WORKING PAPER

MINING INDUSTRY EMPLOYMENT FORECAST
BRITISH COLUMBIA
1971 - 1981

ECONOMIC ANALYSIS BRANCH
PLANNING DIVISION

REGIONAL ECONOMIC EXPANSION CANADA
EXPANSION ÉCONOMIQUE RÉGIONALE CANADA

WORKING PAPER

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A. Robertson
Natural Resource Studies Section
Economic Analysis Branch

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BRITISH COLUMBIA MINING INDUSTRY EMPLOYMENT FORECAST 1971 to 1981

1. FORECAST PROCEDURE

This paper contains employment forecasts for the mining industry in British Columbia for the period 1971-81. It is based upon employment forecasts that have been made for each company that was in production in 1970, for companies that have announced their intentions to bring mines into production and for "significant mineral deposits" that may be brought into production. Individual company forecasts are contained in a data bank that has been created in the Economic Analysis Branch. The data bank is used for continuous analysis of the Canadian mining industry.

Data are obtained from a wide range of sources. These include company reports and statements, provincial and federal government reports, personal contacts and press articles. The reliability of the information varies but it can be used with confidence because data problems generally occur in respect of the smaller and less significant companies.

The definition of the mining industry in this report corresponds to that of Statistics Canada as used in Division 4 - Mines (including Milling), Quarries and Oil Wells. Thus, the forecasts can be used in conjunction with data from Statistics Canada.

Employment forecasts are presented in three categories, namely upper, realistic and lower. These reflect a range of employment levels that may occur if different combinations of economic and marketing factors come into play. Aggregate mining industry group employment figures have been derived, and are shown in Tables 3, 4 and 5 as well as in Figure 1.

Each of the major mineral industry groups is briefly reviewed in this report. Forecasts have also been aggregated by Census Division in order to show those areas where mining industry activity is expected to change. These figures are shown in Table 6. Figure 2 shows a map of Census Divisions in British Columbia where mining activity occurs.

No specific method has been employed in making the employment forecasts for individual mines. However, a wide range of current and historical information has been consulted and used, and those factors of greatest significance have been given their appropriate weighting. Thus, for a very large low grade open pit copper mine, the metal price will be a

critical factor concerning its viability, whereas for a small high grade underground silver mine, the maintenance of adequate ore reserves is frequently the critical factor. The man-year employment forecasts shown here provide one uniform method of presenting the expectations that result from an analysis of each mine.

Seasonal changes of employment in the mineral industry occur frequently. The fluctuations within the year can be substantial. Therefore, all employment figures shown in this report are in terms of man-years of paid employment per year. Thus, due to seasonal fluctuations of the work force, the employment shown in this report will be less than the peak employment experienced during the year.

As in all forecasts, the possiblity of unforeseen events affecting the figures increases over time. For the most part, considerable confidence can be placed in the forecast to 1976 because company intentions are generally indicated and sometimes specified for up to five years in the future. Beyond 1976, the forecasts become increasingly judgemental. Consequently, they should be viewed with caution for this latter period.

In making the forecasts a number of important assumptions have been made. These are listed below:-

(a) That both Federal and Provincial legislation concerning taxation, royalties, land tenure,etc. remains constant throughout the forecast period with the exception of already announced changes. These changes have been taken into account.

(b) That the supplies of labour, capital and materials to the industry in terms of price and availability will be adequate throughout the forecast period.

(c) That the markets for minerals will not change dramatically in terms of volume, relative price and location throughout the forecast period, and

(d) That end-use substitution between different minerals or between minerals and other non-mineral products is not great throughout the forecast period.

It should be noted that all forecasts have been made by the same person, and that where possible they have been reviewed by specialists in the minerals sector. By this means, it is to be hoped that large errors have been eliminated and that any bias in the forecasts will be small and consistent.

II. SUMMARY OF MINING INDUSTRY EMPLOYMENT IN BRITISH COLUMBIA 1971-81

The British Columbia mining industry experienced a period of sustained growth in output and employment during the 1960's. Present indications are that the growth in employment will continue at least until the middle of the decade, after which time a small decline will occur.

Most of the recent increases in employment have been the result of growth in the copper mining and coal mining industries. The mining industry in British Columbia is the most diverse of any province in Canada, with a strong metallic, non-metallic, fuel and structural minerals resource base. This can be an important element in determining the future stability of the mineral industry in British Columbia. The realistic forecast indicates that mining industry employment will rise from about 9,500 in 1970 to reach a maximum of 14,870 by 1976, after which a decline will occur as employment falls back to 13,760 by 1981.

The forecasts included in this paper show that the net increase in mining employment is likely to be about 2,900 over the period 1971 to 1981. The increase

could be as high as 4,300 if mineral markets are buoyant in the 1970's. Alternatively, the pessimistic forecast suggests that mining employment will only grow by about 500 if the mineral industry experiences severe problems in the forecast period.

