the industry in Canada and the U.S. showed that 20 of the companies employed 10 or more women in non-clerical positions.

The willingness of companies to introduce women into a broader range of work in an operation varies widely. Some companies are solidly behind the idea while others have degree of resistance to it. As an example, Claire Kuntz, chairman Industrial Relations Committee, Quebec Metal Mining Association remarks:

> Women can make ideal truck drivers, heavy equipment operators, mechanics, welders, and if the gals are strong enough there is no reason why she can't do physical labour.

Individuals in management who feel that women have the capabilities and should have the opportunity to work at these jobs seem to have integrated them into the mine work force with limited problems. However, other individuals appear to be convinced that such changes could only prove to be a massive failure.

Those who are threatened by the reshaping of female roles in society seem to have the greatest difficulty in initiating such changes in their own organization. A personnel director of one company indicated disagreement with the financial independence married women can achieve through employment. It is highly unlikely that such attitudes would be conducive to improving the access of women to non-traditional employment.

The reaction of companies who have embarked on a program of hiring women is generally positive. Most companies

seem to approach the hiring of women as an experiment and have been pleased with their work performance. Peter Cain, Vice President, Sherritt Gordon comments:

> It has been a good move. A lot of old fashioned ideas have been left behind. If this trail keeps on succeeding as it is, much larger groups of women will be recruited.

Other examples include, Similkameen Mining Co. Ltd. which says it has had excellent results in hiring females to drive 100-ton trucks and is now hiring them in a variety of other jobs.

Quebec Cartier Mining Company began integrating women into their work force in 1973 by employing 5 women as janitors and labourers. At the time of Santi's review 60 women were working as 100-ton truck drivers, drill helpers, electrician apprentices, welders, auto mechanics, filter attendants, etc.

Cominco as well as a handful of potash companies in Saskatchewan are among the few companies which have hired women as underground labourers and have been pleased with the results. McIntyre Porcupine Company of Alberta hired 6 women to work underground in jobs ranging from tibering to running shuttle cars. Few companies are allowing women into these types of jobs.

A variety of comments have been made in relation to the work habits of these women. There are some mine managers who observed improved safety levels - "with the ladies around, the men tend to be protective and abandon some of their careless habits".

Several mining operations of Noranda Mines Ltd. and Hudson Bay Mining and Smelting Co. Ltd. have indicated that women seem to treat equipment better than most male employees and have noticed fewer incidence of repair on trucks operated by them. Repreated comments have been made that "females seem to be very conscientious and appear to be concerned about their jobs and how they perform them. The lateness and absenteeism is less than with male employees." Officials of the McIntyre Porcupine Mine have noted a substantial drop in absenteeism after the women commenced working. Similar observations were revealed in a survey conducted by the Engineering and Mining Journal, September 1974.[2] Quebec Carrier Company has reported that during the period of September 18, 1973 - March 1975, 14 out of 52 female employees quit their jobs. The company indicated that this is a lower turnover than experienced with their male workers. None of the five female truck drivers hired at Mattabi Mines has quit or transferred to other jobs. On the other hand, Hudson Bay Mining Co. Ltd. feel that turnover rates are the same for both sexes.

The initial impressions presented above, indicate the varied experiences companies are having with their new labour force. In general, these experiences should encourage the further utilization of women in mining, and influence companies now reluctant to such an idea, to question their attitudes.

Some Barriers to Women Entering or Remaining in Non-Traditional Work

Women working in non-clerical mine jobs acknowledge that they experience pressure to "be that much better before you get any credibility at all." These women are aware that their chances for promotion may be reduced by co-worker attitudes and the politicking involved with job placement. Some women complain that co-workers have been protective toward them and attempt to relieve them of heavy duties which they can perform unassisted.

Tensions on-the-job resulting from entry of women into non-traditional positions could be relieved by prior discussion with prospective supervisory and hourly co-workers. For example, both Caland Ore Co. Ltd. and Quebec Cartier Mining Company conducted employee and supervisory education program as a preparation, prior to the actual arrival of women. This has allowed the men a chance to adjust to the idea and has given supervisory personnel time to prepare themselves for potential problems which may arise e.g. danger of discrimination in the settlement of conflict.

With special relevance to mining, the comment that women are unable to undertake strenuous physical work is heard repeatedly. The point here is not to debate the relative physical strength of the sexes. One should bear in mind that many jobs in modern mining do not require the muscle and brawn it once did. Modern tools of the trade such as jumbo three-headed drills, trucks and bulldozers, standing as high

as a two-storey building, are hydraulically or electrically powered and require minimal human energy to operate. For the jobs which are physically taxing, the strength of the individual is paramount, acknowledging that there are strong women and weak men. Furthermore, even if this stereotype were true of women generally, it is unfair for a company to develop a policy against hiring all women for these jobs and to not allow access to individuals who are qualified. One company which does, has clearly indicated, "We are certainly willing to consider women for those jobs that they are physically able to do. This would exclude underground work". As mentioned above a few companies have hired women for such work and have been pleased with their performance.

Of the 21 women presently employed at non-traditional jobs in a mine located near Timmins, Ontario, 20 expressed interest in working underground if legislation permitted. (In British Columbia there is no statutory restriction of females in mining work.) This is not to say that most women would be interested in work involving strenuous physical activity. It is rather safe to speculate, that not unlike experiences to date with men in mining, the number of women interested in this kind of work would be limited. Those who are, should however not be blocked from the opportunity.

Other attitudinal barriers include the notion that hiring women can be a bad investment because they have higher absenteeism/turnover rates than men. All the evidence which exists indicates the differences between sexes in the amount of

time spent away from work is infinitesimal. Research shows that some mine managers have the impression that in some cases women are less absent than men and their turnover rate is lower.

Another attitude which sometimes influences an employer not to hire a women, especially in paying more than the minimum wage, is the assumption that women have little need for money, and seek work only to acquire "extra spending money". As some unions have stated - when you give a job to a woman you are taking one away from a man who really needs one. This attitude can have an especially negative impact for women seeking work with companies not experiencing acute manpower problems or operating in an area of high unemployment such as Eastern Canada. These beliefs however have no factual basis. Forty-three per cent of working women with children under 6 have husbands earning less than $9,000 a year (1973), making a second income a matter of necessity.

Difficulties in accessing adequate child care arrangements and the costs involved, can be a major barrier for a women who needs and/or wants to work. In some cases women have to refuse overtime work because of inflexible child care arrangements. For women in industry, shiftwork may cause problems as few centres (or babysitters) offer their services to co-inclide with these hours.

Mining communities are generally at a special disadvantage, as it is especially uncommon to find day care centres in settlements which are relatively small and isolated. If such services could be made available the possibility of

women returning to work after maternity leave, and of attracting single parent families and workers with children would surely improve.

While it is generally accepted that the provision of child care facilities is the responsibility of government and not of private business, government action in this regard has not closed the gap between demand and supply equally throughout the Province and in certain needs categories. Mining companies seriously committed to operationalizing equal opportunity in their organization may wish to investigate providing day care facilities for their employees. In addition the introduction of part-time work and flexible working hours may also alleviate problems related to child care.

Awareness Among Women of Mine Work Opportunities

Many women are not clearly aware of the various job opportunities mining offers. It is not uncommon to hear "Are women really working in mining?" As one women indicated, "the mining industry as a whole, has not really publicly indicated an interest in female employees and therefore mining is not perceived as an area of possible opportunity." More companies should consider following the example set by Hudson Bay Mining Co. Ltd. This company ran a series of striking advertisements which clearly indicated their interest in hiring women, and outlined specific types of jobs available to women in their operations.

Canada Manpower Centre counsellors have commented that the number of women enrolled in skilled training programs has increased within the last two years. Are these women

aware that there is a real shortage of skilled tradespeople in the mineral industry?

In order to attract more women, and more men for that matter, they have to be made aware of the working environment improvements and changes technology has brought to the industry. This is to say, that the somewhat inaccurate negative image of mining is adversely affecting the decisions of individuals to seek work in this environment.

FOOTNOTES:

1. This company also had a much lower turn-over rate and because of this was less motivated to hire women.
2. J. Lasky. "Womanpower: A new force in the mining labour pool", Engineering and Mining Journal, February, 1975. p. 66.

CHAPTER 13

THE APPROPRIATE CHILD CARE SCHEME FOR A NEW TOWN BASED ON NORTH EAST COAL DEVELOPMENTS

In order to fully examine the potential for women to participate in non-traditional work in any mine development the Manpower Sub-Committee commissioned a study on the appropriate structure and level of day care services for the proposed new town. The study is titled Day Care Services in the Proposed New Town, With Reference to the North East Region. The child care model so developed is sufficiently general to be applied to other small communities (Chetwynd, Hudson Hope) which might be directly affected by regional coal developments. The brief summary of this study which follows assumes that female participation rates observed in the 1971 Census will apply. If the Province adopts policies aimed at maximizing employment opportunities for regional residents and minimizing labour turnover in the mine work force and if these policies achieve the results intended then female participation rates will be higher. Under such circumstances the demand for child care services in any new community with a population size of 3,000 would exceed the estimates shown below. It is clear that child care is a necessary service if the fullest possible involvement of women in coal mine employment is to be achieved. The development of any service requires close coordination with townsite planning, community services financing, regional training initiatives and employment practices of mining firms.

THE NEED FOR DAY CARE

The participation rates of women aged 15 years and over in the British Columbia labour force increased from 23.4 per cent (1951) to 40.4 per cent (1971 census), and the average participation rate for mothers with children under 16 was 37 per cent in 1975.

The presence of young children inhibits female labour force participation. In any new North East town, if higher employment rates of females are to be encouraged, then daycare services will be essential to the community.

Day care is a service necessary for healthy community life in an isolated northern town. Climate, lack of facilities and absence of family and long-term friends can reinforce isolation of women in northern communities and lead to the high incidence of emotional problems in these areas. Day care services can free the homemaker to pursue her own interests, spend time with adults, and to have time for herself.

Children need the experience of playing with other children, especially in an isolated community with a harsh climate.

A MODEL FOR DAY CARE SERVICES

The recommended system is an integrated one. All day care facilities would be incorporated in the same non-profit society, functioning under a common board, and administered by a full-time coordinator employed by the board. This society would be integrated with local, regional, and provincial children's services (including the Departments responsible for education,

health, recreation and human resources).

The proposed services would include: family day care; centre day care; in home (the child's) day care; out of school care (before and after); nursery (play) school; child minding; and babysitting. Services will vary in length of care periods, (e.g. 24 hour; full-time; part-time; and just a few hours), and the periods during the 24 hour day when service will be available.

Day care services would be of two general variants, people could choose from family day care or centre day care. The majority of children would be in licensed family day care homes. (These would be the more flexible accomodations, and are preferred by most parents in northern communities).

A major focus of the integrated system would be to provide family daycare mothers with support (e.g. training) usually only available for workers in centralized day care systems. Part-time and irregular day care services would be viewed as being of equal importance.

In the planning phase child care would be administered by a Children's Council (representatives from all regional government departments, and the mining companies in the new town). They would hire a Day Care Coordinator.

Most of the functions of the Council would be transferred to a Day Care Board organized by the Day Care Coordinator (with Council advice). This board would be the executive body of an Integrated Day Care Society.

Buildings should be planned with day care services in mind. A Day Care Resources Centre should be a priority facility

in the community, adjacent to or part of the community recreation centre, and centrally located in the community. The Day Care Centre should include: The coordinator's office; kitchen; area for full-time group day care (3 - 5 year olds - maximum class size of 25); additional area for up to 25 children per class for out-of-school care (before and after); and nursery school. The care facilities would all be located above ground, not in basements. Direct access from indoor areas to separate, fenced, outdoor play areas should be provided.

The facilities must meet standards set by the Provincial Child Care Facilities Licensing Board. It is suggested that all family dwellings built in the new town be constructed to meet requirements put forth in the Act. An additional Day Care Centre may be required as the town expands.

FUNDING DAY CARE SERVICES

Funding would be to some extent the responsibility of the whole community (e.g. residents and businesses, particularly major employers, in this case the mining companies), however, users are the main beneficiaries of day care and therefore they should contribute more to the cost than non-users. This would be done by means of user fees. Recommended guidelines with respect to user fees are as follows:

1. User fees to cover most or all operating costs.
2. If possible, the same fees would be charged for both the family and centre day care variants.

DESCRIPTION OF AN APPROPRIATE FUNDING SYSTEM

Income would come from four sources:

1. User fees - (recommended $140.00 per child per month). Indirect funding is partially available in the form of means-tested subsidies to parents of children enrolled in day care programs. Costs of this subsidy are shared by federal and provincial governments under the terms of the Canada Assistance Plan. This federal policy guideline makes federal funds available to the provinces for a variety of public assistance programs, including the costs of providing day care services to persons meeting certain qualifications (i.e. aimed to help persons who might be dependent upon welfare support if they could not work).

   The cost of child care, for persons using such services in order to gain employment income, is eligible as a deduction for income tax purposes. This will reduce the deterrent effect on employment of user charges. Where child care expenses enable a person to work the deduction is equal to the lesser of:

   (a) the total costs of services purchased;

   (b) the number of children multiplied by $500; or

   (c) two-thirds of earned income.

2. Provincial government - Under the terms of the Capital Grants Program, the provincial government will provide capital funding to a maximum of $20,000.00, on a matching basis, for the purchase or renovation of

accomodation for a group day care centre. An additional grant of up to $2,500.00 is also available for the purchase of equipment.

