

# British Columbia Mineral Output

## Statistical Summary 1980—1994

March 1995



Province of British Columbia  
Ministry of Energy, Mines and Petroleum Resources  
Land Management and Policy Branch  
Mineral Statistics Section



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# B.C. MINERAL OUTPUT STATISTICAL SUMMARY 1980 - 1994

This publication is intended to update a series of provincial statistics on British Columbia's mineral industry. Its focus is primarily historical and summarizes annual statistics for the years 1980 through 1994. While the most recent annual tables available are based upon the *1993 Annual Census of Mines*, estimates for 1994 have been included in most tables to make these data as timely as possible.

## NOTES ON STATISTICS

Statistics on the British Columbia mineral industry published in this report are collected, compiled and tabulated by the Mineral Statistics Group, Land Management and Policy Branch of the B.C. Ministry of Energy, Mines and Petroleum Resources and is distributed free of charge. Data for most tables are obtained from a direct census of the industry, which is undertaken as a cooperative effort between the Ministry and two federal agencies: Natural Resources Canada and Statistics Canada. Summaries from other sources are footnoted as such. Production statistics are aggregated into sector and industry totals for public release. Individual producer data on employment and gross mine output at each major mine are, however, also available in this publication.

## NOTES ON METHODOLOGY

Statistics are gathered in accordance with an established methodology which attempts to maintain comparability with previous data. In some cases, annual totals released by this Ministry may vary from comparable data published by federal agencies. This is due to agreed-upon differences in methodology in attributing production to the location of origin, in methods of determining valuation and in the definition of mineral commodities and their uses. Peat, classified as a fuel by Statistics Canada, is not included in B.C. summaries, since it is considered neither a fuel nor a mineral. Coal, classified as a fuel by Statistics Canada, is included provincially as part of solid minerals value. Sulphur recovered from smelters and gas plants is included as a mineral product both by B.C. and Statistics Canada.

Values for metals are based upon revenues reported by operators, or on estimates in some cases where information is not available. All commodity summaries reflect a valuation of output determined to best represent the activity of B.C.'s mineral producers. Statistics are aggregated from information supplied by operators as per their accounting records. While companies can report based on their accounting preference (production, sales or shipments), all information is summarized and recorded as production for annual statistical purposes. In the case of pre-production or bulk sampling for metal mines, production is recorded when the ore is sold or concentrated and brought into revenue by the operator. Certain summaries are entitled "B.C. Output" to distinguish the provincial series from summaries published by Natural Resources Canada or Statistics Canada reporting either production or shipments. In cases of inter-provincial comparisons, Natural Resources Canada production of B.C. metals is used for methodological consistency.

## NOTES ON METHODOLOGY - Continued

The value of production of industrial minerals and structural materials are approximately the dollar amounts received at the point of origin.

Coal is valued net of transportation, loading and handling charges by common carriers for all coal of B.C. origin. Coal production represents preparation plant output of clean coal net of inventory adjustments. Clean coal sold and used is coal of B.C. origin only. Coal used is that which is used by B.C. coal producers for their own purposes.

All information is considered current to the end of 1994 . All dollar values are in nominal Canadian funds. Metric weights are used throughout. Metric conversion factors are:

Multiply short tons (st or tons) by 0.90718474 to obtain number of metric tonnes (t or tonnes))

Multiply pounds (lb.) x 0.45359237 to obtain number of kilograms (kg)

Multiply troy ounces (oz.) x 31.1034768 to obtain number of grams (g)

Information is based on data supplied through the cooperation of many in the mining industry. We wish to thank those who have contributed to making these data available. Every attempt is made to avoid factual errors or omissions. Please contact the Mineral Statistics Group at the address below if you have any questions about the information contained herein.

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# MAJOR OPERATING MINES IN BRITISH COLUMBIA 1993 AND 1994



Mines operating during 1993 or 1994 are shown above.  
Names are as of the end of 1994.

## MAJOR B.C. METAL MINES 1993 and 1994

Mine Name	Location	Operator	Operating Status
Afton	Kamloops	Afton Operating Corp.	Re-opened September 1994
Endako	Endako	Placer Dome Inc.	Active
Equity Silver	Houston	Equity Silver Mines Ltd.	Closed January 1994
Gibraltar	McLeese Lake	Gibraltar Mines Ltd.	Shut down January 1993 Re-opened October 1994
Golden Bear	Bearskin Lake	North American Metals Corp.	Active; Shut down September 1994
Goldstream	Revelstoke	Bethlehem Resources Corp.	Active
Highland Valley Copper	Highland Valley	Highland Valley Copper	Active
Island Copper	Rupert Inlet	BHP - Utah Mines Ltd.	Active
Myra Falls Operations	Buttle Lake	Westmin Resources Ltd.	Active; locked out April 1993 - August 1994
Nickel Plate	Penticton	Homestake Canada Inc.	Active
Premier Gold Project	Stewart	Westmin Resources Ltd.	Active
Silvana	New Denver	Tremingo Resources Ltd.	Shut down early April 1993
Similco	Princeton	Princeton Mining Corp.	Shut down late November 1993 Re-opened August 1994
Snip	Bronson Creek	Cominco Ltd.	Active
Sullivan	Kimberley	Cominco Ltd.	Active

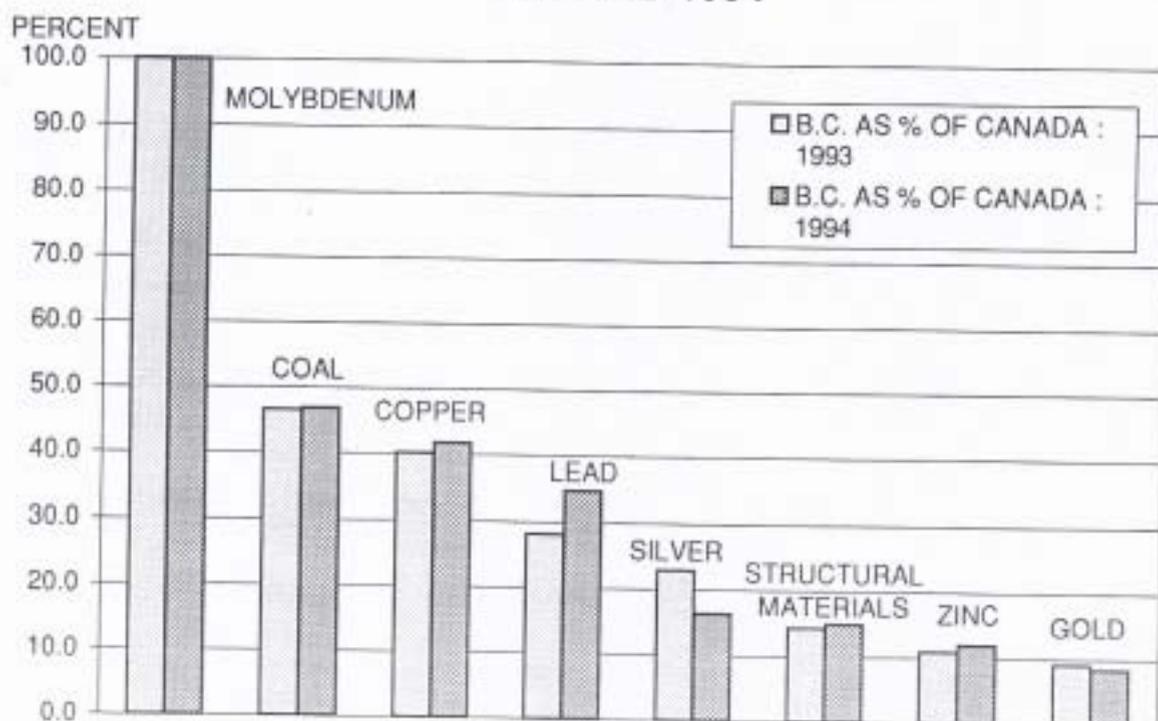
Information is current to end of 1994.