The major growth of the mining industry in British Columbia is relatively recent and can be largely attributed to the rapid expansion of the Japanese economy and that country's need to import mineral commodities. Most of the present expansion in production and employment has been in the mining of copper, molybdenum and coal, and in most cases new mines have been the result of long term sales agreements being signed prior to development of the properties. The development of large open pit copper and molybdenum mines in British Columbia is also partly the result of technological advances that have enabled huge low grade mineral resources to be extracted through the use of large modern equipment.

British Columbia's mineral industry depends largely on exports of unprocessed mineral commodities, particularly; copper, molybdenum, asbestos, coal and crude petroleum. The highly mechanised capital intensive mining industry that is developing in the province will not create large employment in relation to the value of

production or the volume of material to be mined. Each job created in the large new open pit mines would appear to require a capital investment of $150,000 to $200,000. The trend in British Columbia's mining industry is expected to continue towards greater capital intensity in the 1970's and hence, the employment impact of new mining investment will be moderated.

Table 7 and Figure 3 at the end of this paper have been included to indicate the names of companies involved in mining activity and the location of active mines and development prospects in 1970.

III. THE BRITISH COLUMBIA MINING INDUSTRY IN 1970

In 1970 the total value of minerals produced in British Columbia was $497.1 million, up 14.5 percent from the previous year. Of this, copper was the most important commodity produced, contributing 25.6 percent of the total value, followed by crude petroleum and molybdenum.

British Columbia produced 8.6 percent by value of total Canadian mineral production in 1970, and the percentage was fairly similar in each of the four major sectors of the mineral industry. British Columbia produced 9.7 percent of the value of metallic mineral production in Canada in 1970, 5.0 percent of the non-metallic, 7.2 percent of the fuels and 10.5 percent of the structural materials. Thus, the province had a well balanced mineral economy in 1970, which is forecast to become increasingly oriented towards metallics in the future. The most important mineral commodities produced and their values in 1968, 1969 and 1970 are shown in Table 1.

In 1970 the metallic sector of the British Columbia mining industry contributed 61.0 percent of the total value of provincial mineral production in 1970 compared to 58.8 percent in 1969. In both 1969 and 1970

the non-metallic sector contributed 5.0 percent whilst registering absolute gains in both production and value. The fuels sector contributed 24.7 percent of the total value of mineral production in 1970, an increase from the 23.2 percent of 1969. The only sector to record a decline both in value and as a percentage of the provincial total was the structural materials sector which declined to 9.3 percent of the total value in 1970 as compared to 13.0 percent in 1969.

TABLE 1

VALUE OF MAJOR MINERAL COMMODITIES PRODUCED

IN BRITISH COLUMBIA 1968 TO 1970

Commodities \ Year	1968	1969	1970 (p)
	($ million)		
Copper	77	86	127
Petroleum Crude	50	58	60
Molybdenum	33	48	58
Zinc	41	45	41
Natural Gas	28	33	36
Lead	31	32	34
Coal	5	6	23
Sand and Gravel	21	25	22
Asbestos	14	15	17
Iron Ore	22	20	17
Cement	14	19	13
Silver	16	11	12
Stone	8	9	7
Clay Products	4	4	4
Cadmium	4	4	4
Gold	5	4	4
Natural Gas By-Products	4	3	4
Nickel	3	3	3

(p): preliminary

Source: Department of Energy, Mines and Resources

TABLE 2

MINING INDUSTRY EMPLOYMENT IN BRITISH COLUMBIA
1961-1981*

Year	Past Mining Employment	Forecast Mining Employment
1961	6,500	-
1962	7,075	-
1963	6,938	-
1964	6,523	-
1965	6,569	-
1966	7,397	-
1967	7,645	-
1968	7,954	-
1969	8,223	-
1970	NA	-
1971	-	10,870
1972	-	12,590
1973	-	13,440
1974	-	14,175
1975	-	14,670
1976	-	14,870
1977	-	14,180
1978	-	13,760
1979	-	13,860
1980	-	13,690
1981	-	13,760

NA - Not Available

* - All employment figures are shown in man-years of paid employment

IV. MINING INDUSTRY EMPLOYMENT FORECASTS BY COMMODITY GROUP

In this chapter, the realistic employment forecasts are analysed for each major sector of the mining industry. In Tables 3,4 and 5 that follow, the upper, realistic and lower forecasts by commodity group are summarized. The tabulations are followed by a series of more detailed descriptions of each mineral commodity group. Table 2 on the previous page shows total past employment and the realistic total forecast of mining employment.

At the start of each commodity group summary, a sub-table is included that indicates the realistic employment forecast for that group and its relative importance as an employer in the mining sector. The sub-tables have been derived by taking the realistic commodity group forecast from Table 4.