3. Federal government - Assistance is sometimes made available through the Central Mortgage and Housing Corporation for the capital costs of constructing day care centres when related to projects financed by C.M.H.C. For example, day care may be funded in a low rental housing complex. Capital funds may be provided as part of the cost of constructing new facilities or existing projects may be refinanced to include the costs of providing day care centres. The day care facilities may be open to the community at large, but C.M.H.C. financing may only provide funds in proportion to the number of project residents using the day care centre.

4. Municipal government contributions - These contributions should be final contributions made only when necessary to balance a budget deficit. The source of these funds should be the same as for the capital and operating costs of the local library and community recreation facilities, and other cost items that will be paid for by community residents and businesses, including the mining company. The municipal government contribution will be relatively minor compared with the items that will be paid for by users.

All financial matters for the day care system would be handled by the coordinator's office. The coordinator and an accountant would be responsible for the preparation of an annual budget for the total system.

The following is a summary of a hypothetical annual income statement for total day care operation based on the 3,000 population level; assuming a participation rate for married women of 25 per cent, or approximately 110 employed full-time, there would be 120 full-time day care children under 6 years of age and part-time day care children numbering 240 pre-school age and 260 of school age.

Day Care Costs

Operating costs - family day care homes	$ 244,800
Operating costs - centre, nursery school, etc.	84,435
System-wide operating costs	40,240
Capital costs	34,298
	$ 403,773

Revenue

User fees	$ 334,680
Provincial government operating grant	24,000
Municipal contribution	45,093
	$ 403,773

CHAPTER 14

POTENTIAL FOR EMPLOYMENT OF SCHOOL DROPOUTS

School-leavers living in Northeastern British Columbia do appear to be a viable source of labour for the proposed coal mining projects. In each of the past five years there have been about 500 people who, without graduating, left school in the Peace River School Districts in the areas surrounding Dawson Creek and Fort St. John. Table 40 indicates that a further 850 people annually drop out of schools in the Prince George District. These young people, many of whom are entering the labour market, are untrained and may not meet the minimum skill and experience requirements of coal mine employers.

TABLE 40

Secondary School Dropouts in School Districts 57, 59 and 60
From 1970/71 - 1974/75

School District	1970/71	1971/72	1972/73	1973/74	1974/75	Total	Annual Average
57. Prince George	756	863	747	986	899	4,251	850
59. Peace River South (Ft. St. John)	269	314	321	313	305	1,522	304
60. Peace River North (Dawson Creek)	193	215	219	238	164	1,029	206
TOTAL	1,218	1,392	1,287	1,537	1,368	6,802	1,360

SOURCE: Education Data Services
Division of Communications
British Columbia Department
of Education

Little information is available about the characteristics of school leavers or the reasons for their departure. It seems reasonable to surmise that the attraction of earning an income from available employment opportunities may be influential in decisions to drop out. Should coal developments proceed in the North East then the number of school leavers seeking employment is likely to increase. These young people, having lived in the region, are a potential source of labour supply and possibly a source lacking the transient qualities often associated with youth. One study of the work-location preferences of highschool students in a low growth region of the U.S. found that highschool students express a clear preference among employment alternatives to remain within the general region of their unbringing.[1]

One obstacle to the employment of school-leavers as miners would be the attraction of other resource industries in this area. No 'follow up' studies of school dropouts have been conducted in the school districts in this region. However, supervisory staff of School District 59 (Fort St. John) have observed that at present, many of the school dropouts in the Fort St. John area obtain employment with the oil industry in either Alberta or British Columbia.

Any person 15 years of age or older can choose to leave school. The age of school dropouts is a significant barrier to their employment in the coal mining industry. The Coal Mines Regulation Act, Sections 19(4) and (5), state:

> 19(4) - Except for the purpose of training under a training program approved by the chief inspector, no person under the age of eighteen years shall be employed

below ground in a mine or at the working face of an open-pit mine.

19(5) - No person under the age of seventeen years shall be employed below ground in a mine or at the working face of an open-pit mine.

People under 17 years of age can only be employed in open pit mines, and then only in jobs away from the working face.

The statutory restrictions may be more lenient than individual employers' hiring preferences; it has been stated that teenagers would not be desired as employees in certain mine jobs.

Age and education minima exist for entrance to preapprenticeship training courses. In the trades which will be numerous in coal developments (mechanics, millwrights, pipe and steamfitters, machinists, instrumentation mechanics and electricians), preapprentice entry requirements include minima of Grade 10, with Grade 12 preferred, and 16 years of age except in the case of electricians where Grade 12 is manditory. The actual impact of the higher educational preference would be important in trades where training places are limited and over-subscribed. School leavers who do not meet these educational requirements could still become apprentices by the alternative route of finding sponsoring employers; it is estimated that about two thirds of apprentices follow this route. Individuals without sufficient schooling who are motivated and have appropriate aptitudes in many cases will be able to find sponsoring employers. It should be noted that sponsoring employers often have more, not

less, stringent education requirements for candidates which they will consider for apprenticeships.

At the time of writing it is estimated that approximately 60 per cent of coal mine employment would be in jobs which require mainly on-the-job, not formal institutional, training. The potential access of school leavers to the majority of jobs will depend on the hiring policies of mine employers. Should the government wish to direct school leavers into coal mine employment then the cooperation of prospective employers should be sought in advance. Coordinated efforts would be required to inform potential dropouts of the minimal qualifications which they must meet for mine employment and the nature of mine work. It should be possible to devise programs in schools which will give school leavers maximum access to gainful employment in their home region.

A recent survey of highschool completion records show that some 40 per cent of British Columbia high school students do not graduate. Thus there is a significant flow of people into the labour market which could be tapped for mine employment through programs in school. Programs which could be effective might be implemented at the Grade 10 level and above. The rudiments of this type of program can be seen in the high school system at Fernie where a course called Mining 11 is offered. It is a general introduction to the industry; a Mining 12 course is being considered. The Fermi prgram was designed as a work-study prgram for potential drop-outs from the high school, with the goal of offering them a more meaningful program which would

lead to employment. The concept was developing well until the unions demanded that the students receive full wages while being trained. The company was willing to pay these students but this could have damaged the whole work-study program in British Columbia. It would also have been an enticement for good students to drop out of other programs to earn the $10-11,000/ year while being a mining student. The school district is pursuing the matter at a higher level. Clearly any successful program will require the support of students, employers, unions and government.

FOOTNOTES:

1. N. W. Hansen and R. Yukhin, "Locational Preferences and Opportunity Costs in a Lagging Region: A Study of High School Seniors in Eastern Kentucky," Journal of Human Resources, Summer 1970, p. 341.

CHAPTER 15

THE POTENTIAL FOR EMPLOYMENT OF INDIANS

This chapter looks at the Native Indian adult population as a possible regional source of labour for North East development. Conclusions are presented on page 206.

CHARACTERISTICS OF INDIANS LIVING IN THE NORTHEAST

Although population data are still being assembled from Department of Indian Affairs, Canada Manpower and other sources, available data are presented in Tables 41 to 43. Even with the sketchy data available for non-status Indians, it is apparent that the Indian population in the North East is the most visible non-white group in the region.

Chart 7 shows the location of and Table 44 lists the Indian reserves in the North East area. Although development impact will be felt throughout the area, direct impact will be felt most in the two reserves on Moberly Lake. However, the 4 reserves north of Fort St. John will be affected as well. Available information suggests sizable populations of non-status Indians in Dawson Creek, Fort St. John and, especially, in Chetwynd. The proposed development can be expected to impact on these communities also.

Very generally (until complete data is in), the native Indian population in the North East region numbers about 2,500 - 3,000: Approximately 1,000 status Indians and about 1,500 - 2,000 non-status Indians. Two-thirds of the status Indians reside on reserves in the region. Probably

TABLE 41

Registered Indian Population by Sex and Residence, 1974

Fort St. John District

Band	Total	On Reserve		On Crown Land	Off Reserve
		Own	Other		
Fort Nelson					
Male	186	119	1	12	54
Female	192	114	5	7	66
Total	378	233	6	19	120
Fort St. John					
Male	116	79		8	29
Female	96	49	1	17	29
Total	212	128	1	25	58
Hudson Hope					
Male	101	78	4	2	17
Female	86	62	9	2	13
Total	187	140	13	4	30
Saulteau					
Male	88	58			30
Female	90	53	2		35
Total	178	111	2		65
Total	955	612	22	48	273
Male	491	334	5	22	130
Female	464	278	17	26	143

Source: Department of Indian Affairs and Northern Development, 1974 Registered Indian Census print-out

TABLE 42

Major Ethnic Groups in Peace River-Liard Census Division, 1971

	Male	Female	Total	%
British Isles	11,365	10,335	21,700	49.3
German	3,505	3,130	6,635	15.1
Scandinavian	1,980	1,865	3,845	8.7
French	1,385	1,380	2,765	6.3
*Native Indian	1,300	1,255	2,555	5.8
Ukranian	775	640	1,415	3.2
Netherlands	670	530	1,200	2.7
Polish	295	310	605	1.4
Other and Unknown	1,755	1,520	3,275	7.4
Total	23,030	20,965	43,995	100.0

*N.B. Statistics Canada defines "Native Indian" in male line, thus children of Indian mothers and non-Indian fathers (the vast majority of cases) are assigned the ethnic group of the father. Therefore, Statistics Canada figures are considered a distinct under estimate of actual numbers of native Indian people.

Source: Catalogue 92-723 Population-Ethnic Groups, 1971 Census, Statistics Canada.

TABLE 43

N.E. Communities by Ethnicity, 1971

	#	%	#	%	#	%	#	%	#	%	#	%
British Isles	6315	53.5	4015	48.5	460	44.7	1205	51.3	300	47.2	370	64.3
French	815	6.9	485	5.9	60	5.8	195	8.3	55	8.7	30	5.2
Asian	110	.9	155	1.9	30	2.9	55	2.3	--	--	--	--
Austrian	70	.6	15	.2	5	.5	15	.6	--	--	--	--
German	1465	12.4	1370	16.6	115	11.2	330	14.0	85	13.4	65	11.3
Hungarian	100	.8	105	1.3	5	.5	15	.6	5	.8	5	.9
Italian	165	1.4	100	1.2	15	1.5	5	.2	15	2.4	--	--
*Native Indian	395	3.3	185	2.2	175	17.0	75	3.2	40	6.3	20	3.5
Jewish	--	--	5	.1	--	--	--	--	--	--	--	--
Netherlands	220	1.9	210	2.5	15	1.5	55	2.3	30	4.7	10	1.7
Polish	170	1.4	115	1.4	5	.5	45	1.9	--	--	10	1.7
Russian	45	.4	40	.5	5	.5	15	.6	--	--	--	--
Scandinavian	1170	9.9	730	8.8	65	6.3	185	7.9	45	7.1	35	6.1
Ukranian	410	3.5	405	4.9	20	1.9	55	2.3	5	.8	25	4.3
Other	360	3.0	335	4.1	55	5.3	100	4.3	55	8.7	5	.9
Total	11810	100	8270	100	1030	100	2350	100	635	100	575	100

*N.B. See note on Table

Source: Unpublished 1971 Census Data; Available from Statistics Division, Department of Economic Development