## B.C. COAL MINES 1993 and 1994

<u>Mine Name</u>	<u>Location</u>	<u>Operator</u>	<u>Operating Status</u>
Elkview (ex-Balmer)	Sparwood	Elkview Coal Corp.	Active ; Re-opened May 1993
Coal Mountain Operations (ex-Byron Creek)	Sparwood	Fording Coal Ltd.	Active
Bullmoose	Tumbler Ridge	Bullmoose Operating Corp.	Active
Fording River Operations	Elkford	Fording Coal Ltd.	Active
Greenhills Operations	Elkford	Fording Coal Ltd.	Active; Re-opened March 1993
Line Creek	Sparwood	Line Creek Resources Ltd.	Active
Quinsam	Campbell River	Quinsam Coal Corp.	Active
Quintette	Tumbler Ridge	Quintette Operating Corp.	Active

Information is current to end of 1994.

## VALUE OF SELECTED B.C. MINERAL COMMODITIES AS A PERCENT OF CANADIAN TOTAL 1993 AND 1994



	1993			1994 (E)		
	B.C.	Canada	B.C. as % of Canada	B.C.	Canada	B.C. as % of Canada
	(Thousand dollars)			(Thousand dollars)		
<b>METALS</b>						
Gold	206 898	2 284 991	9.1%	206 834	2 447 773	8.4%
Silver	35 878	156 793	22.9%	27 196	166 158	16.4%
Copper	722 412	1 796 963	40.2%	755 371	1 808 800	41.8%
Lead	27 263	95 947	28.4%	42 736	123 650	34.6%
Zinc	133 354	1 229 493	10.8%	152 738	1 289 244	11.8%
Molybdenum	65 095	65 095	100.0%	90 651	90 651	100.0%
Others	7 512	3 242 044	0.23%	11 007	3 482 151	0.32%
<b>TOTAL METALS</b>	<b>1 198 412</b>	<b>8 871 326</b>	<b>13.5%</b>	<b>1 286 533</b>	<b>9 408 427</b>	<b>13.7%</b>
<b>STRUCTURAL MATERIALS</b>	<b>335 087</b>	<b>2 349 403</b>	<b>14.3%</b>	<b>377 479</b>	<b>2 531 099</b>	<b>14.9%</b>
<b>NON-METALS</b>	<b>59 674</b>	<b>2 111 495</b>	<b>2.8%</b>	<b>66 068</b>	<b>2 556 014</b>	<b>2.6%</b>
<b>COAL</b>	<b>822 250</b>	<b>1 767 600</b>	<b>46.5%</b>	<b>840 000</b>	<b>1 796 250</b>	<b>46.8%</b>

(E) = Estimate

Values based on methods used by Natural Resources Canada

## RANK AND PRODUCTION OF SELECTED METALS B.C., CANADA AND WORLD 1993 (E)

	Gold Kg	Silver Tonnes	Copper Tonnes	Lead Tonnes	Zinc Tonnes	Molybdenum Tonnes
B.C.	13 081	175	288 900	38 700	84 900	10 286
Canada	152 929	888	733 600	182 200	1 007 300	10 286
World	2 276 601	13 732	9 390 000	2 733 400	6 876 800	95 280

### World Rank

1	S. Africa	Mexico	Chile	Australia	Canada	U.S.A.
Production	619 201	2 368	2 055 400	521 000	1 007 300	36 803
2	U.S.A.	U.S.A.	U.S.A.	U.S.A.	China	China
Production	331 013	1 645	1 801 400	374	820 000	16 000
3	Australia	Peru	Canada	China	Peru	Chile
Production	248 078	1 631	733 600	357	664 600	15 400
4	China	FSU*	Zambia	Peru	U.S.A.	Canada
Production	160 000	1 300	431 500	218 300	516 800	10 098
5	Canada	Australia	Australia	Canada	Mexico	Russia
Production	152 929	1 152	398 000	182 200	369 700	4 800

### Canadian Rank

1	Ontario	Ontario	B.C.	N.B.	N.B.	B.C.
Production	71 957	239 000	288 100	73 076	308 579	10 098
2	Quebec	N.B.	Ontario	B.C.	Ontario	
Production	41 891	223 000	268 944	38 700	182 873	B.C. is the
3	B.C.	B.C.	Quebec	N.W.T.	Quebec	only Moly.
Production	13 081	175 400	77 963	28 914	128 065	Producer
4	N. W. T.	Quebec	Manitoba	Yukon	N.W.T.	in Canada
Production	13 016	134 000	61 618	27 112	146 027	
5	Yukon	Manitoba	N.B.	Manitoba	B.C.	
Production	3 407	41 000	10 517	2 099	84 900	

B.C. % of Canada	8.6%	19.8%	39.4%	21.2%	8.4%	100.0%
B.C. % of World	0.6%	1.3%	3.1%	1.4%	1.2%	10.8%
Canada % of World	6.7%	6.5%	7.8%	6.7%	14.6%	10.8%

