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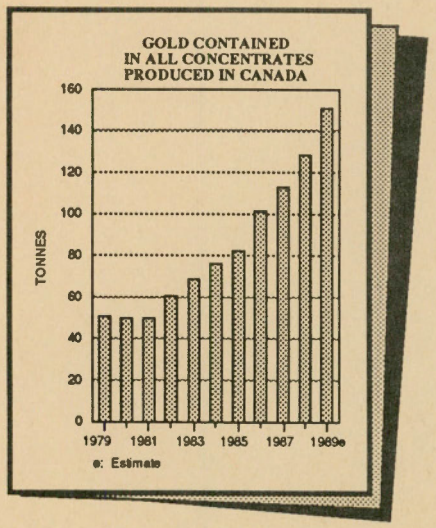


October 1990

MONTHLY REPORT

# CANADIAN MINERAL INDUSTRY

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THE ENERGY OF OUR RESOURCES
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ISSN 0229-1908

# CANADIAN MINERAL INDUSTRY
## MONTHLY REPORT

Energy, Mines and Resources Canada
Énergie, mines et Ressources Canada

## PREFACE

This publication is prepared in the Mineral Policy Sector of the Department of Energy, Mines and Resources. It is compiled from many sources using the best information available to us. This report is intended to be a general review of the more important current developments that affect, or may affect, the Canadian mineral industry. It should not be considered an authority for exact quotation or an expression of the official views of the Government of Canada.

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# THE CANADIAN MINERAL INDUSTRY FOR OCTOBER

The following constitutes a brief summary of the Canadian mineral industry based on information that became available in October.

## ECONOMIC TRENDS

Table 1 provides a comparison of the volume of production of Canada's leading minerals for the months of July and August 1990, the corresponding months a year ago and the year-to-date totals.

Table 2 provides information on Canada's Gross Domestic Product at factor cost by industry in 1986 prices. The data are annualized and seasonally adjusted. The annual rate shown for any given month has been calculated by multiplying the figure for that month by twelve. It is important to note, however, that if a particular month has been influenced by special factors such as a strike, the annualized data will reflect this bias.

Factor cost refers to output that is valued exclusive of excise taxes and duties, and provincial and municipal sales taxes. Factor cost does, however, include subsidies and other taxes that are not a function of the level of output or sale.

Seasonally adjusted data represent time-series data from which the effects of repetitive and clearly defined seasonal fluctuations have been removed. Such a practice permits the isolation of trends in the economy that might otherwise be obscured. Seasonal factors include such items as climate, trade practices and social institutions such as Christmas and Easter.

Because of conversion to a new base year, Statistics Canada's Gross Domestic Product at factor cost by industry is now valued in 1986 prices. The June 1990 issue of Statistics Canada Catalogue #15–001 (Gross Domestic Product by Industry) was the first issue on the new basis and was published in October. It contains historical data in 1986 prices covering the years 1986 to 1989 inclusive. The historical record providing GDP data in 1986 prices from 1961 to 1985 inclusive will be published by Statistics Canada at the end of November.

The GDP data are reported each month by Statistics Canada and are subject to ongoing revision.

Based on the latest data available (August 1990 issue), Statistics Canada reported that "the economy declined sharply in August after having been stalled since December 1989." It stated that economic growth turned clearly negative in August, when Gross Domestic Product at factor cost, at 1986 prices, fell by 0.5%. This was the largest monthly decline since March 1986. Goods production fell by 1.3% in August, while services output declined by 0.1%.

The 1.3% drop in goods production followed a flat July. Construction and manufacturing accounted for most of the decline. Construction output fell 3.2% in August, the largest of four consecutive declines which left output almost 10% below April, and at its lowest level since November 1988. Construction-related industries such as forestry; manufacturers of cement, concrete, and wood products; and retailers of furniture and appliances also recorded lower output.