TABLE 3

BRITISH COLUMBIA MINERALS EMPLOYMENT FORECAST*

1971-1981
UPPER ESTIMATE

Commodity Group	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Metallic minerals	8,320	10,000	10,955	12,295	12,595	12,525	12,600	12,230	11,420	11,130	11,130
Non-metallic minerals	825	825	825	825	825	825	825	825	825	825	825
Structural materials	500	500	510	510	520	520	530	530	540	540	550
Fuels	1,905	2,550	2,595	2,710	2,735	2,760	2,785	2,810	2,835	2,860	2,885
Other Services	200	200	200	200	200	200	200	200	200	200	200
Contingency	-	50	100	150	200	250	300	350	400	450	500
TOTAL	11,750	14,125	15,185	16,690	17,075	17,080	17,240	16,945	16,220	16,005	16,090

* All employment figures are shown in man-years of paid employment.

TABLE 4

BRITISH COLUMBIA MINERALS EMPLOYMENT FORECAST*

1971-1981

REALISTIC ESTIMATE

Commodity Group	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Metallic minerals	7,650	8,800	9,580	10,230	10,680	10,820	10,060	9,570	9,600	9,360	9,360
Non-metallic minerals	750	750	750	750	750	750	750	750	750	750	750
Structural materials	490	490	490	490	490	480	480	480	480	480	480
Fuels	1,830	2,400	2,420	2,480	2,500	2,520	2,540	2,560	2,580	2,600	2,620
Other Services	150	150	150	150	150	150	150	150	150	150	150
Contingency	-	-	50	75	100	150	200	250	300	350	400
TOTAL	10,870	12,590	13,440	14,175	14,670	14,870	14,180	13,760	13,860	13,690	13,760

* All employment figures are shown in man-years of paid employment.

TABLE 5

BRITISH COLUMBIA MINERALS EMPLOYMENT FORECAST*

1971-1981
LOWER ESTIMATE

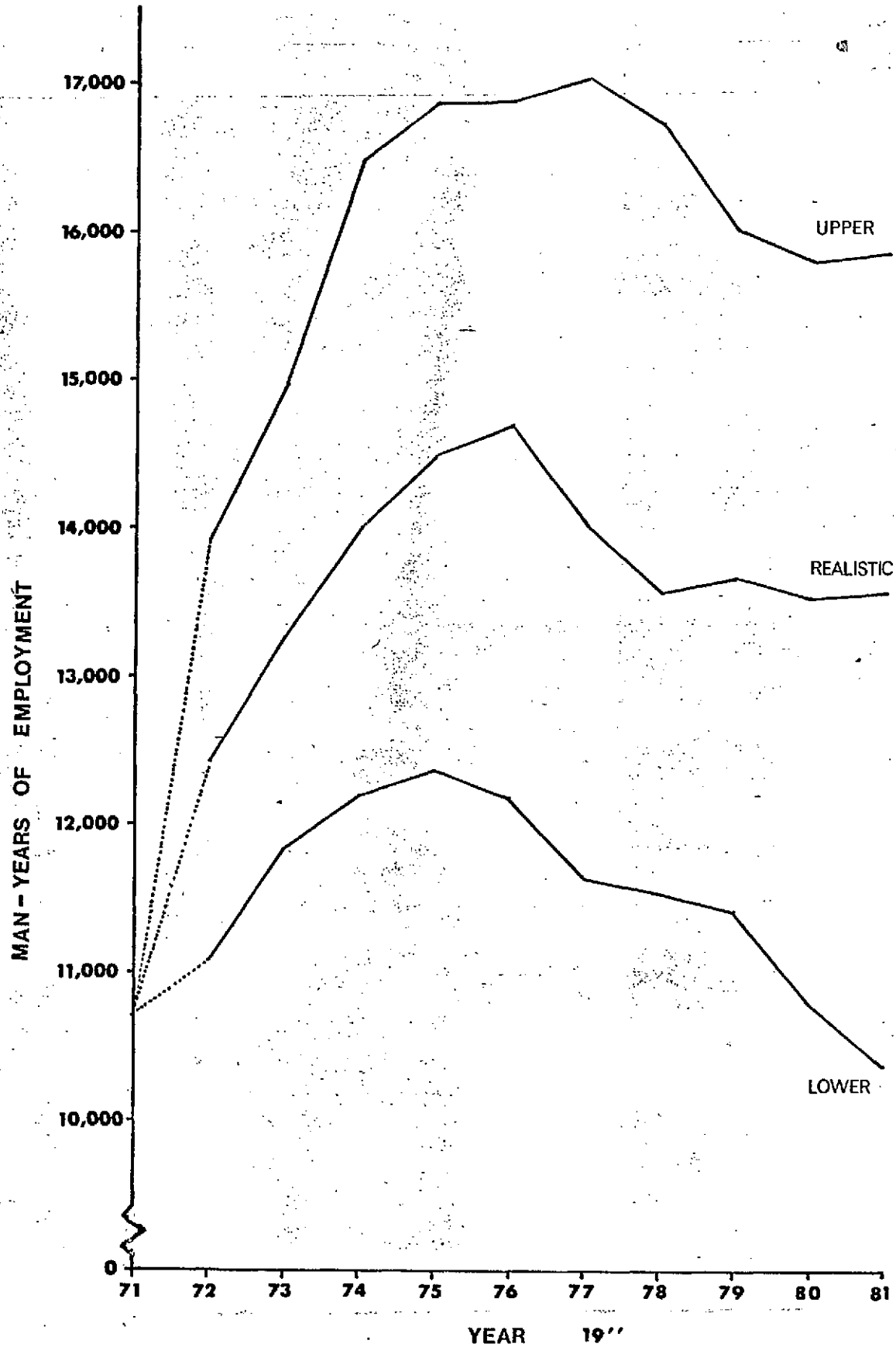
Commodity Group	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Metallic minerals	6,970	7,680	8,400	8,680	8,840	8,570	8,020	7,810	7,710	7,060	6,550
Non-metallic minerals	700	700	700	700	700	700	700	690	690	690	690
Structural materials	480	480	480	480	480	480	480	480	460	460	460
Fuels	1,765	2,280	2,295	2,340	2,365	2,380	2,390	2,400	2,410	2,420	2,430
Other Services	100	100	100	100	100	100	100	100	100	100	100
Contingency	-	-	-	50	50	100	100	200	200	300	300
TOTAL	10,015	11,240	11,975	12,350	12,535	12,330	11,790	11,690	11,570	11,030	10,530