CHART 7

INDIAN RESERVES IN PROXIMITY TO POSSIBLE COAL DEVELOPMENTS

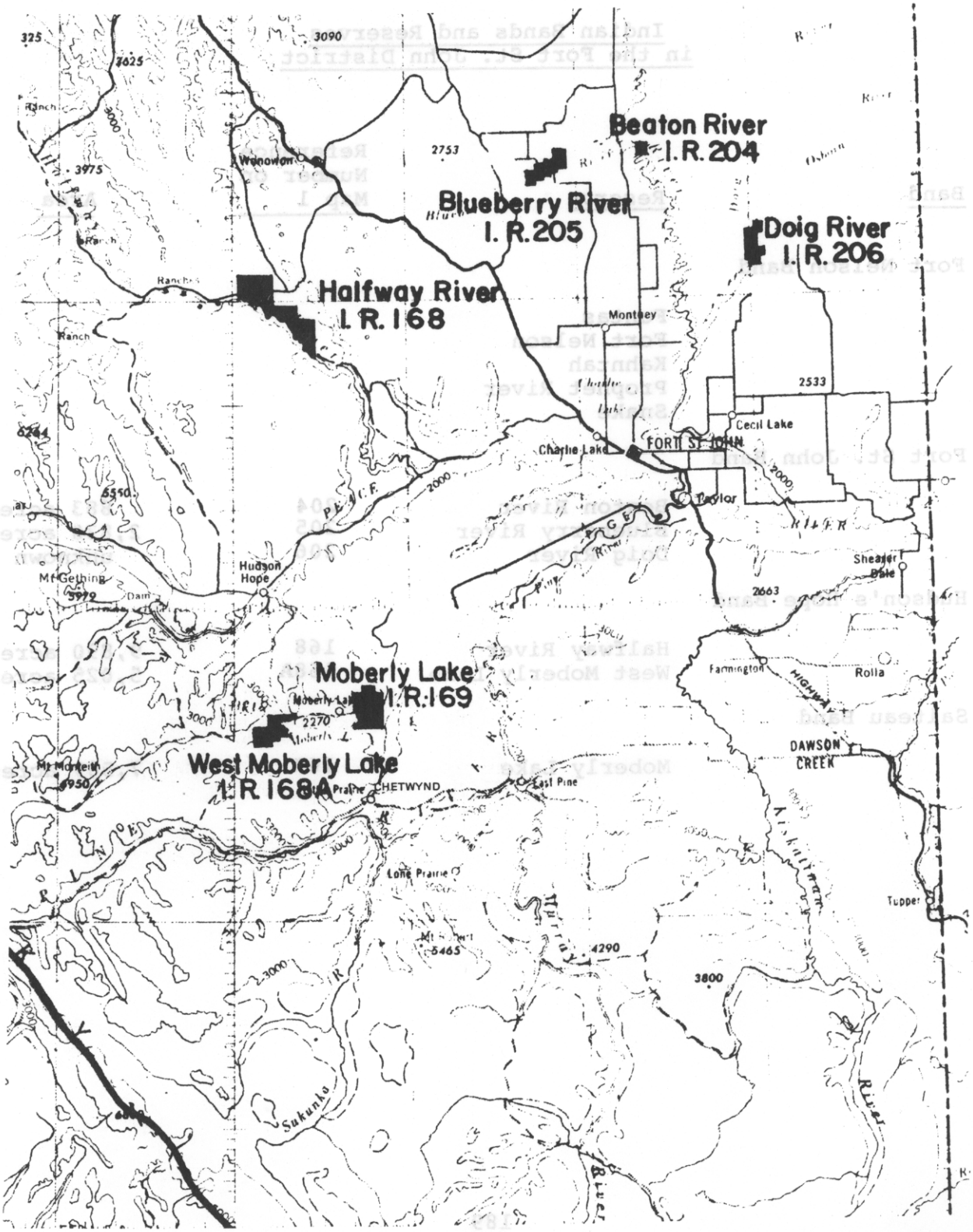


TABLE 44

Indian Bands and Reserves
in the Fort St. John District

Band	Reserve	Reference Number on Map 1	Area
Fort Nelson Band			
	Fontas		
	Fort Nelson		
	Kahntah		
	Prophet River		
	Snake		
Fort St. John Band			
	Beaton River	204	883 acres
	Blueberry River	205	2,838 acres
	Doig River	206	unknown
Hudson's Hope Band			
	Halfway River	168	9,890 acres
	West Moberly Lake	168A	5,025 acres
Salteau Band			
	Moberly Lake	169	7,589 acres

half of the status Indian population, and the non-status population as well, is under age 20 (1973 data on the Fort St. John District indicate an average Indian family size of 8 individuals). Thus, the possible potential Indian labour force, population 15 years and over, is about 1,450 - 1,750. Indian cultural values continue to emphasize the rewards of parenthood and the importance of maternal care to children. Thus, since about half of the North East Indian population is women who will be absorbed in traditional activities relating to family and home, it is estimated that a maximum potentially employable population of about 500 individuals (status and non-status) is under consideration in terms of potential employment in North East development (allowing for unemployable persons).

The economic picture of the native Indian people in the North East conforms to that of native people generally in British Columbia and Canada, see Tables 45 and 46. In a sample of the Indians of Canada from the 1971 census[1], fully 1/3 of the Indian population over 15 had no income at all and for almost 1/4 of the population with income,the major source of income was transfer payments from government. The social assistance data for bands presented in Table refers to federal government payments; status Indians do not usually receive provincial transfers. There is a significant overlap between non-status Indians and provincial social assistance recipients, it has been guessed that as many as 70 per cent of non-status Indians are recipients. The reasons for this are apparent in a statement of the Minister of Indian Affairs and Northern Development indicating that unemployment among registered Indians stands at over 50 per cent in 1976.

TABLE 45

Estimated Number of Indian People Living on Reserve[1] and Having Full - Time Employment 1969

Band	Number, Sex, Location, Occupation[2]		
Saulteau	3 men	on reserve	farmers and farm workers
	3 men	off reserve	farmers and farm workers
Hudson's Hope	7 men	on reserve	farmers and farm workers
	1 man	on reserve	mechanic and repairs
	6 women	on reserve	handicrafts
Fort St. John	3 men	on reserve	farmers and farm workers
	3 women	on reserve	handicrafts

[1] Reserve is subject to development impact

[2] DIA table from which these data are extracted lists 2 men from the Liard River Band employed off reserve in mines and as quarry workers

Source: Department of Indian Affairs, Statistics Division

TABLE 46

Summary of Social Assistance
Total Persons and Total Families
1975 - 1976
Selected Northeast Indian Bands

	April		July		October		January	
	P[1]	F[2]	P	F	P	F	P	F
Saulteau	50	10	24	6	34	8	38	10
Hudson's Hope	18	5	22	6	11	4	13	4
Fort St. John	33	8	32	8	29	6	43	9

[1] P = number of persons (exclusive of F)

[2] F = number of family units (exclusive of P)

Source: Department of Indian Affairs, Social Services, B.C. Region

Specifically in the North East, a DIA report on economic development activity for 1973-742 records 186 status Indians employed in such activity, earning an average income per man-month of $315 with employment duration of an average of 5.8 man-months per Indian employed. The average income per Indian employed in economic development activities for 1973-74 was $1,333 (economic development activities included agriculture, arts and crafts, tourist outfitting and guiding, industrial-commercial-real estate, wildlife).

In terms of the skills and education defined as necessary for active participation in industrial life, it would appear that this picture is not going to improve in the near future. Although details on education are not available at this writing, a regional Department of Indian Affairs official indicated that Grade 3 would stand as the average level of education for status Indians.[3] His estimate is partially confirmed by a 1971 survey of status Indians from the northern interior region living off reserve which indicated only 25 per cent of the sample had Grade 10 or better,[4] which is considerably below the 70 per cent figure for the regional population aged 15 years and over.

A recent (1976) Canada Manpower survey of non-status Indians in the Dawson Creek and Chetwynd areas indicates a potential non-status labour force of about 300 people, or approximately 30 per cent of the total population aged 15 years and over.[5] Unemployment is currently running at over 60 per cent (62 per cent non-status Indian men and 67 per cent of non-status Indian women in the region who are looking for

work are unemployed). About 80 non-status Indians are currently employed in the area: The men primarily in logging and the few women in temporary positions created by Manpower programs. There are, in addition, about 50 to 70 non-status young people over age 14 who will be entering the labour force in the next few years. The average education level for non-status Indians in the North East is estimated to be Grade 8.

BARRIERS TO INDIAN EMPLOYMENT

Physical Barriers

The six Indian reserves, see the accompanying chart, in the southern half of the North East district are not isolated in a technical sense, that is, they are connected to major centres in the region by roads. However, residents of the 4 reserves north of Fort St. John are estimated to face at least a one-hour drive or more over unpaved roads to reach Fort St. John. Since very few of the Indians from these reserves have driver's licenses and rely heavily on taxis for transportation, they are more isolated than would appear at first glance. Residents of the two reserves on Moberly Lake have paved road access to both Hudson Hope and Chetwynd. Moberly Lake residents, however, have probably at least a 30 minute drive to either of these two towns.

Reserve transportation links would not be improved by any of the proposed roads connected with the development of any coal mine(s); the new roads would all be constructed in other areas.

It is likely that, given a good road between Moberly Lake and Chetwynd and between Chetwynd and mine sites, (e.g. in those in the vicinity of Hudson Hope and Chetwynd) that status Indians from Moberly Lake and non-status Indians living in Chetwynd might be able to commute to jobs at some of the proposed mine sites on a daily basis.

The physical barriers to the employment of Indians from the Fort St. John reserves and employment of non-status Indians living in Dawson Creek and Fort St. John are considerable. Participation of Indians from these areas in the mine labour force would require a shift in residence that would be dependent on other programs. A daily commuting operation would not likely be possible.

Institutional or Structural Barriers

Institutional or structural barriers are those aspects of the general milieu of Indian life and of non-Indian institutions that have the effect of deterring the employment of Indians in non-traditional activities.

A. Indian Life

Education is seen by many observers as the outstanding barrier to Indian employment. This is because certain levels of education and experience are defined as necessary for participation in all but the very least rewarding types of wage-earning activity. However, because of the low level of success of the education system in delivering education to Indian people, these education definitions have the effect of debarring most Indian people from employment.

The barriers to success for Indian students in the education system have been clearly documented (and these are all present in the North East area); these include the use of a foreign language (English) in the classroom, instruction based in foreign (non-Indian) values and customs, and isolation of the student in a totally unfamiliar and frightening environment (the secondary level boarding home).

The barriers to Indian adult education are even more formidable. Distance from training centes is one considerable factor; minimum education levels required for training programs are another barrier. Family responsibilities constitute another important barrier. The average Indian family size is at least twice that of the non-Indian; the average Indian woman has 2 children by the time she reaches age 19.[6] The Indian definition of family (in which an individual has financial responsibilities) tends to be much broader than the non-Indian and can include not only one's children but parents, grandparents, siblings, and cousins, aunts and uncles (on one or both sides). The weight of such responsibility (among other factors) tends to keep Indian people where they are making do as best they can.

Canada Manpower has designed various programs to improve the employability of Indian people (such as Basic Job Readiness Training, Training on-the-job for the Disadvantaged, Outreach). Indians do not, on the whole, view these programs with much enthusiasm. In addition to the barriers previously described that prevent many Indians from participating in

these programs, the perception of many Indian people is that the non-Indian system doesn't hold opportunities for Indians. From this perspective, there is not much point in a job readiness program if there are no jobs. This Indian perception is confirmed in the Manpower Survey in the North East where the non-status Indians contacted indicated in the majority that job opportunities for Indians were low or nil in the North East area.[7] Research has also shown that, even in circumstances where Indians have received complete training in a trade and have migrated to an urban centre for employment in that trade, that in the majority of cases they are apt to be able to find employment only in areas completely unrelated to their training.[8] Experiences of this kind reinforce Indian perceptions of no opportunities in the non-Indian world and raise higher the barriers to Indian employment.

The Indian perception is that there are few opportunities for Indians in Canadian industry. Industry, including mining companies, would argue that it has no entry barriers aimed at any particular group and that it cannot be blamed if particular groups are unable or unwilling to participate in particular industries. However, standard operating procedures of industry, particularly mining companies in the north, act <u>in effect</u> (though perhaps not from intent) as barriers to Indian participation in the labour force.

B. <u>Employment Policies of Industry</u>

Integral to employment policy in industry is the setting out of job requirements, that is, those qualifications

which are felt to bear directly on performance of a job. Job requirements, however, become job barriers when the employer's stated requirements are not related to or exceed those qualifications needed to actually do a job. Canada Manpower recognizes a job barrier as "factors or characteristics, unrelated to actual job requirements and performance and beyond the control of job seekers, which exclude capable persons from employment in a given job".[9]

Two seemingly universal job requirements in industry, including mining, are education and experience, that is, certain levels of education and depth of experience are required for entry into particular jobs. These two requirements will act as job barriers in terms of Indian employment in a North East coal mine. In-depth research is definitely needed on the actual relationship between education/experience requirements and job performance in mining and the existence, therefore, of job barriers. In the absence of such information, only a general discussion is possible.

Canada Manpower researchers have noted a trend in education requirements in the past 20 years: Educational requirements increased between 1956-1971 while work requirements in the same or similar jobs have remained the same.[10] Another researcher has noted further that "employer demanded educational requirements are rising for reasons often unrelated to actual job performance".[11] The consequence of education criteria is that persons are excluded from employment not because they cannot perform the work but because they fall outside the

employer's defined education requirements. Education requirements unrelated to work content represent a barrier to Indians being considered for hiring. The adherence to established education requirements by mining companies in northeastern British Columbia will bar Indians in the area from employment in the mine work force.

The same is true of experience requirements. Specific job experience is almost always required by employers; the latter may, in fact, lower education requirements if a job canadidate has relevant experience. An employment policy in a North East coal mine requiring previous mining or other experience will act as a barrier to Indian employment. The following comments of Canada Manpower researchers should be kept in mind, however, in relation to experience requirements:

> Generally, individuals cannot be matched and fitted into job classifications and descriptions. The latter set out...the work that has to be done but not how an individual will actually do the work. How the job is done is often shaped by an employee's individual characteristics and through a process of learning and adaptation. This is often forgotten in the demand for experienced workers. Experience is desirable but not a prerequisite for successful job performance. [12]

In a report for the Manitoba Manpower Working Group, Dr. P. D. Elias, using the Churchill Pre-Fab Housing Project, the Selkirk Parks Furniture Plant, and the Burns Lake Project as evidence, reached the following conclusions about Indian workers:

> Unqualified native workers can provide a quality product, derive work satisfaction and improve their economic position; the standards applied are arbitrary for, despite their apparent lack of qualifications, Indians are able to perform satisfactorily, or better, in occupations from which they are generally disqualified.[13]

C. Employment Practices of Industry

Employment practices of industry in the north will also create barriers to Indian employment in a North East coal mine. The first barrier to Indians (and non-Indian northern residents as well) is the practice of resource development companies to import workers from outside the region as a result of emphasis on skill and experience requirements. This practice limits access of residents in the area to employment in the development.

The second barrier is the fact that often resource development companies operate with limited training programs or facilities. This has been described as part of the "frontier" approach to resource development in the north; that is, training programs are considered a luxury item in the effort to wrest a resource, such as coal, from an uncooperative environment.[14] The lack of training programs and facilities may exclude Indians and other local residents from the resource development work force; they may want to participate but cannot because there is no practical way of acquiring the skills considered necessary.