Declines in manufacturing industries such as primary metals, chemicals and electrical products were only partly offset by increases in transportation equipment, petroleum refining and machinery industries. Output of primary metals fell 16.2% following gains of 4.8% in July and 6.0% in June, as production of iron and steel plunged 33.8% in August when strike activity was initiated. Manufacturers of motor vehicles boosted output by 4.8% in August following a similar increase in July. These gains occurred just prior to a strike called in September.

Table 3 shows the prices of selected metals for July, August and September 1990.

Table 4 provides information on census value added for the nonfuel mining industries for the period 1983-89. The preliminary estimates for 1989 indicate only a slight increase of 0.6% over

the 1988 level for the nonfuel mining industry overall. The metallic minerals industries showed an increase of 1.2% while industrial minerals declined by 1.7%.

Tables 5 and 6 provide the 1989 preliminary estimates for the principal statistics of the nonfuel mining industry by type of mine and by region. Principal statistics include such data as the number of establishments, the number of employees, the value of production and related production costs. Costs include salaries and wages, materials and supplies, fuel and electricity.

Tables 7 through 13 provide historical data on Gross Domestic Product at factor cost for the major industries of the economy, including mining and mineral manufacturing. Some of these tables provide the data on a provincial basis in addition to the Canada total.

Tables 14 through 16 deal with industrial fatality statistics for each of the major industry groups of the economy for recent years. Preliminary estimates for 1989 indicate a significant improvement over previous years in essentially all industry groups including mining.

Tables 17 and 18 provide data pertaining to the number of strikes and lockouts by industry group, and more specifically, for mining and mineral manufacturing for the years 1987 to 1989. Preliminary estimates for 1989 indicate that strikes and lockouts within the mining industries represented a duration of 189 600 person-days, an increase of 41% over 1988. In the mineral manufacturing industries, however, the duration in terms of total person-days declined by 29% to 150 400 in 1989.

## TABLE 1. CANADA, PRODUCTION OF LEADING MINERALS

| | | 1989 | | | 1990 | | | Percentage Changes | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | July | August | Total 8 Months | July | August | Total 8 Months | August 1990 / August 1989 | August 1990 / July 1990 | 8 months 1990 / 1989 |
| | | (000 tonnes except where noted) | | | | | | | | |
| **Metals** | | | | | | | | | | |
| Copper | | 39.0r | 42.1r | 458.6r | 50.6 | 74.4 | 535.7 | 76.9 | 47.1 | 16.8 |
| Gold | kg | 12 846.5r | 14 781.4r | 101 097.0r | 14 725.5 | 15 184.9 | 109 655.6 | 2.7 | 3.1 | 8.5 |
| Iron ore | | 4 514.6 | 3 179.7 | 24 932.6 | 4 006.0 | 3 711.1 | 20 923.6 | 16.7 | –7.4 | –16.1 |
| Lead | | 17.3 | 35.8 | 187.8 | 11.0 | 29.2 | 152.5 | –18.5 | 165.5 | –18.8 |
| Molybdenum | t | 966.9r | 941.0r | 9 277.0r | 1 154.9 | 897.2 | 9 542.9 | –4.7 | –22.3 | 2.9 |
| Nickel | | 5.5 | 12.6 | 124.2 | 2.6 | 15.5 | 126.5 | 22.8 | 498.3 | 1.8 |
| Silver | t | 93.6 | 94.2 | 849.5 | 113.4 | 109.9 | 949.2 | 16.6 | –3.2 | 11.7 |
| Uranium[1] | t | 124.0 | 544.1 | 7 946.4 | 198.3 | 159.5 | 6 451.9 | –70.7 | –19.6 | –18.8 |
| Zinc | | 115.2 | 164.9 | 864.2 | 98.7 | 140.4 | 929.1 | –14.9 | 42.2 | 7.5 |
| **Nonmetals** | | | | | | | | | | |
| Asbestos | | 59.6 | 66.3 | 462.3 | 62.7 | 57.9 | 445.2 | –12.6 | –7.6 | –3.7 |
| Clay products | $000 | 22 459.8r | 18 672.1r | 133 742.0r | 13 347.3 | 11 180.4 | 95 842.2 | –40.1 | –16.2 | –28.3 |
| Gypsum | | 767.9 | 795.1r | 5 522.6r | 759.2 | 745.8 | 5 653.4 | –6.2 | –1.8 | 2.4 |
| Potash $K_2O$ | | 389.1 | 461.5 | 4 805.0 | 406.6 | 667.9 | 4 944.3 | 44.7 | 64.3 | 2.9 |
| Cement | | 1 161.8 | 1 274.8 | 7 628.9 | 1 149.2 | 1 211.7 | 7 359.9 | –4.9 | 5.4 | –3.5 |
| Lime | | 205.7 | 221.6r | 1 737.2r | 191.4 | 176.5 | 1 663.6 | –20.3 | –7.8 | –4.2 |
| Salt | | 843.9r | 874.8r | 7 024.5r | 927.9 | 987.2 | 6 786.7 | 12.8 | 6.4 | –3.4 |
| **Fuels** | | | | | | | | | | |
| Coal | | 5 846.0 | 5 709.5 | 46 270.8 | .. | .. | .. | .. | .. | .. |
| Natural gas | million $m^3$ | 8 526.0r | 8 646.0r | 76 981.0r | .. | .. | .. | .. | .. | .. |
| Crude oil and equivalent | 000 $m^3$ | 8 103.0r | 8 145.0r | 64 717.0r | .. | .. | .. | .. | .. | .. |