B.C. Rank in Canada	3	3	1	2	5	1
Canada Rank in World	5	7	3	4	1	4

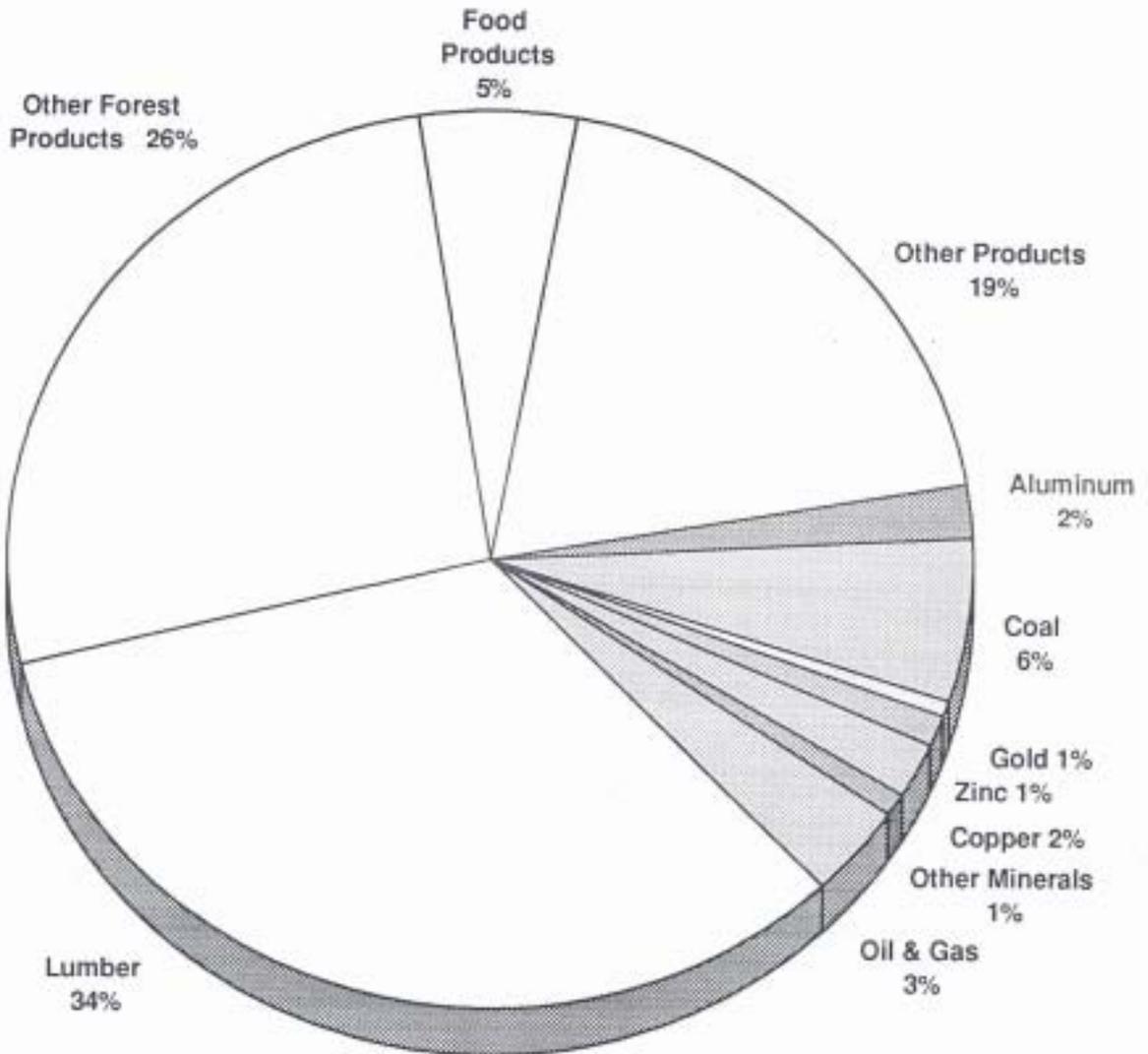
(E) = Estimate

\*Former Soviet Union

Source: Natural Resources Canada

# B.C. MINERAL EXPORTS SHARE OF ALL B.C. ORIGIN EXPORTS 1994

Total Export Value: \$22.8 Billion

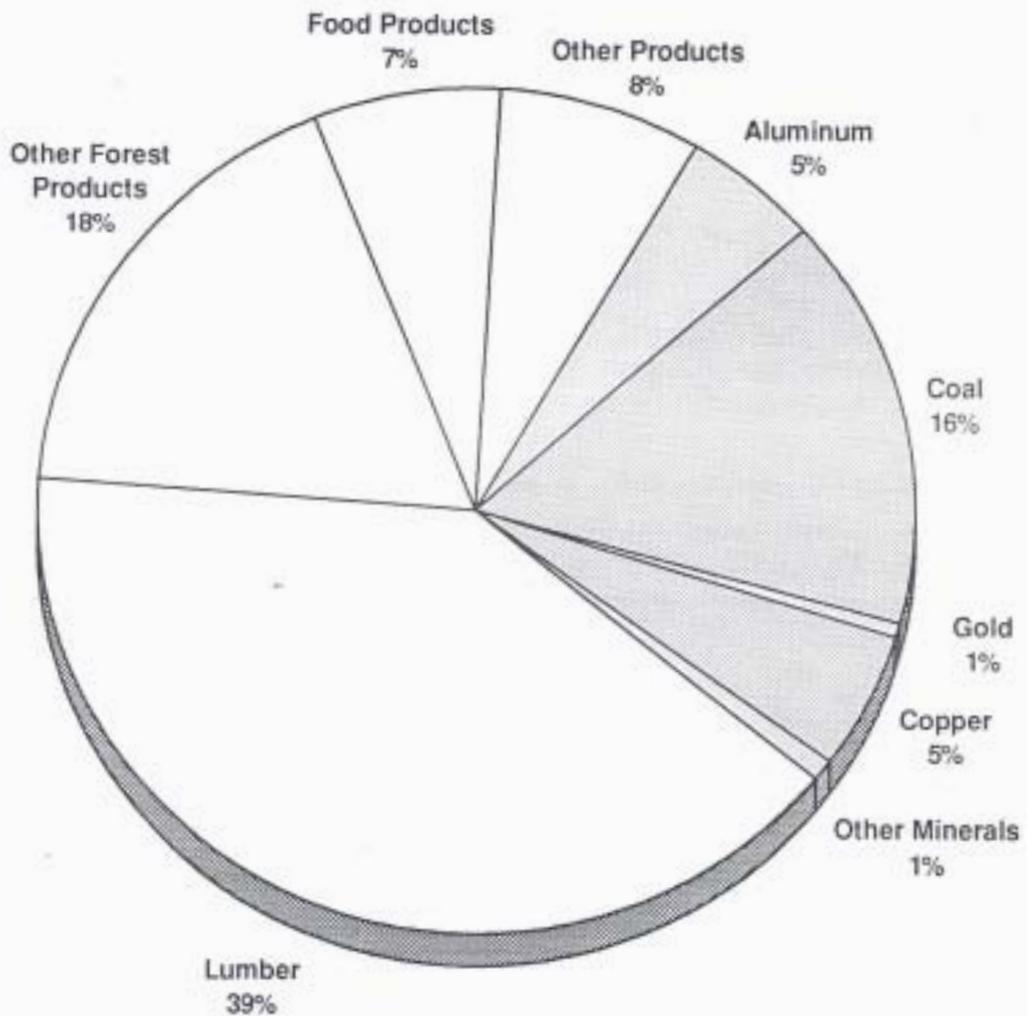


Solid minerals (including aluminum) comprise 13% of B.C. exports  
Total minerals (including oil and gas) comprise 16% of B.C. exports

Source: Statistics Canada, data provided by BC STATS

# B.C. ORIGIN EXPORTS TO JAPAN SELECTED COMMODITIES 1994

Total Export Value: \$5.66 Billion



Solid minerals (including aluminum) comprise 28% of B.C. exports to Japan

Source: Statistics Canada, data provided by BC STATS

## HIGHLIGHTS - B.C. METAL AND COAL PRODUCERS 1993 and 1994

The highlights below are included to add some perspective to year-over-year changes in production statistics shown in this publication. They are a brief chronology of the main events which affected output of metals and coal at major B.C. mines in 1993 and 1994.

### 1993 - METAL MINES

- Underground mining was suspended from February through June at North American Metals Corporations' Golden Bear mine near Telegraph Creek in northwest B.C. Milling from stockpiled ore continued in the interim while development work proceeded on the open pit. Mining resumed in July.
- Treminco Resources Ltd. shut down the Silvana mine near New Denver at the beginning of April citing low lead, zinc and silver prices and a depletion of ore reserves.
- Cominco Ltd. shut down their Trail smelter in April and during August citing a glut of zinc on world markets.
- Employees at Westmin Resources Ltd.'s Myra Falls Operations at Buttle Lake near Campbell River were locked out over a contract dispute on April 24. Management personnel resumed limited mining operations at the end of October, milling a few days a month at about 15 percent of the normal rate. The lockout was lifted in June of 1994, but workers immediately went on strike. The strike ended in August 1994 with binding arbitration.
- Bethlehem Resources Corp. suspended mining for the month of May at its Goldstream copper mine near Revelstoke in order to revise mining plans to reduce costs in light of low copper prices. Milling from stockpiled ore continued during the month.
- Cominco Ltd.'s Sullivan lead/zinc mine at Kimberley was shut down for summer maintenance for eleven weeks from June through mid-August.
- Gibraltar Mines Ltd. ceased operations at its copper-molybdenum mine near McLeese Lake in August to allow for a development program on the Gibraltar East pit and for general mine maintenance. The molybdenum circuit closed in December of 1992 and did not operate in 1993. Gibraltar later made a decision to shut down mining and milling operations at the beginning of December due to low copper prices, but continued operation of its solvent extraction electrowinning plant which produces copper cathode.

- International Skyline Gold Corp. reopened the Johnny Mountain gold mine north of Stewart at the beginning of August on a limited production basis. Mining ceased for the season in November, while the mill operated from early September through most of November.
- Princeton Mining Corporation's Similco copper mine near Princeton originally gave notice the mine would close in September, but delayed the closure until the end of November. Improved copper prices encouraged the mine's re-opening in August 1994.

### **1993 - COAL MINES**

- Fording Coal Ltd.'s Greenhills coal operation re-started production in March, with port shipments beginning in May. Fording, which took over as operator from Westar Mining Ltd., developed a new mine plan based on larger scale equipment.
- Teck Corporation's Elkview mine re-commenced mining in May while the plant began processing coal 4 days a week in late May. The first shipment to Roberts Bank was at the beginning of June.