* All employment figures are shown in man-years of paid employment.

BRITISH COLUMBIA

FIGURE 1

FORECAST OF MINING INDUSTRY EMPLOYMENT 1971 to 1981



(a) Metallic Minerals

The metallic mineral sector is the major source of employment in the British Columbia mining industry.

Realistic Forecast of Employment	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
No. of employees	7,650	8,800	9,580	10,230	10,680	10,820	10,060	9,570	9,600	9,360	9,360
% of forecast total	70	70	70	71	73	73	72	69	69	68	68

Employment in this sector grew quite considerably during the late 1960's and is forecast to continue to expand up to the middle of the forecast period, after which a moderate decline will take place. British Columbia's metallic mineral industry is presently in a state of considerable change as the emphasis switches from underground to open pit mines. The impact of new mining industry employment created in the large new capital intensive open pit copper and molybdenum mines will be dulled by the closure of some older relatively labour intensive underground mines in the province during the 1970's.

The new open pit mines are based upon very large resources of fairly low grade ore. These large mines depend upon mining and concentrating huge tonnages of ore and having long term sales contracts with smelters. Most of the

recent developments, and the mines that will open in the first half of the decade, have involved copper and/or molybdenum mines, and the majority involve concentrate sales contracts with Japanese smelters. A new feature in Canadian mine financing has been the loan of funds by Japanese smelting companies against concentrate deliveries at a later date.

Although the new open pit metal mines tend to be capital intensive and therefore create relatively fewer job opportunities than have been experienced previously, they do offer more secure employment and pay higher wages.

Molybdenum production became important to British Columbia in 1965 and annual production grew to some 35 million pounds by 1970 of which about 80 percent was exported. This industry is comprised of straight molybdenum producers and "involuntary" molybdenum producers whose output is a by product of copper mining. Employment in the straight molybdenum mines will decline in the early part of the forecast period as an oversupply situation emerges, but will then increase in the late 1970's as supply and demand are again in balance.

Lead and zinc production primarily derived from operations in the south eastern ports of British Columbia are forecast to remain relatively stable throughout the forecast period. Gold production and employment will cease early in the decade and are unlikely to be resumed, and the production of iron ore will continue to decline but with little loss of employment. In the metallic sector, the future expansion of mining employment in British Columbia will be primarily dependent upon copper production from large open pit mines. This will tend to concentrate the development emphasis into a relatively narrow field that could make the metallic mineral sector very dependent upon one commodity in the future.

(b) Non-metallic minerals

Employment in the non-metallic mineral sector will remain constant through the 1970's.

Realistic Forecast of Employment	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
No. of employees	750	750	750	750	750	750	750	750	750	750	750
% of forecast total	7	6	6	5	5	5	5	5	5	5	5

Of the non-metallic minerals produced in British Columbia, asbestos is by far the most important in terms of both value and employment. The single asbestos mine is at Cassiar in the north of the province, and it is forecast that this important mine will remain in production and maintain the present level of employment through the forecast period.