The apparent general bias towards non-regional sources of workers, often compounded with a housing policy that sees the limited married housing go to workers with favoured skills, effectively discourages Indians and other locals from remaining in the work force.

A final institutional barrier to Indian employment in resource developments is organized labour. Unions have much

influenced the firm structure of working conditions in northern mines and other resource developments. Management may rule out special consideration for Indians on the grounds that it would create a "dual standard" unacceptable to unions. In the unions themselves, Indian representation is virutally nil and, consequently, effort to overcome barriers or negotiate fringe benefits attractive to Indians is not likely to come from this quarter. The barriers to formal education previously discussed are present in apprenticeship training programs as institutional barriers to Indian involvement in the apprenticeship system. The attitudes of non-Indians as counsellors, employers and union managment towards Indians (discussed in general below) frequently act as barriers to prospective Indian apprentices at all levels in this process.

Attitudinal Barriers

Any effort to overcome the physical and institutional/ structural barriers to Indian employment in a North East mine development must take cognizance of the additional barriers presented by the attitudes of Indians toward mine work and white industry and the attitudes of non-Indians (management and workers) towards Indians and towards efforts to overcome barriers to Indian employment.

The attitudes of Indian people regarding the level of opportunities available to them in non-Indian industry have already been discussed. Also as discussed earlier, a similar negative attitude is present towards standard programs designed to improve Indian employment. These standard programs have traditionally been aimed at Indian men, on the basis of the

stereotype that the male is the breadwinner. In fact, because of a variety of complex factors, a sizeable proportion of Indian households are headed by women (this follows a pattern of matriarchy found by social scientists in poverty groups in industrialized society). In a survey of non-status Indian women in Kamloops, to cite a specific example in British Columbia, fully 70 per cent of the "single" Indian women had full responsibilities for a household.[15] Such women, although surely interested in wage-earning, are left out of traditional employment schemes. They would, however, probably have very serious reservations about the usual child care approach to allow them entry to the labour force, that is, they would be reluctant to place their children in a completely non-Indian environment. (Such an attitude may have been a factor in the recent demise of a child care centre in Chetwynd.) The reasons for such reluctance have not been closely examined, but negative social and psychological consequences to Indian children of the non-Indian school system.

Indian people on the whole also seem to have a generally negative view of the mining industry. For example, in a survey of the career aspirations of high school students in Inuvik, N.W.T. in which the students were asked to rank 48 work classifications in order of preference, "mining" as a broad category was ranked 35th by Eskimo students and 39th by Indian students (the ranking of non-native students was not reported).[16]

The attitudes of mining personnel about Indians seem to be as negative as the Indian attitude towards mining.[17]

As reported for mines in the Northwest Territories, an opinion commonly held is that the Indians lack the educational and technical skills for mine employment and, furthermore, that they show little interest for mining work, greatly preferring other types of work, particularly in the forestry industry. The general contention of managment is that recruitment from the "indigenous labour force" implies the recruitment from the rnaks of those living "off the land" or "off the welfare cheque", and that such employees have little "staying power", tending to return to their "old haunts and habits". Thus, it would appear that the mining industry expects, and by its various policies conveys, that it will receive the "bottom layer" of the Indian labour force and will be forced to use Indian workers only as temporary labourers.

Similar attitudes can be expected both towards mining and in mine management in the North East area. Negative views of the potential for Indian employment in a North East coal mine are already present in those in Indian affairs in the area. A logical expectation is that negative attitudes would also be found among mine workers brought in to develop the mine and among residents of the proposed New Town.

FOUNDATION OF BARRIERS TO INDIAN EMPLOYMENT

The specific barriers to Indian employment in a North East coal mine described above can all be overcome by directed action. An annex of the Manpower Sub-Committee working paper describes one case in detail; Table 47 lists five mines

TABLE 47

Mining Companies Attempting to Increase Employment Opportunities for Indian People Through Training Programs

- Anglo-Rouyn Mine, La Ronge
- Consolidated Mining and Smelting Company, Pine Point
- Hudson Bay Mining and Smelting, Flin Flon
- International Nickel Company, Thompson
- Sherritt - Gordon, Lynn Lake and Leaf Rapids

Sources: Deprez, P. and G. Sigurdson, The Economic Status of the Canadian Indian: A Re-examination, Centre for Settlement Studies, University of Manitoba, Series 2, Research Report No. 1, 1969

J. A. MacMillan et al, A New Approach for Evaluating Northern Training Programs: The Churchill Prefab Housing Manpower Corps Project, Centre for Settlement Studies, University of Manitoba, 1975

where specific effort has been directed at overcoming these barriers. However, the type of action taken and the decision to act at all in relation to the employment of Indians in a North East coal mine will be determined by non-Indians, based on the perceptions they hold about the nature of the "Indian problem" and the "best" solution to the "problem". It is important, therefore, to be aware of the perceptions of others and their relationship to Indian perceptions.[18]

For purposes here, three points on the continuum of non-Indian perceptions of "the Indian problem" will be described:

1. Indians are imbued with a traditional non-industrial lifestyle, integrated with nature, and therefore they are unable to function within a disciplined work situation.
2. The Indian lifestyle is now one of welfare dependency and Indians must learn to adapt to wage employment, moving if necessary, in the modern economy.
3. The Indian is in a state of transition, albeit experiencing problems, toward a non-Indian lifestyle; Indian ways will be discarded once the benefits of the modern society are perceived.

Each of these viewpoints are erroneous; they are paternalistic and they ignore facts which contradict their lines of thought. Briefly these viewpoints ignore the fact that: Indian workers are found in all industries; education available to Indians has not given them skills for work; Indian and non-Indian cultures have changed, the onus of adjustment cannot

be placed on one culture alone; Indians have long resisted efforts to have them assimilate non-Indian lifestyles; education does not assure employment opportunities.

Paternalism is not necessarily rooted in hostile prejudice but often in simple lack of understanding or misconception about Indian people. As a result, non-Indian perceptions of what Indian people value do not often coincide with the actual Indian value system. For example, in a study of Indian perceptions of factors associated with job acceptance and retention, Walter Lampe found that Indians rank income, job regularity and proximity to home as the most important variables when seeking employment. In contrast, a sample of employment experts perceived that Indians would rank proximity to home, income and outdoor activity as most important (the entire list of variables is presented in Table 48).[19] The differences in perception have obvious implication for Indian employment if they are sustained as institutional and on-the-job training schemes are formulated in association with any coal developments.

Deprez and Siguardson succinctly described the barriers to Indian employment in non-traditional economic activities.

> Thus, because of the importance attached to formal training and because of the paternalistic attitude underlying the attitude of some management, artificial barriers are raised impeding the Indians' successful involvement in non-traditional activities: It is however, not the Indian who is to be blamed.[20]

Conclusions

It is quite apparent that the Indians of the North East area of British Columbia are very much in need of

TABLE 48

Variables in Seeking Employment

Variables	Indian Ranking as Most Important	Employment Expert Ranking as Most Important to Indians
Income Incentive	65.2%	50.0%
Job Regularity	52.8%	-
Proximity to Home	47.2%	90.0%
Outdoor Activity	12.3%	20.0%
General Peer Support	10.1%	20.0%
Intimate Peer Support	5.6%	20.0%
Job Evaluation Peer Support	3.3%	-
Supervisory Peer Support	3.3%	-

Source: W.J.P. Lampe, Native People's Perceptions of Factors Associated with Job Acceptance and Retention, 1974, Indian and Northern Affairs

opportunities for economic development. It is also apparent that the opportunity presented by the proposed coal development in the area will be closed to them unless special efforts are made to overcome the barriers to their participation both in the mine work force itself and in secondary and tertiary developments.

It is not possible, only the basis of this general discussion, to outline specific measures that might be taken to overcome the barriers to Indian participation in possible North East developments. However, some broad parameters of action can be indicated.

First of all, the basic decision to include Indians and to support their efforts to participate in North East development will have to be made by the provincial government. Mine companies and other developers, through a joint development agreement with the Province, will have to be required to direct specific effort toward including Indian people in the work force. The presumed pay-offs to these companies will be the creation of a stable work force made up of individuals committed to the area and its development.

A decision to include Indian people should be understood to be also a decision recognizing that Indian people are not strictly the responsibility of the federal government. The federal Department of Indian Affairs will, of course, be involved in efforts to include status Indians but efforts to involve non-status Indians (for whom Indian Affairs accepts no responsibility) must be recognized as being basically within the provincial domain.

In deciding to include Indian people, it must also be recognized that traditional paternalistic programs directed at Indian people do not work. The decision to include Indian people, therefore, also implies a decision to develop new approaches to overcoming barriers to Indian participation in North East development. Further research and consultation with Indian people and those involved in Indian organizations and Indian affairs will be able to provide a sense of the specific actions that will be necessary. Generally speaking, however, these actions will be based in the principle of Indians developing programs for Indian people, if they are to be successful in overcoming the barriers to Indian participation.

A policy paper recently presented to the federal Cabinet by a group of senior federal officials concluded that "native socio-economic problems in Western cities and in various rural areas require urgent attention to forestall social unrest". The policy paper recommended immediate attention be paid by both the federal government and the provinces to the problems of all native people and that both levels of government work in concert with native organizations in developing solutions.

FOOTNOTES:

1. Census Canada, SPSS Sample, University of British Columbia, Computer Centre. Special run for the National Indian Brotherhood.
2. Economic Development Survey of Indian Reserves, Department of Indian Affairs, 1974.
3. District Manager, Fort St. John District, Department of Indian Affairs and Northern Development, personal communication.
4. Stanbury, W. T., Success and Failure: Indians in Urban Society, University of British Columbia Press, 1975, p. 111.
5. Regional Coordinator, Manpower Services to Native People, Canada Manpower, Vancouver, personal communication. (Note: published results of this survey are scheduled for publication in September 1976)
6. Van Dyke, B., "Profile of the Indians of Canada", prepared for the National Indian Brotherhood in connection with the Joint Socio-economic Development Work Force, 1976, p. 54.
7. Manpower Regional Coordinator, op. cit.
8. Weppner, R. S., "Urban Economic Opportunities" in Waddell and Watson (eds.), The American Indian in Urban Society, 1971, p. 256.
9. Job Barriers: A Reference Paper Delimiting the Problem, Research Projects Group, Strategic Planning and Research, Department of Manpower and Immigration, 1975, p. 2.

10. Job Barriers, Ibid., p. 4.

11. Job Barriers, Ibid., p. 5.

12. Job Barriers, Ibid., p. 16.

13. Reported in Thomas Owen and Associates Ltd., Barriers to Native Labour Entry and Employment, 1976, Department of Regional Economic Expansion, Western Regional Office, p. III-20-21.

14. Freyman, A. J. and G. T. Armstrong, "The Role of Indians and Eskimos in the Canadian Mining Industry", The Canadian Mining and Metallurgical Bulletin, June, 1969, p. 643-646.

15. Manpower Regional Coordinator, op. cit.

16. Freyman and Armstrong, op. cit., p. 644.

17. Freyman and Armstrong, Ibid., p. 643-644.

18. Deprez, P. and G. Sigurdson, The Economic Status of the Canadian Indian: A Re-examination, 1969, Centre for Settlement STudies. (Much of the discussion of non-Indian perceptions in Section 3 is based on material presented by Deprez and Sigurdson.)

19. Reported in Thomas, Owen and Associates Ltd., op. cit. p. III-23-24.

20. Memorandum to Cabinet, "Native Policy: A Review With Recommendations", May 27, 1976.

CHAPTER 16

POTENTIAL FOR EMPLOYMENT OF SOCIAL ASSISTANCE RECIPIENTS

Social Assistance recipients form a sub- group of the regional population which traditionally exhibits weak labour force attachment. The possibility of moving some of these people from dependence on welfare to gainful employment and greater independence is an attractive one. Conclusions and recommendations regarding social assistance recipiants as a source of labour are given on page 226.

The well-being of individuals who experience this change would likely be enhanced if they become employed in work at, or above, the average wage, work such as mining developments may make available. Caution is wise in embarking on any up-grading endeavour. It is crucial to recognize that employment per se is not all that is required, for former recipients to be willing to work they must perceive themselves to be better-off with employment than welfare. The existence of work at low wages, in unattractive conditions or which is unappealling in other respects may not offer sufficient incentives to recipients, many of whom have to cope with family responsibilities. The psychic costs of a change in an established life pattern (involving adaptation to unfamiliar values of the work environment as well as acquisition of skills) may represent a significant obstacle to social assistance recipients becoming directly employed in any North East developments. This is usually noted in observations of the seeming lack of motivation exhibited by many recipients.

From a Provincial Government viewpoint, the shift of any social assistance recipients into employment may represent an unambiguous improvement in social well-being. The social benefit/cost picture would include: benefits of savings from reduced social assistance payments, disposable income earned by former recipients, increased tax revenues; and the incremental costs for programs to adapt and train recipients for employment, including special allowances to maintain people during training periods. The relatively short-run costs of such programs should be outweighed by the value of the future benefit stream.

An analysis of social assistance recipients in the North East region has been attempted. Available administrative statistics record a total social assistance caseload of 1,329 in March, 1976. The data must be interpreted carefully, particularly if attempting to use annual figures; caseloads are synonymous with the number of files open at a particular time. Month to month totals vary as do the numbers of client files opened and closed; in annual caseload data there is a high, but unestimated, degree of overstatement of the number of persons receiving social assistance at any one time. This is due to the fact that many recipients register for short periods several times over in the course of a year. Selecting data for one month only is more representative of the actual number of people receiving social assistance. Another shortcoming of these data is that no accurate estimate can be made of the average length of time over which individuals maintain their recipient status uninterrupted. Without such knowledge it is difficult to discuss in detail the need for particular initiatives by

by government to enable social assistance recipients to obtain permanent employment.