### **1994 - METAL MINES**

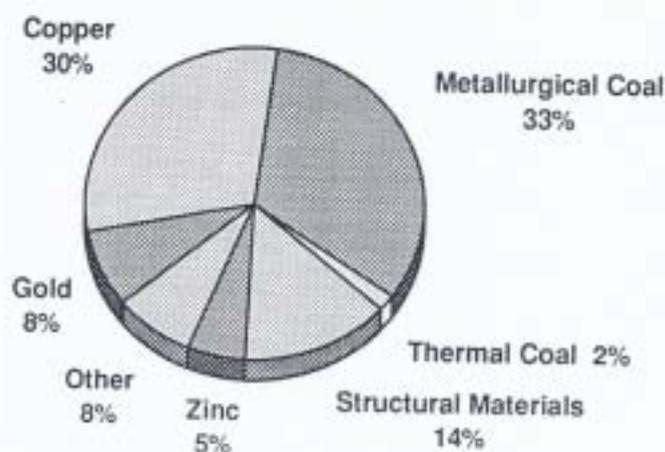
- Placer Dome's Equity Silver mine southeast of Houston closed at the end of January due to depletion of ore reserves. The mine had begun operations in October 1980 and had operated as B.C.'s largest silver producer through most of its mine life. Total production from the mine included 81 thousand tonnes copper, two million kilograms of silver and nearly 16 thousand kilograms gold.
- North American Metals Corporations' Golden Bear mine shut down for two weeks in February for the replacement of the refractory arch in the mill roaster. The company announced a revised production plan to introduce heap leaching technology to the property to increase the mine life by a further five years. While the company had planned to start work on the new plan in 1994, heavy rains temporarily shutdown mining operations in September.
- Bethlehem Resources Corporation suspended milling at its Goldstream mine near Revelstoke in March due to slower than anticipated underground development. Milling resumed in mid-April to full production levels.
- Cusac Industries Limited's Table Mountain project operated under a bulk sampling permit from April through October.

- Princeton Mining Corp. reopened its Similco copper mine in August due to improved copper prices. Mining started in August with shipments commencing in October.
- Teck Corp. reopened its Afton mine near Kamloops in September due to improved copper prices. Mining and milling started September 9, with sales and shipments starting in mid-November.
- Westmin Resources Ltd. lifted its 13 month lockout on June 10 at its Myra Falls Operations near Buttle Lake on Vancouver Island . Workers remained on strike from June 11 through until mid-August when the labour dispute was resolved through binding arbitration. Mining and milling resumed in mid-October.
- Gibraltar Mines Ltd. re-opened its Gibraltar copper mine north of Williams Lake, due primarily to improved copper prices. Mining operations resumed in early October with first shipments in November. The mine had continued production of cathode copper throughout the shutdown period of December 1993 through September 1994.

#### 1994 - COAL MINES

- Fording Coal Limited reached an agreement-in-principle in September to purchase the assets and business operations of the Byron Creek thermal coal mine near Sparwood from Corbin Creek Resources Ltd., which ceased operations at the mine in August. A collective agreement was signed in November and production re-started in December.

## B.C. MINERAL COMMODITIES IN 1994(E) PERCENT OF ALL SOLID MINERALS BY VALUE



	Million \$	% of Total
<b>Metals</b>		
Gold	214.66	8.15%
Silver	29.95	1.14%
Copper	789.63	29.97%
Lead	34.06	1.29%
Zinc	144.15	5.47%
Molybdenum	81.72	3.10%
Others	11.00	0.42%
<b>Total Metals</b>	<b>1 305.17</b>	<b>49.54%</b>
<b>Coal</b>		
Metallurgical	860.11	32.65%
Thermal	44.70	1.70%
<b>Total Coal</b>	<b>904.81</b>	<b>34.34%</b>
<b>Structural Materials</b>		
Cement	165.02	6.26%
Clay products	11.32	0.43%
Sand and gravel	146.79	5.57%
Stone	36.77	1.40%
Others	17.58	0.67%
<b>Total</b>	<b>377.48</b>	<b>14.33%</b>
<b>Industrial Minerals</b>		
Sulphur	33.08	1.26%
Others	14.06	0.53%
<b>Total</b>	<b>47.14</b>	<b>1.79%</b>
<b>Total Solid Minerals</b>	<b>2 634.60</b>	<b>100.00%</b>

(E) - Estimate

## B.C. MINERAL OUTPUT 1993 - 1994

	Units	1993		1994 (E)	
		Quantity	Value \$	Quantity	Value \$
<b>Metals</b>					
Gold	g	13 750 000	205 260 000	12 650 000	214 663 000
Silver	g	205 348 000	38 019 000	124 863 000	29 946 000
Copper	kg	301 734 000	720 764 000	249 043 000	789 630 000
Lead	kg	40 633 000	21 688 000	45 408 000	34 056 000
Zinc	kg	89 194 000	113 808 000	104 616 000	144 154 000
Molybdenum	kg	9 988 000	67 678 000	8 109 000	81 722 000
Others		-	7 512 000	-	11 007 000
<b>Total Metals</b>		-	<b>1 174 729 000</b>	-	<b>1 305 178 000</b>
<b>Coal</b>					
Metallurgical	t	17 572 000	750 841 000	20 439 000	860 109 000
Thermal	t	1 910 000	45 919 000	1 880 000	44 700 000
<b>Total Coal</b>		<b>19 482 000</b>	<b>796 760 000</b>	<b>22 319 000</b>	<b>904 809 000</b>
<b>Structural Materials</b>					
Cement	t	1 522 000	139 102 000	1 725 000	165 016 000
Clay products		-	9 298 000	-	11 319 000
Sand and gravel	t	40 241 000	135 398 000	41 837 000	146 790 000
Stone	t	4 253 000	32 265 000	4 987 000	36 774 000
Others		-	19 024 000	-	17 580 000
<b>Total</b>		-	<b>335 087 000</b>	-	<b>377 479 000</b>
<b>Industrial Minerals</b>					
Sulphur	t	734 000	27 449 000	745 000	33 077 000
Others		-	13 304 000	-	14 056 000
<b>Total</b>		-	<b>40 753 000</b>	-	<b>47 133 000</b>
<b>Total Solid Minerals</b>		-	<b>2 347 329 000</b>	-	<b>2 634 599 000</b>

(E) = Estimate

## B.C. VALUE OF SOLID MINERAL OUTPUT 1980 - 1994

Year	Metals \$	Industrial Minerals \$	Structural Materials \$	Coal \$	Total \$
1980	1 429 002 000	115 926 000	242 326 000	461 493 000	2 248 747 000
1981	1 246 683 000	122 465 000	200 786 000	554 271 000	2 124 205 000
1982	1 057 488 000	95 644 000	164 157 000	566 878 000	1 884 167 000
1983	1 106 016 000	89 496 000	208 402 000	555 789 000	1 959 703 000
1984	1 036 901 000	114 670 000	192 253 000	1 007 520 000	2 351 344 000
1985	1 005 451 000	111 016 000	232 825 000	1 028 317 000	2 377 609 000
1986	1 156 667 000	134 394 000	214 664 000	934 414 000	2 440 139 000
1987	1 491 594 000	125 229 000	258 546 000	892 522 000	2 767 891 000
1988	1 875 774 000	111 462 000	258 157 000	978 812 000	3 224 205 000
1989	1 757 416 000	124 754 000	296 750 000	1 000 598 000	3 179 518 000
1990	1 558 862 000	119 446 000	312 747 000	979 857 000	2 970 912 000
1991	1 418 766 000	86 378 000	311 823 000	937 836 000	2 754 803 000
1992	1 437 526 000	44 844 000	305 241 000	749 495 000	2 537 106 000
1993	1 174 729 000	40 753 000	335 087 000	796 760 000	2 347 329 000
1994 (E)	1 305 178 000	47 133 000	377 479 000	904 809 000	2 634 599 000