Employment at the ore gypsum mine, two barite producers, and single diatomite and silica producers will remain at present levels in the 1970's although some increase in production is anticipated. There are ten peat moss producers in British Columbia whose operations are concentrated in the lower mainland area, and whose total employment approximated to 170 man-years in 1970. This level of employment is forecast to remain stable through the forecast period.

Increased production in the non-metallic mineral sector is not forecast to be reflected in higher employment. Rather, production gains will be achieved through greater efficiency.

(c) Structural Materials

Employment in the structural materials sector is forecast to decline marginally during the 1970's.

Realistic Forecast of Employment	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
No. of employees	490	490	490	490	490	480	480	480	480	480	480
% of forecast total	5	4	4	4	3	3	3	4	4	4	4

Activity in this sector of the mineral industry is mainly determined by the demands of the provincial construction industry. The major commodities in this group are, sand, gravel, stone and limestone. None of these operations is sufficiently large to be individually included in the company forecasts.

Sand, gravel and stone operations exist at various strategic points in the Province. The majority of employment in structural materials mining is not reported by Statistics Canada under mining activity but appears under construction industry employment. For this reason, it is estimated that perhaps 800 man-years of employment are not reported in the mining sector for British Columbia.

the future. A new coal operation will open in 1972.

There are many significant coal prospects in British Columbia some of which may be brought to production in the forecast period. The growing demand for Western Canadian coking coal may lead to further large increases in coal mining employment at the end of the decade.

(e) Other Mineral Industry Activity

Realistic Forecast of Employment	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
No. of employees	150	150	200	225	250	300	350	400	450	500	550
% of forecast total	1	1	2	2	2	2	2	3	3	4	4

This sector is composed of the "Other Services" and the "Contingency" groups. The other services to the mineral industry include items such as contract drilling, but this grouping is very small. The contingency grouping is intended to account for developments that cannot be specifically forecast, and yet can be anticipated to occur in the Province. Any increase in the "Other Services" group is accounted for in the "Contingency" group.

V. MINING INDUSTRY EMPLOYMENT FORECASTS BY CENSUS DIVISION

While it is useful to have employment forecasts on a provincial or on a commodity group basis, many planning functions require a more detailed disaggregation of mining industry employment in order to evaluate the impact of that employment on a specific area. Figure 2 shows the Census Divisions in British Columbia. A breakdown of the upper, realistic and lower employment forecasts by Census Division is shown in Table 6. Figure 2 also shows the realistic forecast of mining industry employment in diagrammatic form. It is not possible to disaggregate some of the industry sectors such as sand and gravel that are characterized by a number of small operators. These have been included in the "Other" groupings, which also contains "Other Services" and the "Contingency".

It should be noted that the Census Divisions used in this paper are those used for the 1961 census. For the 1972 census a larger number of Census Divisions were used. Mining employment forecasts for subsequent years will reflect the revised distribution of Census Divisions.

Mining activity takes place in nine of the ten Census Divisions in British Columbia. The forecasts indicate that mining industry employment will increase in Census Divisions 1, 3, 6, 8, 9 and 10, and will decrease in Census Divisions 2, 4 and 5. In Census Division 2, mining activity is expected to cease during the forecast period.

The areas that are forecast to experience an increase in mining employment are generally those in the more northern parts of the province. In Census Division 1 the increase will be attributable to expanding coal mining activity, whilst in Census Divisions 6, 8 and 9 the increases will be generated by new and expanded operations in the copper mining industry.

It is interesting to note that the expansion in mining employment in British Columbia will take place on a broad front during the 1970's. Most of the reductions in employment that are forecast to occur in the 1970's will be the result of closing smaller mines in the more populated southern parts of the province and thus the impact of closures on total employment will be somewhat reduced in these areas.