CHARACTERISTICS OF SOCIAL ASSISTANCE RECIPIENTS

The discussion focuses on employable persons (transients, who use the Dawson Creek Hostel and resident employables) and one parent families. The operational definition of employable used by the Department of Human Resources is "any person who is physically and mentally capable of working who has no family responsibility that prevent his/her working outside the family home". About three-quarters of the unemployable group consists of female heads of one parent families; in contrast to the departmental definition above many of these recipients are viewed here as potentially employable members in the sense that they do not have health or social problems which render them unable to work.

During 1975 approximately 49 per cent of recipients were classed as employable (excluding one parent families). On the basis of caseloads, see Table 49, and assuming that the incidence of multiple registrations does not differ by group, it appears that about 48 per cent of employables are single males, 11 per cent are single females and 41 per cent are heads of households. It is also estimated that 25 to 30 per cent of employables are non-status Indians; native people are likely to be prevalent among female heads of one parent families and those classed as unemployable.

Virtually 100 per cent of one parent families have female heads.

TABLE 49

North East Region: Employable Social Assistance Caseload by Recipient Category, 1975

District Office	Single Male	Single Female	Head of Household
Chetwynd	125	80	287
Dawson Creek	2755	486	1861
Fort St. John	579	205	682
Fort Nelson	332	117	403
Total Region	3791	888	3233

Source: Unemployed Employable Monthly Reports, Region 8, Department of Human Resources

Information about the ages of North East social assistance recipients is not available. If the generality of findings about the ages of recipients in Vancouver is accepted, then about one third of employables are less than 24 years old and over half of the employables are less than 29 years of age.

Based on a Vancouver sample of recipients, it seems likely that educational attainments of single employables would be lower than the following observations: 51 per cent of males achieved Grade 11 or less; 54 per cent of females achieved Grade 11 or less. The skills and experience which employable recipients could make available to potential employers may be extremely limited; it is also probable that special programs in "life skills" would be necessary to improve the motivation of employables to enter and remain active in the labour market.

It is supposed that the most highly mobile group within the employable category are single male recipients under 29 years old. These so-called transient males account for anywhere from 25 to 40 per cent of the single employable recipients in the Dawson Creek area. Most transient males reside at the hostel located in Dawson Creek for very short periods of time usually 2 - 3 days or in winter up to approximately one week. Hostel workers report that the majority of these men come from east of Alberta with the balance from the Lower Mainland and Alberta. The hostel is used as a jumping off point for job search in the Peace River area. Workers report that in spite of this stated use, very few actually find work in the area

other than of a casual nature. Table 50 demonstrates the existence of a highly seasonal cycle in the numbers of hostel users. Further evidence of mobility onto and off of social assistance roles is the size of month to month file openings and closures in the single category in this region, see Table 51. A large portion of this turnover can be attributed to the transient hostel users.

Studies in other areas of the province indicate that 44 per cent of employable recipients receive assistance for two months or less.[1] Workers in the Peace River indicate that these people move on and off social assistance due to short term casual jobs such as farm work or short term bush work. As well, many who lack motivation for permanent work, take jobs until they receive a first paycheck and then move on to other work. A small percentage of employables would be receiving short term assistance awaiting U.I.C.

TABLE 50

Monthly Occupancy - Hostel Dawson Creek 1975

JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
56	50	79	92	147	172	138	174	108	88	89	65

SOURCE: Halvorsen's Records, Dawson Creek, British Columbia.

Table 52 indicates that the one parent family group exhibits little turnover. Contributing to this stability are the responsibilities of caring for children and the relative lack of career opportunity for these women.

TABLE 51

North East Region Single Social Allowance Caseloads, Both Sexes, 1975

Month	Total Beginning of Month	Opened	Closed	Total End of Month
Jan	512	300	195	617
Feb	617	188	263	542
March	542	193	249	486
April	486	266	235	517
May	517	347	317	547
June	547	317	345	519
July	519	323	349	493
Aug	493	338	315	516
Sept	516	245	280	481
Oct	481	247	214	514
Nov	514	279	244	549
Dec	549	225	191	583

Source: W2 Caseload Data Region 8, Department of Human Resources

TABLE 52

North East Region One Parent Family Caseloads, 1975

Month	Total Beginning of Month	Opened	Closed	Total End of Month
Jan	503	72	53	522
Feb	522	50	43	529
March	529	57	52	534
April	534	66	78	522
May	522	64	48	538
June	538	35	52	521
July	521	86	79	528
Aug	528	62	57	533
Sept	533	45	54	524
Oct	524	61	67	518
Nov	518	121	114	525
Dec	525	56	49	532

Source: W2, Caseload Data Region 8, Department of Human Resources

Using January 1975 caseload data it is revealed that the majority of employable social assistance recipients are located in Dawson Creek. Approximately 57 per cent of employable recipients were recorded for Dawson Creek even though it possesses 39 per cent of the regional population. Fort St. John recorded 23 per cent of employables for the month of January against a population of 41 per cent of the region. Chetwynd possessed 9 per cent of the employable caseload with 7.5 per cent of the population. Fort Nelson had the smallest employable to population ratio with 4.4 per cent of the caseload against 12 per cent of the population.

As indicated earlier the presence of the hostel in Dawson Creek could account for the relatively high volume of employables in that district. In addition, a more available housing market at a cheaper price is also reported as a factor. The fact that Dawson Creek is at the intersection of three major highways of the north is also significant. These factors would also influence the high one-parent assistance population in Dawson Creek.

One parent family heads social assistance caseload size is not directly correlated to population distribution. A high proportion of all one parent families reside in Dawson Creek as demonstrated in Table 53. In January 1975, Dawson Creek District Office one parent family caseload accounted for 50 per cent of the regional total (one parent family), while Dawson Creek had 39 per cent of the overall regional population as shown in Table 54.

TABLE 53

North East Region One Parent
Social Assistance Caseloads, January 1975

District Office	Cases	%
Chetwynd	69	14
Dawson Creek	252	50
Fort St. John	138	27
Fort Nelson	50	10
Region	509	100

Source: Department of Human Resources, Region 8, Reports on Caseloads (W.Z.) January 1975

TABLE 54

Department of Human Resources
Region 8 Population Estimate, 1971

District Office	Estimated Population	%
Chetwynd	3,364	7
Dawson Creek	17,828	39
Fort St. John (inc. Hudson's Hope and Taylor)	18,691	41
Fort Nelson	5,419	12
Region	45,302	100

Source: Regional and Office Breakdowns into Enumeration Areas, Department of Human Resources, Research and Statistics Division, March 1973 (1971 Census Data)

Fort St. John on the other hand held over 25 per cent of the regional caseload while it possessed 41 per cent of the regional population.

The geographical distribution of employable recipients is relatively concentrated in Dawson Creek. The institutional component of training programs would best be centered there. Complementary support services (day care, counselling) already exist in Dawson Creek which are less available, absent in the case of institutional day care, in the other centers.

The above analysis indicates that at any one time approximately 1,400 persons may be receiving social assistance in the region. There is considerable overlap between this regional source of potential employment and others such as Native Indians, women and migrants. If there are about 700 female heads of single parent families (the 1971 Census recorded 620) then about 70 per cent of them are social assistance recipients. The overlaps between this group and the other manpower sources may also be significant. It is possible therefore to further goals of increased employment among several target groups through policies directed at social assistance recipients. The use of established delivery mechanisms may offer an opportunity to implement special government programs in the region on a relatively low cost basis.

Some barriers to the employment of social assistance recipients have been alluded to above. These include low personal motivation, lack of education, lack of work experience

and skills and the presence of dependents. The attraction of temporary jobs in, say, construction may be a barrier to the enrollment of recipients in training programs without which there is little likelihood that these people will become permanent members of the labour force. Many employable recipients obtained unskilled construction work during the Bennett Dam project. It is unlikely that even the resident employable recipients would have work past the construction phase unless special programs are given them. This is really a problem of timing; projects such as Peace Site C and mine construction could create a temporary demand for unskilled labour in the period when skill upgrading of recipients must commence if they are to access permanent mine jobs. Under such conditions, training programs and the associated financial support for trainees must be competitive for desired results to be achieved.

Past attempts at integrating recipients into the labour market have experienced a very low success rate, 10 per cent of participants in Canada Manpower programs do not drop out. The existing programs do not appear to be effective, changes and improvements may be required if social assistance recipients are to obtain permanent mining employment. The success rate could be improved with better screening of prospective trainees. A necessary complement to any training program is a Life Skills course; this would be integrated with other skill upgrading courses designed to prepare people for employment.

As the Provincial Rehabilitation and Employment Programme counsellor presently works in close cooperation with federal

Manpower officials, this person could coordinate the identification, assessment and training of recipients by the various agencies involved.

Further barriers to successful work force integration are the need for child care facilities to enable single parents to take training (the prior existence of child care facilities in Dawson Creek, where 50 per cent of this group lives, may ease this problem) and the need for continued financial support of trainees and their dependents during non-remunerative training. Present Department of Human Resources policy allows financial assistance for moving to a confirmed job. The Department is reluctant to finance training which has a doubtful impact on a person's employment prospects. Maintenance of persons undergoing training is conditional: either a confirmed job is required; or, if other employment is not available, training may be taken which promotes job readiness. The precondition that other work not be available is potentially very restrictive, particularly if it is a sufficient criterion for denying support; it does not take into account the possibility that available work may be unattractive (financially and in other respects) to social assistance recipients who would be willing to be trained for and employed in qualitatively different work. Careful preselection of a group of recipients identified for special attention might enable the Department to waive the "other employment" requirements. Alternatively, joint preselection by government and a cooperating mine employer, under the auspices of an omnibus development agreement, could

provide trainee candidates with letters of "intent to hire" from the eventual employer.[2]

CONCLUSIONS AND RECOMMENDATIONS: RECRUITING SOCIAL ASSISTANCE RECIPIENTS

With available staff and facilities it would be feasible to intensively pre-screen about one hundred recipients out of which a group of 15-30 persons (10-20 employables and 5-10 female heads of one parent families) would be successful graduates of a training program. Therefore with special attention and training given to these people and without major changes in departmental resources it could be possible to yield up to 30 former recipients as persons elegible for permanent mine employment. Recommendations below follow from findings that: social assistance recipients provide a limited source of mine workers; many employable recipients possess low basic education plus low motivation; intensive selection of trainees is necessary for efficient programs; and the high mobility (geographically and through changing assistance status) of the employable recipients reduce the efficacy of institutional training programs.

It is recommended:

1. That agreements between government and mine developers specify utilization of some social allowance recipients in the mining work force, with provision for training as specified below.
2. That between 15-30 employable social assistance recipients be identified for special consideration as potential mine employees, and that the proportion of persons so

identified be at least 30 per cent female, preferably one parent female heads of families.

3. That, due to the geographical location of employable recipients, Dawson Creek be considered the centre for such efforts, and that the PREP counsellor be identified as primary facilitator for identification of potential recipients and coordination of efforts on behalf of Department of Human Resources.
4. That program participants train as part of any broader training scheme developed to facilitate regional mining work force participation but that, where required, "life skills" and/or upgrading programs be offered independently and in advance.
5. That, due to the highly transient nature of employables, participants be selected who are less transient and who are residents of the peace river area.
6. That the Department of Human Resources commits itself to payment of social assistance plus training allowances to any employable recipient selected for this special training prgoram. This should be done only when other funding is not available.
7. That Canada Manpower and the Departments of Education and Labour flexibly coordinate their upgrading, job readiness training and apprenticeship programs to accommodate program participants jointly selected by, Manpower, Education, Labour and the Department of Human Resources.

FOOTNOTES:

1. Vancouver Resources Board, "Analysis of Social Assistance Recipients in Vancouver Resource Board Area", unpublished paper prepared by the Sub-Committee to Lower Mainland Manpower Planning Committee.
2. This method of selecting candidates for training at public expense has been adopted in an agreement between the Federal Government, Syncrude Canada Ltd. and the Indian Association of Alberta signed July 3, 1976.

Part IV

Training Manpower

CHAPTER 17

TRAINING MANPOWER FOR NORTH EAST COAL DEVELOPMENT

Research on the potential labour force of the North East region has not provided a very clear indication of the skill and experience qualifications which exist at present.

This report places a high priority on regional employment in any coal development, if regional residents are to be eligible for employment they must be equiped with the appropriate skills. As the developments are still at the drawing board stage, there is no information on the skill/experience requirements sufficiently precise to permit any in-depth discussion of the need for training programs, their nature or capacity. The facts that mining is not a widespread activity in the region and that potential sources of labour may have limited industrial work experience leads one to conclude that significant training programs will have to be mounted to mobilize residents of the region for employment.

In Chapter 5 it was stated that if special training efforts are to be made to meet the labour demands of future development projects, then these should be timed and devised on an as-needed basis. This is likely the most cost-effective approach to adopt in view of the "normal" rates of overall provincial employment growth which have been forecast and the large differences in the skill requirements among possible development projects.