(E) = Estimate

## OPERATING STATISTICS - MAJOR B.C. METAL MINES 1993

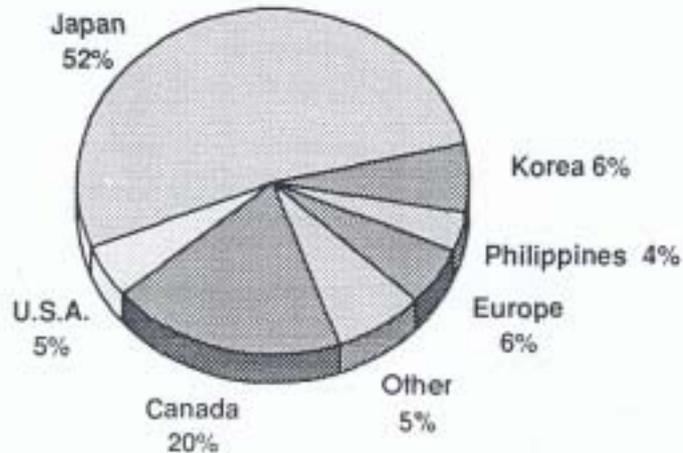
Metal Mines	Tonnes Mined	Tonnes Milled	Capacity * (Tonnes Per Day)	Days Operating U/G Mine	Days Operating O/P Mine	Days Operating Mill
Endako	9 526 600	9 584 500	28 200	352	-	350
Equity Silver	414 963	420 363	9 000	365	90	154
Gibraltar	10 289 838	10 133 533	36 300	-	333	304
Golden Bear	28 254	129 172	376	234	-	365
Goldstream	383 509	419 627	1 200	334	-	365
Highland Valley Copper	44 609 633	44 472 524	129 000	-	365	365
Island Copper	18 498 904	18 179 322	50 000	-	353	364
Myra Falls Operations **	433 853	433 410	4 000	128	-	128
Nickel Plate	1 280 842	1 280 842	3 450	-	365	365
Premier Gold Project	159 521	159 521	2 000	365	-	365
Silvana	4 460	4 200	115	64	-	64
Similco	7 310 911	6 727 870	22 700	-	330	333
Snip	159 176	170 930	500	361	-	361
Sullivan	1 364 300	1 354 000	7 330	197	-	203
<b>Total Metal Mines</b>	<b>94 464 764</b>	<b>93 469 814</b>	<b>294 171</b>	<b>2 400</b>	<b>1 836</b>	<b>4 086</b>
Average Metal Mines	6 747 483	6 676 415	21 012	171	131	292

\* Rated capacity of own mill as reported by mines.

\*\* Labour disruption April 1993 - August 1994.

Tonnes mined and milled include own ores only.

## DESTINATION OF MAJOR METALS IN B.C. ORES AND CONCENTRATES 1993



	Million \$	% of Total
CANADA*	227.75	19.51%
U.S.A.	58.04	4.97%
ASIA	770.95	66.05%
Includes:		
Japan	611.17	52.36%
Korea	75.63	6.48%
Philippines	42.60	3.65%
China	36.99	3.17%
Russia	4.56	0.39%
EUROPE	65.36	5.60%
Includes:		
Belgium	9.09	0.78%
Netherlands	1.15	0.10%
Spain	54.70	4.69%
Other	0.42	0.04%
OTHER	59.44	5.09%
Includes:		
Australia	11.41	0.98%
Chile	6.83	0.59%
Mexico	34.77	2.98%
Other	6.43	0.55%
Adjustments	(14.32)	-1.23%
<b>TOTAL</b>	<b>1 167.22</b>	<b>100.00%</b>

\* Includes placer and gold recovered from custom ores.  
Destination may not be end-use market.

**DESTINATION OF MAJOR METALS IN B.C. ORES AND  
CONCENTRATES 1993  
(By Volume)**

	Gold Kilograms	Silver Kilograms	Copper Tonnes	Lead Tonnes	Zinc Tonnes	Molybdenum Tonnes
<b>CANADA*</b>	4 167	51 352	9 491	40 633	81 325	1 716
<b>U.S.A.</b>	2 690	978	4 484	-	-	117
<b>ASIA</b>	<b>6 773</b>	<b>141 409</b>	<b>250 514</b>	-	<b>7 887</b>	<b>4 070</b>
Includes:						
China	95	4 471	14 048	-	-	-
Japan	6 368	122 192	188 930	-	7 887	4 070
Korea	233	8 091	28 400	-	-	-
Philippines	31	5 904	17 738	-	-	-
Russia	46	751	1 398	-	-	-
<b>EUROPE</b>	<b>38</b>	<b>6 869</b>	<b>22 269</b>	-	-	<b>1 516</b>
Includes:						
Belgium	-	-	-	-	-	1 332
Netherland	-	-	-	-	-	146
Spain	38	6 869	22 269	-	-	-
Other	-	-	-	-	-	38
<b>OTHER</b>	<b>82</b>	<b>4 755</b>	<b>14 980</b>	-	-	<b>2 854</b>
Includes:						
Australia	62	542	2 222	-	-	3
Chile	-	-	-	-	-	1363
Mexico	20	4 213	12 758	-	-	-
Other	-	-	-	-	-	1 488
Adjustments	-	( 15)	( 4)	-	( 18)	( 285)
<b>TOTAL</b>	<b>13 750</b>	<b>205 348</b>	<b>301 734</b>	<b>40 633</b>	<b>89 194</b>	<b>9 988</b>

\* Includes placer and gold recovered from custom ores. Destination may not be end-use market.

**DESTINATION OF MAJOR METALS IN B.C. ORES AND  
CONCENTRATES 1993  
(By Value)**

	Gold '000 \$	Silver '000 \$	Copper '000 \$	Lead '000 \$	Zinc '000 \$	Molybdenum '000 \$
<b>CANADA*</b>	61 877	8 851	20 452	21 688	102 895	11 986
<b>U.S.A.</b>	39 642	215	11 318	-	-	6 869
<b>ASIA</b>	<b>101 356</b>	<b>26 627</b>	<b>608 887</b>	<b>-</b>	<b>12 452</b>	<b>21 627</b>
Includes:						
China	1 471	709	34 810	-	-	-
Japan	95 156	23 102	458 834	-	12 452	21 627
Korea	3 745	1 554	70 329	-	-	-
Philippines	346	1 142	41 116	-	-	-
Russia	638	120	3 798	-	-	-
<b>EUROPE</b>	<b>587</b>	<b>1 327</b>	<b>52 784</b>	<b>-</b>	<b>-</b>	<b>10 658</b>
Includes:						
Belgium	-	-	-	-	-	9 085
Netherland	-	-	-	-	-	1 154
Spain	587	1 327	52 784	-	-	-
Other	-	-	-	-	-	419
<b>OTHER</b>	<b>1 355</b>	<b>842</b>	<b>39 644</b>	<b>-</b>	<b>-</b>	<b>17 595</b>
Includes:						
Australia	1 105	134	5 833	-	-	4 337
Chile	-	-	-	-	-	6 829
Mexico	250	708	33 811	-	-	-
Other	-	-	-	-	-	6 429
Adjustments	443	157	(12 321)	-	(1 539)	(1 057)
<b>TOTAL</b>	<b>205 260</b>	<b>38 019</b>	<b>720 764</b>	<b>21 688</b>	<b>113 808</b>	<b>67 678</b>

\* Includes placer and gold recovered from custom ores.

# B.C. METAL PRODUCERS - 1993

## Gross Metal Content of Major Metals\*

	Products Produced or Shipped	Gold grams	Silver grams	Copper kg	Lead kg	Zinc kg	Molybdenum kg
<b>Alberni Mining Division</b>							
Myra Falls Operations	Copper concentrates 28 220 t; Zinc concentrates 18 705 t; Gold concentrates 1 736 t	324 383	5 555 000	14 964 000	-	9 425 000	-
<b>Atlin Mining Division</b>							
Golden Bear	Doré	1 625 963	420 783	-	-	-	-
<b>Cariboo Mining Division</b>							
Gibraltar	Copper concentrates 22 916 t; Molybdenum concentrates 2 720 t;	-	3 427 137	28 888 450	-	-	19 519
<b>Fort Steele Mining Division</b>							
Sullivan	Lead concentrates 67 058 t; Zinc concentrates 175 189 t	-	21 457 106	-	41 833 673	-	-
<b>Kamloops Mining Division</b>							
Highland Valley Copper	Copper concentrates 356 526 t; Molybdenite concentrates 2 911 t	398 498	59 453 954	16 010 791	-	-	1 718 350
<b>Liard Mining Division</b>							
Srip	Gold concentrates 8 406 t; Doré	4 838 201	1 714 000	-	-	-	-
Johnny Mountain	Custom Ore	217 700	407 000	-	-	-	-