FIGURE 2

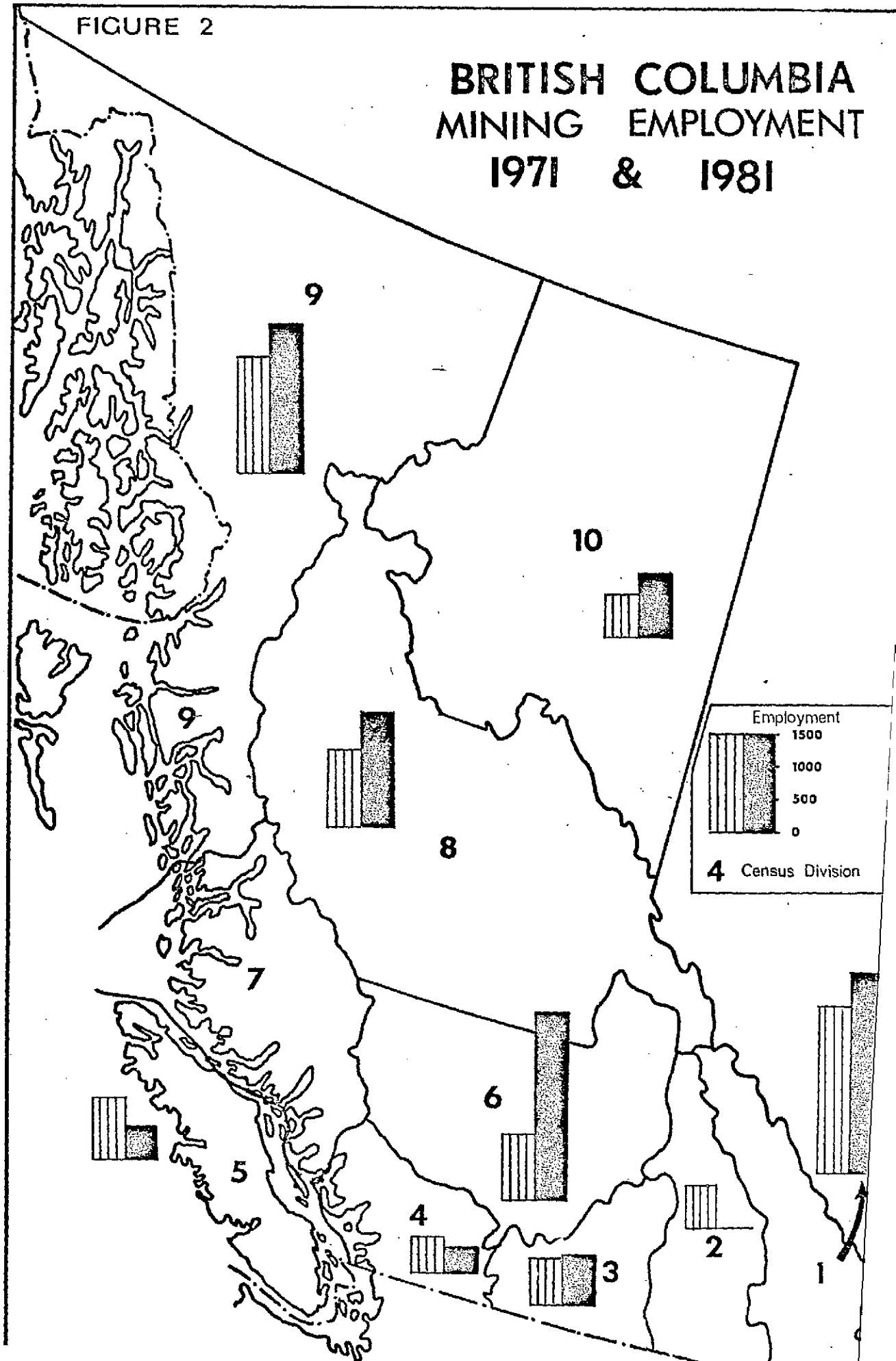

BRITISH COLUMBIA
MINING EMPLOYMENT
1971 & 1981
9
10
9
8
7
6
5
4
3
2
1
Employment
1500
1000
500
0
4 Census Division

TABLE 6

FORECAST PERMANENT MINING INDUSTRY EMPLOYMENT*
IN BRITISH COLUMBIA 1971-1981
BY CENSUS DIVISION

Census Division	Estimate Class**	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
	U	2,695	3,515	3,335	3,375	3,375	3,375	3,375	3,375	3,265	3,265	3,265
01	R	2,575	3,125	3,125	3,165	3,165	3,165	3,065	3,065	3,065	3,065	3,065
	L	2,470	2,970	2,970	2,910	2,910	2,910	2,910	2,910	2,900	2,900	2,900
	U	810	690	510	390	260	260	120	100	-	-	-
02	R	670	530	300	230	230	170	-	-	-	-	-
	L	540	240	180	130	50	50	-	-	-	-	-
	U	815	1,165	1,385	1,485	1,485	1,415	1,415	1,165	1,165	1,165	1,165
03	R	735	945	1,105	1,035	1,035	1,035	1,035	755	755	755	755
	L	670	750	850	850	850	680	680	680	680	680	680
	U	780	780	780	780	780	780	780	780	600	600	600
04	R	720	730	730	730	730	730	550	550	550	550	550
	L	670	690	690	690	690	520	520	520	520	150	150
	U	1,070	1,490	1,490	1,490	1,490	1,490	1,390	1,290	1,090	800	800
05	R	960	1,360	1,360	1,360	1,360	1,310	1,110	1,010	740	500	500
	L	830	1,130	1,230	1,230	1,230	950	450	450	450	450	450
	U	1,060	1,680	2,030	2,850	3,050	3,050	3,400	3,400	3,300	3,300	3,300
06	R	1,000	1,410	1,760	2,450	2,650	2,650	2,650	2,530	2,830	2,830	2,830
	L	940	1,260	1,640	1,790	2,090	2,440	2,440	2,440	2,340	2,340	1,830
	U	1,275	1,665	2,015	2,035	2,065	2,065	2,065	2,065	1,945	1,945	1,945
08	R	1,170	1,430	1,760	1,850	1,850	1,850	1,750	1,750	1,750	1,750	1,750
	L	1,030	1,320	1,520	1,640	1,580	1,580	1,580	1,370	1,370	1,270	1,270
	U	1,870	1,890	1,905	2,425	2,625	2,625	2,590	2,590	2,590	2,590	2,590
09	R	1,760	1,760	1,780	1,790	2,040	2,290	2,280	2,290	2,290	2,290	2,290
	L	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680