THE BEST LOCATION FOR TRAINING PROGRAMS

The emphasis on securing maximum coal mine employment for residents of the region makes the question of where training should occur a very important one. Access to jobs and access to training may be virtually inseparable. Training programs offered outside the region will be more difficult for regional residents to get to (particularly people with families) and more costly for them to attend living away from home; in short, fewer North East residents would receive training and fewer would become mine workers. Training within the region would not only be of greater benefit to the residents but perhaps also to the eventual employer. People who would be willing to travel to the North East for training will have domonstrated a willingness to consider working there. Graduates of training programs more distant from the eventual employment locale may have a greater tendency to take other employment; if this were so then the more distant the training facility, the more trainees must be educated for the same number of North East mine applicants and the more costly per mine applicant would be the training effort.

Although it may be desirable to train in the North East, not all programming can be provided. Several factors must be examined prior to the selection of the appropriate location for specific training programs. The present assessment method for program proposals would include the following points:

For established programs operating at other institutions, the Department of Education would review the request by a local community college, vocational school or agency requesting the training.

1. It would estimate the need for more graduates from the proposed program.
2. It would determine whether the program offered at the other locations is being utilized to the maximum.
3. It would review the capital equipment required to establish such a program at the new locality.
4. It would look at the available space at the local college.
5. The locality from which the majority of the students would come would be investigated.
6. It would examine the total base population of the region to see whether an on-going program could be justified relative to student supply.
7. The possibilities of employment in the local area relative to employment in other regions of the province would be compared.
8. When all of the above have been reviewed, a decision on locality of the new program would be made.

On newly proposed programs it is often the case that these are developed by the initiative of the local college to meet local needs. Often, the college making the presentation is the appropriate college to offer the program. There may be occasions when the idea initiates with one training institution but, in fact, another institution may be more appropriate (in terms of the above listed criteria) for providing the training.

METHOD OF TRAINING AND RECRUITMENT OF NORTH EAST RESIDENTS

Other aspects of training influence eventual job access. Location of training facilities is one aspect which has been examined. The three major forms of training must be examined to see what effect each of them would have on recruitment. The three major forms have been identified as apprenticeship, on-the-job training and institututional training. Apprenticeship is a mixture of on-the-job and institutional training but, because of certain restrictions, it must be viewed as a separate form of training.

Following is a description of the three forms of training with their major benefits and limitations. Recommendations on training methods are given on page 241.

Apprenticeship

Apprenticeship training falls under the jurisdiction of the Department of Labour by reason of the Apprenticeship and Tradesmen's Qualification Act. This act establishes which trades are "designated" and thus require persons entering the trade to take apprenticeships, the length of apprenticeships, the content of the training programs, the hours of work and wages of the apprentices, the form of contract which will be developed between the employer and the apprentice, and the duties of both the employer and apprentice.

The maintenance hourly work force predicted for coal developments includes Heavy Duty Mechanics, Electricians, Machinists, Millrights, Pipe and Steam Fitters and various other apprentices who are not listed by trade. Any training program which involves preparing persons for positions as tradesmen in

these areas will have to fall under the Apprenticeship Act.

The general form of apprenticeship in British Columbia is to have the student indenture to an employer, a joint training board or union, work for a major portion of the year on-site as an apprentice, and attend schooling at one of the regional colleges or Burnaby Vocational School for a period of four, six or eight weeks annually, depending upon the trade. This apprenticeship pattern continues for generally four years. At the end of the program, in certain trades, the graduates can write the Interprovincial Standards Examination and, if successful, get a Red Seal. This allows interprovincial standing for his journeyman status.

The positive benefits of apprenticeship training programs include:

1. Meaningful training - The mixture of work experience and theory in a school setting provide a good blend of practical and related theory. It allows the student to apply the theory of school in the work situation and vice versa the applicability of the work experience to the theory taught in the school.
2. General nature of training - By taking an apprenticeship, the adult has the opportunity to train in the many aspects of the trade and hopefully become a generalist in it. The advantage of the generalist is supposedly that of flexibility.

Some limitations of apprenticeship programs include:

1. Ratios - Journeyman to Apprentice - In most major industrial contracts such as that which will probably

be arranged between the mining company and whichever union receives certification for the employees on-site, will probably produce, formally or tacitly, a journeyman-to-apprentice ratio. Though few collective agreements in mining have specific ratios, the construction industry adheres strictly to a ratio of 5 journeymen to one apprentice. Ratios found in British Columbia mines range from 2:1 to 4:1. This ratio is very carefully guarded by the unions to ensure both appropriate training for the apprentice and sufficient employment opportunities for the journeyman. It means that the scope for apprenticeship training programs is limited by the number of journeymen in the field. If the number of journeymen declines, it may be difficult to rapidly expand the necessary training to catch up.

2. Lead Time - When manpower needs are identified indicating that journeymen are required in any operation, unless these journeymen are in existence at the present time, they will have to be trained. To produce a journeyman from scratch, the present structure requires four full years, usually with work and theory mixed. It is rarely the case that manpower planning is sufficiently accurate to start preparing workers now for an apprenticeship program to meet the needs for journeymen in,say, four years time.

3. Work Availability - A related problem to the previous one is that of the work component. An apprentice must be sponsored by an employer. When industry is on

a down swing and employment is low, the opportunities for training apprentices in industry become limited. Therefore there is no way of providing full apprenticeships if the number of persons the industry can take on, due to economic conditions, is limited.

4. Problems with Seniority - Unions, in their collective agreements, have generally tended to look after the welfare of their members first. One way of providing career laddering or opportunities for their workers to move up, is to make seniority a prevalent factor in successful application for an apprenticeship. From the union members' point of view this is a most satisfactory stand. The employer, in many ways, also benefits because the worker has had previous experience with the company.

   Seniority applied in a restrictive manner however, eliminates alternate methods of entry into the work force. For women who generally lack seniority in industrial work, this selection mechanism effectively denies them access to apprenticeships. Thus, the highly talented individual with the potential to become a top-flight journeyman, is denied entry except at the lowest level. Many young adults are not prepared to spend time at the lower level jobs when they have received training which would enable them to enter at a much higher level. Hence the number of persons willing to apprentice for a trade is inhibited.

On-The-Job Training

On-the-job training has traditionally been the most common method of providing training to the work force. Recently, through the initiatives of the Federal Government and its Canada Manpower Industrial Training Program, a large impetus has been given to this traditional form of education. This impetus is in the form of wage assistance for the employer. The employers can involve themselves with Canada Manpower in developing a training contract. For employees who are not threatened by unemployment but require upgrading, the Federal Government will pay the employer 40 per cent of the employee's wages. For unemployed persons, the assistance is at the rate of 60 per cent, and for those potential employees who would come from the "disadvantaged" group, the amount of subsidy rises to 85 per cent.

Benefits of on-the-job training include the following:

1. On-the-job training, in many ways, can be the most realistic form of training available.
2. The trainee has been selected by the employer and therefore has a very good chance of employment after training.
3. He is working on equipment that he will work on in the job after completion of the training program.
4. The programs can be mounted on short lead time and can be designed to meet needs for specific skills in any area.

5. There is a minor production component from the training and consequently the economy benefits as the student is training and producing at the same time.
6. One of the major benefits of this type of training is that it can be provided in locations and on equipment which cannot be duplicated efficiently in a school setting.

There are several major limitations of training on the job:

1. Since the training is designed for a specific employer, the training can tend to be narrow, and can limit the flexibility of the individual to move from job to job. In theory, the employee, when no longer skilled at the jobs available, will receive further training for the new jobs which may come up. However, it does not provide for changes in attitude or aspirations of employees who may wish to change employers but whose skills are too specific to allow this mobility without substantial economic hardship.
2. Probably one of the major problems with industry training is that when the economy is down, and larger sements of the work force unemployed, it is difficult to provide the training to the unemployed work force. For example, it is not appropriate for industry to run a sawmill for training alone. Yet, when the economy

is on a downswing, the sawmill may be shut down, a large number of people out of work, and no means of providing on-the-job training for them. It has often been stated that the most appropriate time to train is when a man is unemployed. Training on the job is very difficult when industries are shut down.

3. A third factor is preparing for future needs. Although training on the job is possible when the job exists and the industry is operating, it is not possible to provide long-range training for future industries using regionally non-existant technologies. For example, to train coal miners requires a mine but the miners must be trained before there is a mine. This paradox can only be resolved through the purchase of industrial training at existing mines, the trainees to be transferred to the new operation as it begins.

4. Access to training on the job is at the discretion of the employer thus traditional employment patterns may be perpetuated; this may be a barrier to the employment and training of non-traditional groups of the population.

Institutional Training

Institutional training has generally been of the pre-employment upgrading and apprentice training nature. The programming has been traditionally established at centres where the student travels to the centre for training. Until recently,

it has been geared for the young graduate of the public school system looking for sufficient training to enter the labour market.

The usual benefits of an institutional setting for training are:

1. that the instructors are well trained
2. that the facilities are designed for learning and have the back-up resource materials in the way of library, audio-visual equipment and counselling
3. that the programs are generally not restricted to specialized industries, therefore the graduate of the program has the opportunity to pick and choose amongst a variety of potential employers. This benefit allows the student to obtain general preparation for employment and to enter the world of work on his own terms rather than as a production unit in a major industrial plant.
4. The programs can be mounted on reasonably short time, their duration being much less than the formal apprenticeship program. Thus, a 10-month or two-year program, whichever is most appropriate, can prepare a person for productive work immediately on completion of the program.
5. Program entry has the potential to be structured to achieve social policy objectives such as the training of persons who sign up from groups which traditionally have not obtained such training.

Limitations of an institutional setting for training include:

1. The capital equipment required for vocational programming which is to be used for instruction only, is expensive. It therefore tends to be used for a longer period of time and can become obsolete. This factor tends to remove the realistic atmosphere from the training. The school setting is also usually much more attractive in aesthetic terms than the work setting and a lack of realism exists there as well.
2. The programs can become expensive. Salary costs for experienced, qualified instructors are high. Program timetables based on the traditional school year mean that up to one-third of the year is not productive relative to training students; this escalates the training costs per student as fixed overhead is a continuous financial burden.
3. There is rarely total integration between the training program and employment at the end of the training program. Students can successfully complete the course yet not possess the requisite characteristics to make them employable. If the person had been selected by an employer prior to entry to the program, it would enhance this aspect of the training. Similarly, there is often no close integration between the actual number of graduates from a program and the employment opportunities at any one time for those graduates.
4. The programs, because of their general nature, often lack the flexibility to meet the special needs of

industry. The colleges and vocational schools attempt to do this type of training through special short courses, but it may be more appropriate to do it through on-the-job training.

5. Programs tend to develop an inertia of their own. Consequently, their scale is very difficult to reduce once started and even terminating them may be difficult.

Institutional training programs specifically applicable to coal mining have been operating in the Kootenays. In the high school system, Fernie has developed a local course called Mining 11. It is a general introduction to the industry. There they hope to produce a Mining 12 in the near future. This program was initially designed as a work-study program for potential drop-outs from the high school, with the goal of offering them a more meaningful program which would lead to employment. In post-secondary there are the two courses at the British Columbia Mining School-Rossland. Underground Mining, Open Pit Heavy Equipment Operators. As well, through Mobilearn, there is a course leading to Fire Boss - Third Class Certificate of Competency. It is 30 hours long.

Summary and Recommendations on Training Methods

Each of the forms of training listed above has benefits and limitations. Some are imposed by present legislation, some by the size and scope of equipment and some by the general nature of an education institution. The following recommendations are made relative to the appropriate types of training for the coal industry:

1. In those designated trades, as a result of the legislation currently in effect, apprenticeship training programs will have to be established. Priorities could be given to employment of regional residents and traditionally under represented groups.
2. On all operator training programs in the plant and in the open pit, where heavy equipment is a major and necessary component of the training program, industry training on-the-job is the appropriate method. Such training should be made available to all persons who meet minimum elegibility criteria; in particular, the goals of community stability and maximum opportunities for regional residents cannot be achieved efficiently without a positive hiring policy by the employers.
3. Institutional training should be geared for pre-employment, pre-apprentice and skill training, especially for the local population, women and other traditionally under-represented groups. In many cases these groups will require special skills to enable them to enter the world of work in the trades and industry of the coal mine. Much of the training for the additional jobs created in the service industries can also be done in and by the institutions.
4. All institutional training should receive maximum cooperation from regional employers in terms of local hiring and the provision of maximum employment opportunities to program graduates.

EXISTING INSTITUTIONAL TRAINING FACILITIES

A general overview of provincial institutional training facilities is given to provide perspective to the discussion of regional facilities. The Provincial Post-Secondary Education System has some fourteen community colleges, three vocational schools, the British Columbia Institute of Technology and three public universities. The programs offered in these institutions range from Adult Basic Education through Apprentice Training, Pre-Apprentice and Pre-Employment Training, Journeyman Upgrading, Commerical Programs, Service Programs, Health-related Programs, Programs in the Career-Technical area of two year duration leading to diplomas of technology, general degree programs and professional schools. It is a wide-ranging, comprehensive system offering services to most of the general adult population. As well as offering the above full-time programs, these institutions are heavily involved in continuing, community, and recurrent education for the adult population.

The decision as to location of training, in many cases depends upon the present programming offered in that institution, and the space available. Most of the schools at the present time are fully committed during day-time operations. Some, in fact, are heavily committed on a double shifting basis in the vocational area. Many of the community colleges could expand their offerings in a variety of the trade programs by double shifting, and offering additional programs during the summer months.