\* Own ores only

## B.C. METAL PRODUCERS - 1993

### Gross Metal Content of Major Metals\*

Products Produced or Shipped	Gold grams	Silver grams	Copper kg	Lead kg	Zinc kg	Molybdenum kg
<b>Nanaimo Mining Division</b>						
Island Copper	1 962 242	16 490 957	60 824 251	-	-	1 362 612
Copper concentrates 256 497 t; Cathode concentrates 2 584 t						
<b>Omineca Mining Division</b>						
Endako Mines Division	-	-	-	-	-	6 900 849
Molybdenite concentrates Molybdic oxide Ferro-molybdenum Molybdenum sulphide						
Equity Silver	682 006	61 620 777	2 863 074	-	-	-
Copper/silver concentrate 16 137 t; Doré						
<b>Osoyoos Mining Division</b>						
Hedley Tailings	37 867	-	-	-	-	-
Heap leaching						
Nickel Plate	2 161 376	985 000	-	-	-	-
Doré						
<b>Revelstoke Mining Division</b>						
Goldstream	6 252	5 297 171	15 133 852	-	2 488 085	-
Copper concentrates 63 435 t; Zinc concentrates 3 853 t						

\* Own ores only

## B.C. METAL PRODUCERS - 1993

### Gross Metal Content of Major Metals\*

Products Produced or Shipped	Gold grams	Silver grams	Copper kg	Lead kg	Zinc kg	Molybdenum kg
<b><i>Skeena Mining Division</i></b>						
Premier Gold Project      Doré	656 906	4 371 379	-	-	-	-
<b><i>Similkameen Mining Division</i></b>						
Similco      Copper concentrates 87 817 t	441 732	11 582 044	23 670 547	-	-	-
Elk Project      Custom Ore	199 660	-	-	-	-	-
<b><i>Slocan Mining Division</i></b>						
Silvana      Lead concentrate 325 t; Zinc concentrate 408 t	-	2 019 000	-	237 000	236 480	-
Tillicum (Heino-Money)      Custom Ore	102 455	164 071	-	-	-	-

\* Own ores only

## B.C. OUTPUT OF GOLD AND SILVER 1980 - 1994

Year	Gold		Silver	
	Quantity g	Value \$	Quantity g	Value \$
1980	7 197 000	163 930 000	203 802 000	156 548 000
1981	7 469 000	131 542 000	403 755 000	152 421 000
1982	7 512 000	115 802 000	499 566 000	158 260 000
1983	7 694 000	126 555 000	402 325 000	180 372 000
1984	6 814 000	111 731 000	363 378 000	121 364 000
1985	6 382 000	89 094 000	378 173 000	100 951 000
1986	9 225 000	152 301 000	395 850 000	94 615 000
1987	11 644 000	230 310 000	371 600 000	122 562 000
1988	11 964 000	214 724 000	423 441 000	112 539 000
1989	14 420 000	220 974 000	493 844 000	105 443 000
1990	15 375 000	231 785 000	631 084 000	115 127 000
1991	17 385 000	237 957 000	505 011 000	74 184 000
1992	16 410 000	219 136 000	338 817 000	53 316 000
1993	13 750 000	205 260 000	205 348 000	38 019 000
1994(E)	12 650 000	214 663 000	124 863 000	29 946 000

(E) = Estimate

## B.C. OUTPUT OF COPPER AND MOLYBDENUM 1980 - 1994

Year	Copper		Molybdenum	
	Quantity kg	Value \$	Quantity kg	Value \$
1980	264 675 000	670 624 000	11 180 000	288 934 000
1981	290 088 000	611 282 000	12 933 000	198 240 000
1982	279 874 000	495 010 000	14 748 000	154 991 000
1983	282 865 000	561 112 000	10 779 000	87 585 000
1984	280 070 000	517 765 000	12 165 000	113 803 000
1985	301 649 000	579 674 000	6 624 000	63 218 000
1986	332 215 000	629 479 000	11 574 000	92 781 000
1987	355 898 000	842 341 000	14 139 000	121 688 000
1988	353 482 000	1 117 031 000	12 924 000	116 005 000
1989	303 200 000	1 002 529 000	13 618 000	112 274 000
1990	325 320 000	985 015 000	12 285 000	88 326 000
1991	330 834 000	846 514 000	11 041 000	67 430 000
1992	315 831 000	892 075 000	8 776 000	54 891 000
1993	301 734 000	720 764 000	9 988 000	67 678 000
1994(E)	249 043 000	789 630 000	8 109 000	81 722 000

(E) = Estimate

## B.C. OUTPUT OF LEAD AND ZINC 1980 - 1994

Year	Lead		Zinc	
	Quantity kg	Value \$	Quantity kg	Value \$
1980	76 709 000	66 096 000	67 481 000	49 363 000
1981	84 854 000	61 529 000	79 215 000	67 027 000
1982	83 747 000	43 036 000	75 183 000	63 572 000
1983	112 942 000	48 778 000	95 287 000	79 634 000
1984	85 147 000	37 899 000	95 335 000	115 226 000
1985	116 811 000	42 338 000	108 073 000	112 726 000
1986	91 784 000	38 183 000	137 583 000	138 023 000
1987	69 911 000	49 828 000	100 719 000	109 369 000
1988	105 296 000	74 349 000	139 377 000	212 300 000
1989	68 369 000	46 267 000	120 497 000	241 011 000
1990	19 556 000	15 955 000	57 436 000	103 424 000
1991	52 536 000	33 071 000	104 585 000	152 240 000
1992	64 505 000	42 108 000	111 202 000	171 020 000
1993	40 633 000	21 688 000	89 194 000	113 808 000
1994(E)	45 408 000	34 056 000	104 616 000	144 154 000

(E) = Estimate

**MAJOR B.C. METALS**  
**AVERAGE B.C. PRODUCER PRICE**  
**1980 - 1994**

Year	Gold Fine \$/g	Silver Fine \$/g	Copper \$/kg	Lead \$/kg	Zinc \$/kg	Molyb- denum \$/kg
1980	\$ 22.78	\$ 0.77	\$ 2.53	\$ 0.86	\$ 0.73	\$ 25.85
1981	\$ 17.61	\$ 0.38	\$ 2.11	\$ 0.73	\$ 0.85	\$ 15.33
1982	\$ 15.42	\$ 0.32	\$ 1.77	\$ 0.51	\$ 0.85	\$ 10.51
1983	\$ 16.45	\$ 0.45	\$ 1.98	\$ 0.43	\$ 0.84	\$ 8.13
1984	\$ 16.40	\$ 0.33	\$ 1.85	\$ 0.45	\$ 1.21	\$ 9.36
1985	\$ 13.96	\$ 0.27	\$ 1.92	\$ 0.36	\$ 1.04	\$ 9.54
1986	\$ 16.51	\$ 0.24	\$ 1.89	\$ 0.42	\$ 1.00	\$ 8.02
1987	\$ 19.76	\$ 0.33	\$ 2.37	\$ 0.71	\$ 1.09	\$ 8.61
1988	\$ 17.95	\$ 0.27	\$ 3.16	\$ 0.71	\$ 1.52	\$ 8.98
1989	\$ 15.32	\$ 0.21	\$ 3.31	\$ 0.68	\$ 2.00	\$ 8.24
1990	\$ 15.08	\$ 0.18	\$ 3.03	\$ 0.82	\$ 1.80	\$ 7.19
1991	\$ 13.69	\$ 0.15	\$ 2.56	\$ 0.63	\$ 1.46	\$ 6.11
1992	\$ 13.35	\$ 0.16	\$ 2.82	\$ 0.65	\$ 1.54	\$ 6.25
1993	\$ 14.93	\$ 0.19	\$ 2.39	\$ 0.53	\$ 1.28	\$ 6.78
1994(E)	\$ 16.97	\$ 0.24	\$ 3.17	\$ 0.75	\$ 1.38	\$ 10.08

(E) = Estimate

**B.C. CLEAN COAL SOLD & USED  
AVERAGE PRICE PER TONNE  
(MINEHEAD VALUE)  
1980 - 1994**

Year	Metallurgical Price per tonne \$	Thermal Price per tonne \$	Total Coal Price per tonne \$
1980	\$43.83	\$32.81	\$42.64
1981	\$47.95	\$38.09	\$47.16
1982	\$57.98	\$35.56	\$53.25
1983	\$52.80	\$29.51	\$48.41
1984	\$54.91	\$25.32	\$48.58
1985	\$50.65	\$26.50	\$45.47
1986	\$49.64	\$25.53	\$44.84
1987	\$44.50	\$19.83	\$39.52
1988	\$41.94	\$22.19	\$39.45
1989	\$41.38	\$29.03	\$39.81
1990	\$41.98	\$27.74	\$40.21
1991	\$39.26	\$27.01	\$37.74
1992	\$43.09	\$30.87	\$41.47
1993	\$42.73	\$24.04	\$40.90
1994(E)	\$42.08	\$23.78	\$40.54

(E) = Estimate

Coal is valued net of transportation, loading and handling charges by common carriers for all coal of B.C. origin.