TABLE 6 (cont'd)

Census Division	Estimate Class**	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
	U	200	200	400	400	400	400	400	400	400	400	400
10	R	190	190	340	340	340	340	340	340	340	340	340
	L	180	180	180	330	330	330	330	330	330	150	150
	U	10,575	12,875	13,850	15,230	15,530	15,460	15,535	15,165	14,355	14,065	14,065
SUB-TOTAL	R	9,780	11,480	12,260	12,950	13,400	13,540	12,780	12,290	12,320	12,080	12,080
	L	9,010	10,220	10,940	11,250	11,410	11,140	10,590	10,380	10,270	9,620	9,110
	U	1,175	1,250	1,335	1,460	1,545	1,620	1,705	1,780	1,865	1,940	2,025
OTHER***	R	1,090	1,110	1,180	1,225	1,270	1,330	1,400	1,470	1,540	1,610	1,680
	L	1,005	1,020	1,035	1,100	1,125	1,190	1,200	1,310	1,300	1,330	1,420
	U	11,750	14,125	15,185	16,690	17,075	17,080	17,240	16,945	16,220	16,005	16,090
TOTAL	R	10,870	12,590	13,440	14,175	14,670	14,870	14,180	13,760	13,860	13,690	13,760
	L	10,015	11,240	11,975	11,350	12,535	12,330	11,790	11,690	11,570	10,950	10,530

* All employment figures are shown in man-years of paid employment

** The identifying letters U, R and L stand for Upper, Realistic and Lower Estimates respectively

*** The "other" classification shown here contains commodity groups that are province wide and cannot be split by census division. This also contains the "contingency" grouping.

APPENDIX A

Company Names, Locations and Commodities

Produced in British Columbia 1970

TABLE 7

COMPANY NAMES, LOCATIONS AND COMMODITIES
MINED IN BRITISH COLUMBIA 1970

Map Reference	Company Name	Property Name	Mineral (s)	Latitude	Longitude
				o '	o '
(1)	Cominco Ltd.	Sullivan Mine	Lead/Zinc/Silver	49 44	115 58
(2)	Copperline Mines Ltd.	Ruth Vermont Mine	Zinc/Lead/Silver	50 57	116 59
(3)	Western Gypsum Ltd.	Windermere Quarry	Gypsum	50 27	115 58
(4)	Kaiser Resources Ltd.	Sparwood Operations	Coal	49 50	114 52
(5)	Kaiser Resources Ltd.	Michel Colliery	Coal	49 42	114 50
(6)	Fording Coal Ltd.	Fording River Property*	Coal	50 20	114 55
(7)	Mountain Minerals Ltd.	Mineral King Mine	Barite	50 21	116 26
(8)	Baroid of Canada	Spillimacheen Property	Barite	50 55	116 25
(9)	Cominco Ltd.	Bluebell Mine	Zinc/Lead	49 45	116 51
(10)	Silver Star Mines Ltd.	Scranton Mine	Lead/Zinc/Silver	49 47	117 03
(11)	Canadian Exploration Ltd.	Jersey Mine	Zinc/Lead/Silver	49 06	117 13
(12)	Reeves MacDonald Mines Ltd.	Reeves and Annex Mines	Zinc/Lead/Silver	49 01	117 22
(13)	Silmonac Mines Ltd.	Silmonac Mine	Silver/Lead/Zinc	49 49	117 25
(14)	Cinola Mines Ltd.	Midnight Mine	Gold/Silver	49 04	117 50
(15)	Red Mountain Mines Ltd.	Red Mountain Mine	Molybdenum	49 05	117 49
(16)	King Resources Co.	Mt. Copeland Mine	Molybdenum	51 18	118 23
(17)	Canadian Exploration Ltd.	Canex Tungston Mine	Tungsten	49 12	117 15
(18)	Arlington Silver Mines Ltd.	Arlington Mine	Silver/Lead/Zinc	49 47	117 21