[1] Tonnes uranium (1 tonne U = 1.2999 short tons $U_3O_8$).
r Revised; .. Not available.
Note: Percentage changes are calculated on the basis of actual production figures as opposed to the rounded figures as shown.

## TABLE 2. CANADA, REAL GROSS DOMESTIC PRODUCT AT FACTOR COST BY INDUSTRY, IN 1986 PRICES, MONTHLY (SEASONALLY ADJUSTED AT ANNUAL RATES)

| Industry Sector | 1989 August | 1990 June | 1990 July | 1990 August | Percentage Change August 1990 / August 1989 |
|---|---|---|---|---|---|
| | ($ million) | | | | |
| Total Economy | 508 475.9 | 511 692.8 | 512 125.3 | 509 489.9 | 0.2 |
| Primary Industries | | | | | |
| Agriculture | 9 825.1 | 10 503.6 | 10 531.2 | 10 610.4 | 8.0 |
| Forestry | 2 723.4 | 2 731.2 | 2 677.2 | 2 562.0 | –5.9 |
| Fishing and Trapping | 1 023.9 | 1 099.2 | 1 112.4 | 1 134.0 | 10.8 |
| Mines, Quarries and Oil Wells | 19 639.5 | 19 551.6 | 19 695.6 | 19 560.0 | –0.4 |
| Mining Industries | 6 446.9 | 6 220.8 | 6 307.2 | 6 328.8 | –1.8 |
| Gold Mines | 1 605.4 | 1 514.4 | 1 699.2 | 1 590.0 | –1.0 |
| Iron Mines | 543.3 | 454.8 | 470.4 | 470.4 | –13.4 |
| Other Metal Mines | 2 478.0 | 2 548.8 | 2 358.0 | 2 546.4 | 2.8 |
| Nonmetal Mines | 561.0 | 526.8 | 549.6 | 522.0 | –7.0 |
| Asbestos Mines | 119.2 | 115.2 | 108.0 | 115.2 | –3.4 |
| Mineral Fuels | | | | | |
| Coal Mines | 1 014.7 | 933.6 | 991.2 | 955.2 | –5.9 |
| Crude Petroleum and Natural Gas | 11 284.1 | 11 377.2 | 11 416.8 | 11 294.4 | 0.1 |
| Secondary Industries | | | | | |
| Manufacturing | 95 769.1 | 93 468.8 | 94 042.5 | 92 809.2 | –3.1 |
| Non-Durable Manufacturing | 44 161.5 | 43 359.2 | 43 667.7 | 43 497.6 | –1.5 |
| Durable Manufacturing | 51 607.6 | 50 109.6 | 50 374.8 | 49 311.6 | –4.4 |
| Primary Metal Industries | 7 163.6 | 7 190.4 | 7 537.2 | 6 319.2 | –11.8 |
| Primary Steel Industries | 3 011.1 | 3 097.2 | 3 679.2 | 2 434.8 | –19.1 |
| Steel, Pipe and Tube Industry | 348.5 | 336.0 | 337.2 | 336.0 | –3.6 |
| Iron Foundries | 415.5 | 384.0 | 399.6 | 386.4 | –7.0 |
| Smelting and Refining | 2 438.4 | 2 479.2 | 2 244.0 | 2 294.4 | –5.9 |
| Nonmetallic Mineral Products | 3 280.2 | 3 122.4 | 3 087.6 | 3 056.4 | –6.8 |
| Clay Products Industry | 161.2 | 165.6 | 159.6 | 156.0 | –3.2 |
| Cement Industry | 428.4 | 423.6 | 417.6 | 404.4 | –5.6 |
| Ready-Mix Concrete Industry | 560.2 | 465.6 | 453.6 | 446.4 | –20.3 |
| Construction Industry | 33 172.3 | 33 930.0 | 33 096.0 | 33 025.2 | –0.4 |
| Transportation and Storage | 23 022.3 | 22 728.0 | 22 447.2 | 22 363.0 | –2.9 |
| Communications | 17 577.5 | 18 974.4 | 19 092.0 | 19 268.4 | 9.6 |
| Other Utilities | 16 037.3 | 15 661.2 | 15 763.2 | 15 883.2 | –1.0 |
| Wholesale Trade | 28 230.9 | 27 338.4 | 27 201.6 | 27 074.4 | –4.1 |
| Retail Trade | 31 839.7 | 31 136.4 | 31 227.6 | 31 123.2 | –2.3 |
| Finance, Insurance and Real Estate | 79 734.9 | 79 768.8 | 80 083.2 | 80 122.8 | 0.5 |
| Community, Business and Personal Service | 61 282.4 | 64 118.4 | 64 274.8 | 64 123.1 | 4.6 |