## B.C. RAW AND CLEAN COAL PRODUCED 1980 - 1994

Year	Raw Coal Produced			Clean Coal Produced		
	Metallurgical '000 t	Thermal '000 t	Total '000 t	Metallurgical '000 t	Thermal '000 t	Total '000 t
1980	12 902	1 262	14 164	9 098	1 058	10 156
1981	14 548	942	15 490	10 898	845	11 743
1982	13 815	3 329	17 144	9 393	2 286	11 679
1983	13 623	3 804	17 427	9 519	2 448	11 967
1984	24 880	6 102	30 982	16 236	4 446	20 681
1985	-	-	35 110	19 440	3 697	23 137
1986	-	-	33 164	16 784	2 304	19 088
1987	-	-	34 431	18 553	4 228	22 781
1988	-	-	39 155	22 347	2 844	25 191
1989	-	-	37 463	21 538	2 959	24 497
1990	-	-	39 681	22 343	2 837	25 180
1991	-	-	38 253	21 920	3 461	25 381
1992	-	-	26 150	14 562	2 476	17 042
1993	-	-	31 092	18 376	1 945	20 321
1994(E)	-	-	34 135	20 535	1 906	22 440

(E) = Estimate

## B.C. CLEAN COAL SOLD AND USED \*

### 1980 - 1994

Year	Metallurgical		Thermal		Total	
	Quantity t	Value \$	Quantity t	Value \$	Quantity t	Value \$
1980	9 654 000	423 128 000	1 169 000	38 365 000	10 824 000	461 493 000
1981	10 812 000	518 428 000	941 000	35 844 000	11 753 000	554 271 000
1982	8 400 000	487 005 000	2 246 000	79 874 000	10 646 000	566 878 000
1983	9 317 000	491 950 000	2 163 000	63 839 000	11 480 000	555 789 000
1984	16 302 000	895 175 000	4 437 000	112 344 000	20 740 000	1 007 520 000
1985	17 767 000	899 930 000	4 845 000	128 387 000	22 613 000	1 028 317 000
1986	16 690 000	828 539 000	4 147 000	105 875 000	20 837 000	934 414 000
1987	18 020 000	801 967 000	4 567 000	90 555 000	22 587 000	892 522 000
1988	21 685 000	909 405 000	3 128 000	69 407 000	24 813 000	978 812 000
1989	21 945 000	908 009 000	3 190 000	92 589 000	25 134 000	1 000 598 000
1990	21 346 000	896 051 000	3 021 000	83 806 000	24 366 000	979 857 000
1991	21 773 000	854 784 000	3 075 000	83 052 000	24 848 000	937 836 000
1992	15 618 000	672 953 000	2 476 000	76 542 000	18 094 000	749 495 000
1993	17 572 000	750 841 000	1 910 000	45 919 000	19 482 000	796 760 000
1994(E)	20 439 000	860 109 000	1 880 000	44 700 000	22 319 000	904 809 000

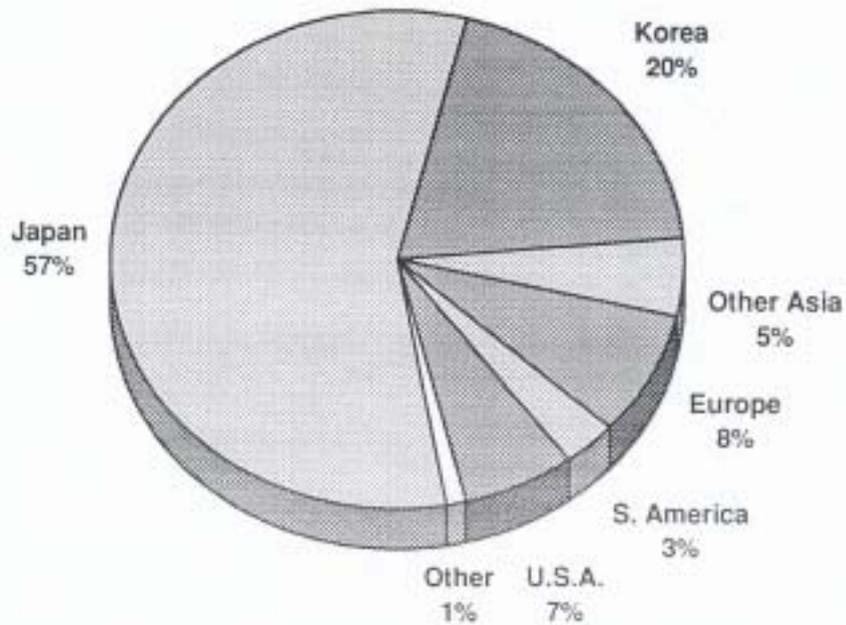
(E) = Estimate

\* Includes coal used at B.C. coal mines.

## B.C. COAL PRODUCTION BY MINE - 1993

	Raw Coal Produced '000 t	Raw Coal Processed '000 t	*(S) or (U)	Clean Coal Produced '000 t	Coal Used (Plant Use) '000 t
<i>Fort Steele Mining Division</i>					
Byron Creek	1 031	1 028	S		
Metallurgical	-	-		24	-
Thermal	-	-		707	-
Line Creek	3 890	3 914	S		
Metallurgical	-	-		2 435	-
Thermal	-	-		420	-
Fording	9 639	9 639	S		
Metallurgical	-	-		6 601	-
Thermal	-	-		65	-
Elkview	2 691	2 684	S		
Metallurgical	-	-		1 734	-
Thermal	-	-		2	2
Greenhills	2 752	2 508	S		
Metallurgical	-	-		1 609	-
Thermal	-	-		201	-
<i>Total - Fort Steele</i>	20 003	19 773		13 798	2
<i>Liard Mining Division</i>					
Bullmoose	2 372	2 486	S		
Metallurgical	-	-		1 795	-
Thermal	-	-		-	-
Quintette	7 938	7 895	S		
Metallurgical	-	-		4 178	50
Thermal	-	-		-	-
<i>Total - Liard</i>	10 310	10 381		5 973	50
<i>Nanaimo Mining Division</i>					
Quinsam Coal Ltd.	159	-	S		
	620	771	U		
Metallurgical	-	-		-	-
Thermal	-	-		550	-
<b>TOTAL</b>	<b>31 092</b>	<b>30 925</b>			
<b>Metallurgical</b>	<b>-</b>	<b>-</b>		<b>18 376</b>	<b>50</b>
Per Cent of 1993 totals	-	-		90%	96%
<b>Thermal</b>	<b>-</b>	<b>-</b>		<b>1 945</b>	<b>2</b>
Per Cent of 1993 totals	-	-		10%	4%
<b>TOTAL - ALL COAL - 1993</b>				<b>20 321</b>	<b>52</b>
*(S) = Surface; (U) = Underground					