Another factor affecting the location of training programs has been the source of the students for the training.

This is especially true in the apprentice training area where the apprentices have to take approximately one month a year of technical school training while serving their apprenticeship. Recently, the trend has been to disperse the programs as much as possible throughout the province so that the apprentices from the North East may only have to travel as far as Prince George or Kamloops to receive their training.

The institutional facilities available to those involved in any coal industry in the North East can be grouped into two major areas - on a regional and province-wide basis.

Facilities in the North East

A. Secondary Schools

South Peace School District #59 is the one which will become most involved with any coal projects in the North East. The enrolment pattern at the secondary school has been increasing but has leveled off. Provided there were no increase in basic population the school could meet changing needs for specific programs in the present facilities.

The number of students who drop out prior to completing high school is higher in the North East than most other areas in the province. The school district is aware of this and is establishing a task force to examine educational programs for the next five years. It is felt that specific vocational training programs in the high school, designed to appear to these young persons, may be recommended as a result of the study.

Over the past four years an average of approximately 217 students have graduated from South Peace Secondary. A similar number have dropped out between Grade 10 and completion

of Grade 12. It would therefore seem that the local school system could provide specific training for a fairly substantial number of local young men and women for employment opportunities related to mining.

B. Northern Lights College

Dawson Creek is the largest urban centre in the northeastern section of the province. In the 1960's a vocational school was established on the old air force base. In 1975 the vocational school was melded with Northern Lights College to provide a broader scope of training for the residents of the region. The College has established coordinators of Adult Education at several locations other than Dawson Creek with one at Fort Nelson and one in Chetwynd. The College now offers programs in academic transfer, some career-technical subjects and the vocational programs which were previously offered by the vocational school. In terms of enrolment, vocational programming is predominent.

In the most recent school year there were some seventeen full-time and 104 part-time academic students. These students were taking a variety of first-year university transfer programs. Some will transfer on to the universities in British Columbia, some to Alberta and others will remain in the region having bettered themselves with no intention of going on to formal training beyond the first or second year. It is unlikely that the college will grow extensively in university transfer programs in the coming years, as the population in that region is minimal for a college operation.

The vocational programming which has the largest enrolment consists of programs varying in length from several days to one year. During 1975-76 there were some 835 full-time students enrolled and some 400 part-time students who probably were enrolled in night programs. Since the vocational programs are of varying lengths, this figure represents the total number of people who have gone through the college in a year. At any one time, the actual population is probably closer to 200 to 250 vocational day students.

The following is a list of the vocational courses offered at Northern Lights Community College: Agriculture, Agricultural Mechanics, Auto Body, Auto Mechanics, Basic Training for Skill Development, Business Office Training, Carpentry Pre-Apprentice Training, Bookkeeping, Cooking, Heavy Duty Mechanics, Welding, Welding Upgrading and Testing Services. Students from a number of these programs would be suitable for employment at any mine developed in the region. As well, the Welding Upgrading and Testing Service will be most valuable to the mining employees.

The Northern Lights Community College has dormitories and is one of the few institutions in the province which does. They have a capacity for 90 men and 35 to 40 women. These facilities are not totally used and if additional students were to enrol in the school as a result of mining activity, it is assumed that these dormitories could provide space for those wishing that type of accommodation.

The capacity of the College to provide vocational training programs have not been fully utilized. In the year

1975-76 the College provided some 51,000 vocational training days. By extending the school year, double shifting and maximizing enrolments in the courses, this figure could be increased to 114,000 training days. It is fortunate that if there is expansion in the area, the school has the facilities to expand to meet requests that may be placed upon it without having to go to additional space.

The college also provides Continuing Education and Community Education programs in Dawson Creek and other locations. It could expand the role of this section of the college into providing contract services to any agency which wishes to have specific training provided on-site. The requirements of the Department of Education in this matter is that the college recover all direct and overhead costs for any program offered.

Provincial Facilities

A. Other Community Colleges

There are some fourteen community colleges in the Province of British Columbia, all offering a wide variety and scope of programs in academic career and vocational areas. Most have been established for some five years or more and have developed a fairly broad programming base compared to the initial programming offered by Northern Lights College. The three community colleges closest to the North East region of the province are the College of New Caledonia at Prince George, Northwest Community College at Terrace and Cariboo College at Kamloops. The vocational programs specifically offered at these institutions could supplement the facilities

at Dawson Creek. They offer a broader range of programs in the Electrical, Electronic, Drafting, Heavy Equipment Operator and Millwright areas. The advantage of these three colleges is that they are in the interior of the province and out of the Metropolitan Vancouver area. In the latter area there is the large British Columbia Vocational School in Burnaby, which, for specialized trade areas, would be the location where students would have to take their apprentice or pre-employment training.

B. British Columbia Mining School - Rossland

In 1971 a specialized school was established at Rossland to introduce young people to the mining industry. It was initially established as an open-pit training facility and has, over the past six years, graduated some 427 students including women from the four-month training program. The students initially find employment as helpers or in the assistant category in many of the open-pit mines in this province and in Western Canada. The course content includes safety, timekeeping, tools and equipment maintenance, and heavy equipment operation using diesel engines, front-end loaders, bulldozers, graders, track machines, dump trucks; drills and shovel. Also included is experience with blasting and field operations.

By 1973 the need for underground students was recognized and a program was introduced. Some 132 students have graduated from the underground program since that date. The three-month pre-employment course is designed to prepare students for employment in the underground mining operation. The course content includes operation of rock drills and underground loading, haulage

equipment, techniques of blasting, installation of track, piping and ventilation, timbering, rock bolting, safety, timekeeping and equipment maintenance. As the skills are related to hard rock mining, there has been little likelihood that graduates would become employed in the present coal mines which are mostly open-pit operations.

The Mining School has had support from both Canada Manpower and the Department of Mines, which have provided income replacement allowances for the students taking the training. A number of women have graduated from the program and the percentage in this area could easily be expanded. The role of the Mining School in Rossland is under review at the present time and it has been suggested that an extension service could be developed with mining companies to assist them in training their own employees on the job.

C. British Columbia Institute of Technology

The above institution is the major technical training institution in the province. A number of the community colleges provide technical programs as well, and a number of their programs feed into the British Columbia Institute of Technology programs at the second year level. The graduates from such programs as Mining Technology, Chemical and Metallurgical Technology, Pollution and Treatment Option, Mechanical Technology, Surveying, Control Electronics Option, Civil and Structural Technology would be suitable for employment in the mining industries. It is unlikely that further programs in many of these areas will be provided at the community colleges until

the resources at BCIT are used to the maximum. This is especially true in the Mining and Chemical Technology where the enrolments could be expanded without increased equipment or staffing. The Institute of Technology through its Industry Services Division provides contract services to industry and has extensive experience in the field.

D. The University of British Columbia

Of the three universities in British Columbia, only the University of British Columbia offers engineering programs. It may be of interest to the mining companies to select graduates from the Chemical, Civil, Electrical, Geological, Mechanical, Metallurgical or Mineral Engineering programs.

The preceding is a summary of the different locations for training programs.

TRAINING MANPOWER FOR COAL DEVELOPMENTS

The review of North East institutional training facilities reveals that there is unutilized capacity available should the government choose to establish new or expand existing programs in response to any regional coal mine developments. Perhaps most of the training for mine employment will take place on-the-job. A potential obstacle to the employment of regional residents may be the lack of any opportunity to obtain certain types of training before mine operations commence. If on-the-job training is an important component then consideration must be given by government to how this obstacle may be alleviated. Possible initiatives could include having a more gradual start-up phase accompanied by manning over immediate requirements

to allow on-the-job training before full productivity is a necessity. Another possibility might be the purchase of on-the-job training places in suitably similar coal mine operations in British Columbia or Alberta; though this would make on-the-job training available in advance of any start-up in the North East, it would occur outside the region and thereby limit participation by regional residents.

There are too many unknowns regarding the scale, timing and technology of possible North East coal developments for a lucid commentary on training to occur at this time. The development of appropriate and coordinated training initiatives by government and coal mine developers should be undertaken within the framework of a development agreement, without such a mechanism orderly training of regional residents and their consequent access to mine employment will be impaired.

The costs of adequate training programs obviously cannot be determined without detailed knowledge of all cost factors, such as: what employers would find sufficient qualifications for each mining position; the numbers of each homogeneous position to be filled; the pre-training levels of existing qualifications among program candidates; and what specific employment targets the government may adopt with respect to particular population groups. Costs cannot be determined nor can they be allocated among the interested parties until detailed discussions have occurred. The likelihood that mutual cooperation and cost-sharing will reduce the costs to all parties may impel the conclusion of a development agreement. It is also likely that were training

candidates to be pre-selected by the eventual employers, according to agreed criteria, then the value of institutional training investments by the public sector would be enhanced; graduates would have higher chances of gaining permanent employment.

Regarding costs of training in the North East it should be restated that unutilized physical plant capacity in the schools and Northern Lights Community College means reduced capital costs for new or expanded programs in support of any coal developments.

Financing of Training Programs in the North East

There are a number of federal programs through which funding in support of training for employment is available. The programs are itemized and their objectives and nature briefly outlined in Table 55. The Canada Manpower Training Program is planned and managed by the federal government in close cooperation with the Province by means of the federal-provincial Manpower Needs Committee. Budgets are set nationally but focused on local needs and conditions. The Province should plan to take the fullest possible advantage of federal financial assistance in planning and training to make available the desired labour supply for North East coal developments. Existing training programs and individual trainees in the Province benefit directly from federal financial assistance through these avenues.

The budgets for Department of Education programs in the schools and Northern Lights College are established annually

TABLE 55

Federal Manpower Programs

Applicable to Training and Recruitment in North East Development

Program	Objectives/Action	Maximum Duration	Financial Benefits
Canada Manpower Training Program, CMTP	Help adults become productive members of labour force; match supply with demands for skilled workers/formal school training, adademic upgrading, basic preparation, adjustment to work world; apprenticeship classroom training.	52 weeks	Trainee allowances including travel, family support; Fed. Gov't pays all course and allowance costs.
Canada Manpower Industrial Training Program, CMITP	Encourage employers to establish training programs; expand employment opportunities for unemployed, special needs persons; support industrial development strategies in various regions of Canada/employees (17 years or older) of contracting employer likely to gain a continuing benefit.	52 weeks	Off-the-job training costs and from 40% to 85% of trainee wages; funded by Federal Government.
Local Employment Assistance Program, LEAP	Support projects creating employment for people who would otherwise be unemployed; raise level of work skills among participant groups of communities/LEAP staff work with identified groups to design project proposal.	3 years	Project development, $100,000; maximum annual stipend $200,000; funding primarily for Wages; experimental, limited funds.
Outreach	Extend existing Canada Manpower services to those whose needs not yet met due to isolation or lack of knowledge; projects to provide job-referral, job-placement services to special groups/projects developed by Manpower officials in consultation with communities, groups or government.	36 months plus a developmental period	$200,000 annually

TABLE 55 - Continued

Program	Objective/Action	Maximum Duration	Financial Benefits
Canada Manpower Mobility Program	Financial assistance to relocate for employment or federally sponsored training; primarily for unemployed, underemployed or people in danger of becoming jobless/grants given to explore job opportunities, relocate worker and family, travel for CMC arranged training or counselling.	Not applic-able	Cost of moving dependants and personal and household effects; plus relocation allowance and home purchase allowance of $1,500.
Canada Manpower Consul-tative Service, CMCS	Help employers and their employees adapt to change; encourages preventative action wherever major changes foreseen/tripartite agreement between Manpower and representatives of labour and management; program to research and plan suitable adjustment measures, co-ordinate private and public adjustments including full range of government manpower programs.	Unknown	50% of costs of research, planning and consultation jointly undertaken; 50% of intra-firm mobility costs if part of adjustment.

however the Department through contingency funding (R.A.C.) can increase training capacity in vocational subjects within the year. Funding for in-school adult training (CMTP) is allocated to specific programs, major new commitments would require additional CMTP funding. Within any budget there is scope for mounting specific short courses in trade training as long as there is no large capital investment. Additional facilities are not currently planned for the North East and any physical expansion would have to be considered in relation to other provincial needs.

Part V

Manpower To Meet Needs

CHAPTER 18

ADEQUACY OF LABOUR SUPPLY TO MEET POTENTIAL COAL DEVELOPMENT REQUIREMENTS

Earlier chapters have surveyed the possible manpower demands of North East coal developments. A wide range of values for total employment is observed in the profiles adopted. Under the most auspicious economic conditions it is unlikely that direct coal mine employment in the North East will exceed 3,000 in 1986. In no five-year period from 1976 to 1991, for any of the profiles, would the growth of coal employment exceed 1,600 persons. This fact implies that the demand for labour attendant upon coal developments would be most subject to supply problems, if ever, in the first five year period, from the present to 1981. The first years will witness coal mines starting from scratch to establish a viable mining work force. At this stage start-up problems combined with a steady expansion toward full production may strain the manpower resources, making training in-house difficult. At later stages training can proceed within a smoothly functioning operation, thus fewer difficulties would be encountered with successive quanta of work force requirements. Attention therefore is focused on the coming five-year period.