Note: Items may not add to totals given since all components are not shown.

**TABLE 3. METAL PRICES, 1990**

| | July | August | September |
|---|---|---|---|
| **Copper** | | | |
| Electrolytic, U.S. producer f.o.b. refinery, cents (U.S.) | 124.715 | 133.558 | 132.520 |
| Electrolytic, COMEX, 1st pos. plus 5¢, cents (C.) | 126.914 | 135.525 | 135.463 |
| Electrolytic, LME Grade A Settlement, cents (U.S.) | 125.622 | 134.129 | 137.501 |
| **Lead** | | | |
| New York, cents (U.S.) | 49.600 | 50.000 | 47.500 |
| Montreal, cents (C.) | 57.600 | 58.000 | 57.250 |
| LME cash, cents (U.S.) | 39.672 | 39.701 | 37.997 |
| **Silver** | | | |
| New York, cents (U.S.) per troy oz. | 484.625 | 498.659 | 479.472 |
| Toronto, cents (C.) per troy oz. | 564.025 | 572.930 | 557.267 |
| **Zinc** | | | |
| St. Louis, H.G., cents (U.S.) | 86.098 | 78.984 | 77.771 |
| Montreal, Electrolytic, cents (C.) | 101.500 | . . | . . |
| LME cash, cents (U.S.) | . . | . . | . . |
| **Tin** | | | |
| New York, dealers, cents (U.S.) | 280.778 | 279.833 | 274.813 |
| Metals Week, composite, cents (U.S.) | 367.296 | 390.257 | 380.191 |
| **Gold** | | | |
| London, p.m., US$ per troy oz. | 362.530 | 394.727 | 389.323 |
| **Mercury** | | | |
| New York, dealers, US$ per flask | 253.810 | 241.304 | 220.000 |
| **Nickel** | | | |
| New York, dealers, cathode, US$ | 4.358 | 5.048 | 4.950 |
| LME cash, US$ | 4.227 | 4.970 | 4.919 |
| **Antimony** | | | |
| New York, dealers, cents (U.S.) | 82.000 | 82.000 | 80.000 |
| **Platinum** | | | |
| New York, refined, US$ per troy oz. | 600.000 | 600.000 | 600.000 |
| **Cadmium** | | | |
| New York, dealers, US$ | 2.893 | 2.839 | 2.658 |
| **Aluminum** | | | |
| LME cash, cents (C.) | 82.430 | 92.503 | 108.565 |
| LME cash, cents (U.S.) | 71.257 | 80.831 | 93.736 |
| **Cobalt** | | | |
| Shot/cathode/250 kg., US$ | 8.400 | 8.400 | 8.400 |
| U.S. spot cathode, US$ | 9.040 | 11.588 | 12.025 |
| **Tungsten** | | | |
| LMB ore, low, US$/MTU | 38.600 | 37.000 | 29.600 |
| **Molybdenum** | | | |
| M.W. dealer oxide, US$ | 2.869 | 2.775 | 2.818 |
| **Uranium** | | | |
| Nuexco, US$, $U_3O_8$ | 9.720 | 11.700 | 11.575 |