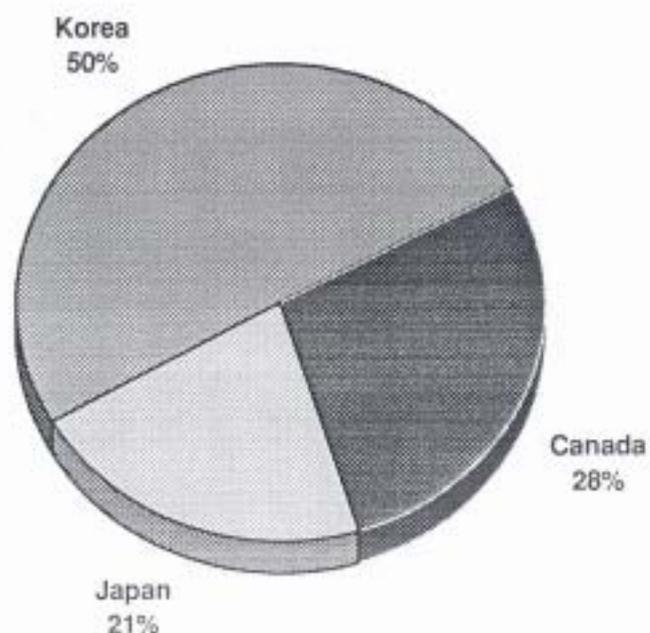
## MARKETS FOR B.C. METALLURGICAL COAL 1993



### B.C. Metallurgical Coal Sales By Destination

	Thousand Tonnes	% of Total Sales		Thousand Tonnes	% of Total Sales
Japan	9 962	56.6%	France	57	0.3%
Korea	3 472	19.7%	Netherlands	56	0.3%
U.S.A.	1 144	6.5%	Italy	18	0.1%
U.K.	582	3.3%			
Taiwan	532	3.0%	<b>Total Sales</b>	17 600	100.0%
Spain	446	2.5%	To Other B.C. Producers	239	
China	366	2.1%	Adjustments/Purchases	- 316	
Brazil	323	1.8%	<b>Total Net Sales</b>	17 523	
Chile	223	1.3%			
Belgium	130	0.7%	Used at mines	49	
Portugal	101	0.6%	<b>Total Sold &amp; Used</b>	17 572	
Algeria	98	0.6%			
Egypt	90	0.5%			

## MARKETS FOR B.C. THERMAL COAL 1993



### B.C. Thermal Coal Sales By Destination

	Thousand Tonnes	% of Total Sales
Korea	1 142	50.4%
Canada	641	28.3%
Japan	483	21.3%
<b>Total Sales</b>	<b>2 266</b>	<b>100.0%</b>
To Other B.C. Producers	323	
Adjustments/Purchases	- 681	
<b>Total Net Sales</b>	<b>1 908</b>	
Used at mines	2	
<b>Total Sold &amp; Used</b>	<b>1 910</b>	

## EMPLOYMENT AT MAJOR B.C. METAL MINES 1993

Metal Mines	Adminis- trative	Mine Surface	Mine Under- ground	Mill	Other	Total Annual Average	Peak Employ- ment
Endako	28	171	-	28	-	227	227
Equity Silver	10	-	-	46	-	56	56
Gibraltar	68	56	-	120	-	244	249
Golden Bear	15	20	23	27	-	85	85
Goldstream	18	-	48	49	-	115	115
Highland Valley Copper	115	520	-	370	118	1123	1123
Island Copper	111	280	-	148	-	539	539
* Myra Falls Operations	25	-	100	47	-	172	172
Nickel Plate	12	112	-	52	-	176	176
Premier Gold Project	6	11	35	15	-	67	67
Silvana	2	2	3	1	-	8	8
Similco	53	131	78	-	-	262	262
Snip	40	-	46	25	18	129	129
Sullivan	165	27	272	135	-	599	687
<b>Total Metal Mines</b>	<b>668</b>	<b>1 330</b>	<b>605</b>	<b>1 063</b>	<b>136</b>	<b>3 802</b>	<b>4 098</b>
Average Metal Mines	48	95	43	76	10	272	293

\* Locked out April 1993 - December 1993.

Names are as of the end of 1993.

Peak Employment is calculated by totalling the number of people employed at the end of each month divided by the number of months the mine was in operation. This number gives the best measure of the normal operational workforce in a given year. Total Annual Average is the total number of people employed at the end of each month divided by 12 months. This figure is comparable to previously published annual statistics of direct employment, and is used to calculate the total employment figure for each industry. Employment can include head office personnel at other locations in B.C.

## EMPLOYMENT AT B.C. COAL MINES 1993

Coal Mines	Adminis- trative	Mine Surface	Mine Under- ground	Pre- paration Plant	Other	Total Annual Average	Peak Employ- ment
Elkview (Balmer)*	53	192	-	62	-	307	423
Bullmoose	43	246	-	53	-	342	342
Byron Creek	20	43	-	26	2	91	91
Fording	58	712	-	118	47	935	935
Greenhills**	48	106	-	29	-	183	319
Line Creek	96	311	-	77	-	484	484
Quintette	121	813	-	153	-	1 087	1 087
Quinsam	19	28	67	21	-	135	135
<b>Total Coal Mines</b>	<b>458</b>	<b>2 451</b>	<b>67</b>	<b>539</b>	<b>49</b>	<b>3 564</b>	<b>3 816</b>
Average Coal Mines	57	306	8	67	6	446	477

\* Elkview operated May through December 1993.

\*\* Greenhills operated March through December 1993.

Names are as of the end of 1993.

Peak Employment is calculated by totalling the number of people employed at the end of each month divided by the number of months the mine was in operation. This number gives the best measure of the normal operational workforce in a given year. Total Annual Average is the total number of people employed at the end of each month divided by 12 months. This figure is comparable to previously published annual statistics of direct employment, and is used to calculate the total annual average employment figure of each industry.

## B.C. EMPLOYMENT AT MAJOR METAL AND COAL MINES

Year	Metal Mine Under-ground	Metal Mine Surface	Metal Plant	Metal Mines Total	Coal Under-ground	Coal Surface	Coal Total
1980	1 012	4 173	2 463	7 648	354	3 258	3 612
1981	1 280	5 292	2 986	9 558	343	3 277	3 620
1982	1 318	4 722	2 366	8 406	347	4 305	4 652
1983	1 176	3 788	1 846	6 810	258	3 991	4 249
1984	851	3 335	1 662	5 848	218	5 563	5 781
1985	807	2 743	1 454	5 004	76	5 745	5 821
1986	828	2 919	1 681	5 428	8	5 202	5 210
1987	722	3 170	1 654	5 546	-	5 144	5 144
1988	913	3 463	1 553	5 929	35	5 474	5 509
1989	990	3 688	1 672	6 350	-	5 641	5 641
1990	711	3 168	1 594	5 473	20	5 634	5 654
1991	777	2 778	1 617	5 172	24	5 368	5 392
1992	690	2 534	1 474	4 698	43	3 496	3 539
1993	605	2 134	1 063	3 802	67	3 497	3 564

## EMPLOYMENT IN B.C. SOLID MINERALS

Year	Metal Mines	Metal Smelters*	Coal Mines	Non-Metal	Other(E)	Total
1980	7 648	4 800	3 612	2 141	6 162	24 363
1981	9 558	4 843	3 620	1 371	7 499	26 891
1982	8 406	4 177	4 652	1 127	7 088	25 450
1983	6 810	3 606	4 249	1 065	4 168	19 898
1984	5 848	3 360	5 781	929	5 116	21 034
1985	5 004	3 098	5 821	1 317	4 623	19 863
1986	5 428	2 284	5 210	1 402	3 650	17 974
1987	5 546	2 834	5 144	1 480	6 320	21 324
1988	5 929	3 146	5 509	1 485	4 499	20 568
1989	6 350	3 330	5 641	1 543	4 003	20 867
1990	5 473	3 250	5 654	1 495	4 000	19 872
1991	5 172	2 860	5 392	1 450	3 000	17 874
1992	4 698	2 200	3 539	1 250	2 500	14 187
1993	3 802	1 900	3 564	1 500	3 000	13 766
1994(E)	3 500	1 900	3 700	1 500	3 000	13 600

(E) = Estimate

\* Excludes Alcan employment

Employment includes direct employment as reported on the Annual Census of Mines at B.C. locations for major metal, coal and industrial mineral mining operations. It also contains estimates for sand and gravel pits and quarries, as well as other employment, including exploration, drilling, and trucking directly involved in the mining industry. It does not include estimates for indirect or secondary employment attributable to mining.