Industrial employment growth in the Province as a whole is not expected to be greater in relative terms than that experienced over the past decade. The analysis in Chapter 5 would lead to the conclusion that a quantitative

labour shorage is not likely to occur in British Columbia. Unfortunately no research has been possible on the question of qualitative labour shortages; for some work a lack of appropriately skilled workers would be no less of a hindrance to development than a lack of people. What this finding does indicate is that there certainly seem to be sufficient numbers of people, with coordinated efforts by government and industry these people can be trained in time to facilitate North East developments as well as those elsewhere in the Province. Future demand for trained workers cannot be accurately predicted unless the needs of new projects are known. On a provincial scale, expanded training efforts, in general, do not appear to be a critical necessity. It is concluded therefore that the government should take steps to ensure adequate training occurs to meet the needs of economic development as projects become known. In the case of North East coal development, any, expansion of training effort should be referenced to the incremental skilled labour needs of the project which current training programs cannot satisfy.

Chapter 11 discussed the North East population and current labour force from a number of perspectives. Significant numbers of people, not currently working, are, or, in the case of in-migrants, will be available in the region. The awareness of and ability to seize employment opportunities among non-working people can be enhanced. If labour supply planning commences immediately upon any decision being taken to proceed with North East coal development, then there is sufficient

time for suitable government training programs and complementary social services to be established; with such support the required labour supply could be forthcoming regionally. The accompanying summary shows rough estimates of the numbers of people in various categories identified as having potential for further employment. Care should be taken in interpreting these figures; the categories overlap considerably so a total figure based on these would not be meaningful; the resources required to motivate and equip people to work differs greatly among the groups mentioned.

Non-Traditional Sources of Labour Which Have Potential for Further Employment	Total Estimated Number[1]
Females not in labour force	7,475
Females with work experience, not in the labour force	5,085
In-migrants of working age, annual flow	2,400
Unemployed (1976)	2,000
Construction carryover from coal mine development on a Profile I basis from 1979 peak employment	1,300
S.A. recipients-employables + one parent families	1,200
Underemployed in agriculture	567
Prospective highschool dropouts, annual flow (1975)	500
Native Indians, status and non-status	500

[1] Figures are for 1971 unless otherwise indicated.

DYNAMIC ASPECTS OF LABOUR SUPPLY

Policy makers should be aware that the question of adequate labour supply cannot be answered in a yes/no fashion. In common with all economic resources, the availability of labour is sensitive to market conditions. These conditions are in some measure within the realm of government influence; in particular the government is in a position to train people and assure that jobs will be available to persons who are or become qualified. Provision of the means to qualify coupled with the assurance of employment upon qualification is a double strategy which will attract people to the workforce. Conversely, if facilitating government actions are not taken then fewer people will be able or willing to enter the labour market.

Research undertaken by the Manpower Sub-Committee supports the conclusion that the North East region already has the potential labour force required for development of North East coal. If people in the region are provided with the complementary resources (information about mining work opportunities, training programs, child care services, pre-employment "life skills" and employment adaptation counselling, etc.) they can make up at least half the work force.

Undoubtedly some skilled personnel cannot be trained in the interim for some positions. Supervisors, plant operators, lead equipment operators and miners, technical staff and journeymen occupying key positions will require extensive on-the-job experience; the people to fill such

positions are probably already formally qualified in their respective fields and gaining necessary work experience. These positions are probably relatively few in number and new government training programs could not alter significantly the supplies of suitable workers in the coming five year period. Any domestic shortages which may be encountered with respect to these key positions will be inherited from times past; this potential problem would not be unique, firms frequently establish industries requiring expertise not available regionally and have solved the problem by hiring nationally or internationally.

The Province should concentrate its efforts on maximizing the participation of British Columbia residents in work functions where a public training contribution will achieve real employment gains in the period of rapidly expanding coal employment, 1979-1985. Thus attention should be directed toward lower and intermediate skilled mine operations and staff jobs, and tradesmen. A rough approximation is that these employment positions would comprise about 60 per cent of total coal mine employment. Programs developed to meet the needs of these categories would perhaps also improve the access of regional residents to employment opportunities in associated developments.

CHAPTER 19

RISK SHARING AND JOINT RESPONSIBILITY REGARDING TRAINING AND COMPLEMENTARY PROGRAMS

Should North East developments proceed and the government choose to take action to maximize the employment of regional residents substantial public and private investments in manpower will be made. The efficiency of such investments will depend critically upon there being close cooperation between employers and training organizations.

Cooperation would involve tailoring public and private training efforts to meet the needs of employers at the lowest possible cost; assurance would have to be given by the prospective employer(s) that persons trained and mobilized at public expense would be offered jobs commensurate to their skills. Cooperation would also entail assurances by training organizations that graduates would be suitably qualified for employment and assurances that complementary social services would be afforded employees wishing them. Clearly cooperation means shared responsibility with respect to manpower. Cooperation should reduce financial risk but it cannot eliminate it.

The establishment of government programs requires time, additional time is needed for actual training to occur. Therefore, the public sector is put in the position of having to make financial commitments to programs well in advance of the actual occurrence of employment opportunities. The scale of training and complementary social programs will be determined on the

basis of a development proposal. The risk borne by government is that these manpower investments will not be appropriate in some or all of the following aspects: timing, occupational specificity or scale. The possibility that significant fluctuations in employment in mine operations could occur creates a risk that returns from public investments will be lower than initially anticipated.

Risk stemming from cooperation will also be borne by the prospective employer mainly in the form of uncertainty regarding the quality of job applicants, and their productivity if hired, who will be forthcoming from external training programs.

These risks are, in theoretical terms, indistinquishable from other costs of development. In the same way that other costs may be shared on the basis of the distribution of attendant benefits, the costs must be compensated on the basis of how they are allocated. Risks borne by government could be compensated through a development performance bond, commitments to hire graduates of special training schemes initiated for the development regionally, payments for training places (e.g. for tradesmen, underground miners, skilled operating personnel) purchased in existing industries in anticipation of development or any combination of these alternatives. Risks borne by the employer could be compensated through training incentives where employees who have graduated from special training schemes do not achieve "normal" levels of productivity. Care must be taken that the government not compensate employers

regardless of the risk they may bear; for example, training on-the-job which would occur normally in the course of hiring should not be subsidized, only the incremental amount of on-the-job training is a reflection of increased cost from an employer's prior commitment to hire graduates from a training scheme.

A Lesson on the Potential Costs to the Province of Not Accounting for Risk

The combined effects of poor manpower planning and the uncertainties involved in a new mine development have put public investments at risk in one case in Alberta. Public investments, made on the basis of the mine company's initial projection of the nature and scale of the development, were in some measure wasted when the intended project was not realized due to unforeseen circumstances. The problems encountered in the coal mine development at Grande Cache, Alberta should be kept in mind, the lesson to be learned is perhaps a valuable one for any government which supports a similar development. Contingent protection should be obtained from the deleterious effects of unforeseen problems with the development which otherwise could jeopardize the Province's investments in support of a development.

Briefly, some of the manpower problems which were noted in the Royal Commission report (occassionally quoted below) on Grande Cache may be instructive.

1. Few of the requisite skills (initially it was an underground mining venture) were available in Alberta,

the company recruited skilled personnel mainly in the U.K. and Nova Scotia. Efforts to employ Alberta residents were limited to encouraging applications and movement to work in Grande Cache, no major pre-employment or training programs appear to have been mounted. Problems arose from pooling miners with different backgrounds and coal mine experiences to create productive work units. Compounding problems of harmony in work crews with problems meeting production commitments created a desparate situation.

2. Unexpectedly high costs and low output in underground operations caused the company to shift toward more surface mining. On January 31, 1973, 3 years after mining began, 206 employees were laid off. "What started as a 100 per cent underground mining operation was being turned into an operation likely to produce only 1/3 of its coal from underground operations. This meant the termination of employment of a number of skilled underground miners." (page 41). Federal and provincial government expenditures on moving workers and families to and out of Grande Cache, subsidies for training miners on-the-job, and, most of all, supporting infrastructural investments (in excess of $150 million capital expenditure alone by the public sector) were jeopardized by the changes which were made.

3. Initially the company had a 15 year 29.5 million ton contract with the Japanese buyers, which conveyed

an impression that employment and production would be stable. The impression proved false as unforeseen circumstances caused the company to cancel the long term contract and to negotiate a two year contract calling for reduced (50 per cent) annual production. The Royal Commission stated (page 46):

> From the point of view of the community and the government stability in the operation is essential. The community would be seriously undermined by a "stop-go" situation. The Company would face difficulties if production were not maintained at a fairly stable level. The Company will have to be prepared to finance production and stockpiling if lean periods are encountered. It would certainly be difficult to maintain its labour force without sustained production. The danger of entering into the competitive short term market is that it is much more difficult to sustain stable production levels.

The Commissioners concluded (pages 113-114):

> It is also clear that a resource exploitation of such magnitude necessarily involves the government as a participant in the venture: whether recognized or not. The province not only has an interest in the efficient mining of the resource, and its conservation, but it has a major capital investment in providing the means for exploitation. It also has an interest in protecting the welfare of the members of the community who may otherwise become, in whole or in part, a charge upon the state. This venture was not one which either the Company or the province could regard as solely the responsibility of the Company. The latter has a large investment and the interests of its shareholders to protect, but it cannot be said that its responsibility is solely to the shareholders.
>
> Your Commissioners recognize the value to be obtained by having industry accept the risks of resource exploitation. In this case, however, the risk was clearly shared with the province, and this fact, in our view, justifies more extensive intervention then might otherwise be suggested.

and recommended that (page 115):

> in the future, the province make an assessment of the projected benefits and costs to the state, and consider the extent to which an assurance from the developer is warranted before provincial funds are committed.

The findings of the Royal Commission on Grande Cache echo the conclusions of the Manpower Sub-Committee regarding the need for cooperation between the Province and coal mine developers in the North East.

CHAPTER 20

THE NEED FOR A JOINT DEVELOPMENT AGREEMENT

The foregoing chapters have dealt with questions of government employment goals in North East coal development, quantitative and qualitative demands for labour, regional sources and supplies of labour and risk as an element of cost in public and private investments.

In a number of instances throughout this report the mutual desirability of a development agreement between coal mining firms in the North East and the Province has been apparent. Many areas of joint responsibility having a direct bearing on manpower supply have been discerned: actual demand for workers will stimulate demand for training and increase the labour supply regionally, training programs and facilitative services for employees and trainees will enhance labour availability, coordinated public and industry training initiatives could minimize company training costs, training of regional residents may make available a more stable work force and reduce costly labour turnover, pursuit of government employment goals requires employer cooperation.

It appears that an equitable division of responsibilities and commitments regarding manpower for North East coal developments should be detemined in an agreement between the Province and prospective coal mine companies. Any such agreement must be concluded at the earliest possible time prior to development for maximum benefits to be obtained. Joint action over manpower

issues could be governed through an omnibus development agreement covering all areas of cooperation between the public and private sectors from transport and community infrastructure to manpower. Federal financial support for industrial training should be included as an element of the overall public sector contribution toward development; cooperation between federal and provincial governments and coal developers will be necessary if maximum employment benefits are to be achieved for the residents of the North East. The Federal Government would therefore be a signatory to any comprehensive agreement on manpower aspects of North East coal development.

Consideration of risks borne by all investors indicates that a development agreement may be a necessity; without such a vehicle actions, or the lack thereof, by governments or firms may jeopardize, without restraint of penalty, the viability of investments undertaken by another party. Any effective development agreement should contain assurances of coooperation, assign responsibilities to the parties and provide for compensation where appropriate and penalties for nonfulfillment of obligations.

A development agreement on manpower should contain articles covering the following points:

1. Declaration of mutually agreed goals such as maximum employment opportunities at all levels for the regional population and including a statement that the firm is an equal opportunity employer for all positions.

2. Agreement to cooperate in developing training schemes acceptable to signatories which will bring about maximum employment of regional residents at all levels; cooperation would necessarily involve specifying the positions, the number of each by sufficient qualifications for each, which could be filled by graduates of agreed training schemes; sharing of training costs would be detailed.
3. Assurance by government to make available as graduates persons in numbers and with qualifications previously agreed upon.
4. Assurance by employers that all qualified graduates, in numbers and with qualifications specified previously, will be offered suitable work within a reasonable time of graduation.
5. Commitment by employers to develop attitudes among management personnel and co-workers toward, and to adopt appropriate introductory on-the-job training for, hirees with special needs to facilitate their full integration and promotion in the work force.
6. Commitment by employers to maintain hiring offices in the region and to attempt, as the necessary first step in all hiring, to hire required personnel from within the North East region.

Precedents exist in the Canadian mining industry for a development agreement regarding manpower between government and a mining company. Examples include:

1. In May 1972, the Province of Manitoba and Sherritt Gordon Mines signed an agreement for the purpose of recruiting, employing, training and retaining residents of Northern Manitoba at Leaf Rapids (Ruttan Lake Mine).

2. July, 1976, a tripartite agreement assures Indians will receive opportunities for regular employment with Syncrude Canada Limited; it commits Syncrude to offer employment to Indians, give letters of "intent to hire" to Indians who are willing to upgrade their skills to meet its employment needs (Indians will be eligible for up to 2 years of pre-employment training at federal expense), hire counsellors to provide personal and family services to Indians employed, confer 4 times a year with the other parties, and provide orientation programs on Indian cultural identity to supervisory and managerial personnel.

   The agreement was between the company, the Federal Government and an organization representing Status Indians in Alberta.

3. The Province of Manitoba is currently negotiating with Hudson Bay Mining and Smelting Company (Thompson, Manitoba) to reach an agreement for coordinated manpower training similar to that prevailing between the government and Sherritt Gordon Mines.