(Cont'd)

TABLE 7 (Cont'd)

Map Reference	Company Name	Property Name	Mineral(s)	Latitude	Longitude
				o '	o '
(19)	Similkameen Mining Company Ltd.	Ingerbelle Mine *	Copper	49 25	120 30
(20)	Greyhound Mines Ltd.	Greenwood & Mother Zones	Copper	48 07	118 30
(21)	Brenda Mines Ltd.	Brenda Mine	Copper/Molybdenum	49 53	120 00
(22)	Granby Mining Co. Ltd.	Phoenix Mine	Copper/Gold	49 06	118 36
(23)	Leitch Mines Ltd.	Beaverdell Mine	Lead/Zinc/Silver	49 27	119 08
(24)	Utica Mines Ltd.	Horn Silver Property	Silver	49 03	119 41
(25)	Pacific Silica Ltd.	Oliver Property	Silica	49 10	119 38
(26)	Anaconda Britannia Mines Ltd.	Britannia Mine	Copper	49 37	123 08
(27)	Giant Mascot Mines Ltd.	Giant Nickel Mine	Nickel/Copper	49 20	121 27
(28)	Crownex International Ltd.	Sunro Property*	Copper	48 27	124 01
(29)	Western Mines Ltd.	Lynx Mine	Copper/Lead/Zinc	49 34	125 35
(30)	Utah Construction and Mining Co.	Island Copper Group*	Copper/Molybdenum	50 36	127 29
(31)	Coast Copper Company Ltd.	Benson Lake Mine	Copper/Iron	50 23	127 14
(32)	Texada Mines Ltd.	Texada Mine	Copper/Iron	49 42	124 32
(33)	Bethlehem Copper Corp. Ltd.	Bethlehem Mine	Copper	50 30	120 59
(34)	Alwin Mining Co. Ltd.	OK Copper Property*	Copper	50 29	121 06
(35)	Valley Copper Mines Ltd.	Valley Copper Property*	Copper	50 29	121 03
(36)	Lornex Mining Corp. Ltd.	Lornex Property*	Copper/Molybdenum	50 27	121 03
(37)	Bethlehem Copper Corp.	Maggie Property*	Copper/Molybdenum	50 55	121 25
(38)	Highmont Mining Corp. Ltd.	Highmont Property*	Copper/Molybdenum	50 26	120 00

(Cont'd)

TABLE 7 (Cont'd)

Map Reference	Company Name	Property Name	Mineral(s)	Latitude	Longitude
				° '	° '
(39)	Craigmont Mines Ltd.	Craigmont Mine	Copper	50 12	120 53
(40)	Kamad Silver Ltd.	Homestake Property	Silver/Lead	51 07	119 49
(41)	Bralorne Canfer Resources Ltd.	Bralorne Mine	Gold/Silver	50 46	122 48
(42)	Noranda Mines Ltd.	Bell Copper Division*	Copper	54 54	126 15
(43)	Gibraltar Mines Ltd.	Gibraltar Property*	Copper/Molybdenum	52 31	122 15
(44)	Granisle Copper Ltd.	Granisle Mine	Copper	54 57	126 10
(45)	Nadina Explorations Ltd.	Nadina Prospect*	Zinc/Silver	54 10	126 35
(46)	Cominco Ltd.	Pinchi Lake Mine	Mercury	54 38	124 26
(47)	Endako Mines Ltd.	Endako Mine	Molybdenum	54 02	125 06
(48)	Brynnor Mines Ltd.	Boss Mountain Mine	Molybdenum	52 06	120 55
(49)	Pacific Diatomite Ltd.	Quesnel Property	Diatomite	53 00	122 32
(50)	Liard Copper Mines Ltd.	Schaft Creek Property*	Copper/Molybdenum	57 22	131 00
(51)	Granduc Operating Co.	Granduc Mine	Copper	56 13	130 20
(52)	Wesfrob Mines Ltd.	Tasu Mine	Iron/Copper	52 45	132 02
(53)	Interprovincial Silver Mines Ltd.	Interprovincial Mine	Silver/Lead/Zinc	59 58	133 40
(54)	British Columbia Molybdenum Ltd.	BC Molybdenum Mine	Molybdenum	55 25	129 26
(55)	Sileurian Chieftain Mining Co.Ltd.	Roundy Creek Property*	Molybdenum	55 25	129 29
(56)	Cassiar Asbestos Corp. Ltd.	Cassiar Mine	Asbestos	59 20	129 50
(57)	Churchill Copper Corporation	Churchill Copper Mine	Copper	58 23	125 10
(58)	Davis Keays Mining Co. Ltd.	Davis-Keays Property*	Copper	58 36	125 27

* Not in production in 1970

FIGURE 3

BRITISH COLUMBIA MINING LOCATIONS