Average U.S. Exchange Rate for July = 1.1568; August = 1.1444; September = 1.1582.
. . Not available.
Note: Prices are per pound unless otherwise stated.

**TABLE 4. CANADA, CENSUS VALUE ADDED, TOTAL ACTIVITY, NONFUEL MINING INDUSTRIES, 1983-89**

| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989p |
|---|---|---|---|---|---|---|---|
| | | | | ($ million) | | | |
| **Metallic Minerals** | | | | | | | |
| Nickel-copper-zinc | 1 567.3 | 2 008.1 | 1 868.5 | 1 712.9 | 2 391.5 | 4 505.0 | 4 606.6 |
| Gold | 693.6 | 660.8 | 635.3 | 975.3 | 1 307.2 | 1 393.0 | 1 448.2 |
| Uranium | 496.9 | 772.5 | 813.1 | 802.0 | 898.3 | 858.6 | 773.4 |
| Iron | 644.6 | 681.4 | 817.1 | 713.8 | 787.2 | 678.2 | 757.1 |
| Silver-lead-zinc | 294.2 | 465.7 | 275.3 | 332.2 | 562.0 | 837.8 | 679.7 |
| Miscellaneous metal mines | 33.2 | 72.1 | 65.4 | 54.5 | 84.6 | 103.8 | 109.4 |
| Total | 3 729.8 | 4 660.6 | 4 474.7 | 4 590.7 | 6 030.8 | 8 276.4 | 8 374.4 |
| **Industrial Minerals** | | | | | | | |
| Potash | 455.4 | 717.1 | 428.8 | 396.4 | 578.9 | 956.2 | 860.5 |
| Stone | 119.5 | 160.1 | 207.5 | 277.6 | 331.3 | 340.6 | 350.0 |
| Sand and Gravel | 90.3 | 104.9 | 132.9 | 220.0 | 306.5 | 287.3 | 293.8 |
| Miscellaneous nonmetals | 201.8 | 240.5 | 226.8 | 289.1 | 267.9 | 261.7 | 257.3 |
| Asbestos | 254.9 | 252.7 | 217.6 | 157.1 | 147.6 | 137.9 | 188.7 |
| Peat | 43.0 | 47.1 | 63.0 | 74.6 | 93.5 | 86.4 | 84.8 |
| Gypsum | 35.1 | 40.2 | 50.7 | 56.6 | 67.2 | 64.1 | 62.4 |
| Total | 1 200.0 | 1 562.6 | 1 327.3 | 1 471.3 | 1 792.9 | 2 134.4 | 2 097.4 |
| Nonfuel mining industry | 4 929.8 | 6 223.2 | 5 802.0 | 6 062.0 | 7 823.7 | 10 410.8 | 10 471.8 |

Source: Energy, Mines and Resources Canada.
p Preliminary.
Note: Totals may not add due to rounding.

## TABLE 5. CANADA, PRINCIPAL STATISTICS OF THE NONFUEL MINING INDUSTRY[1], 1989[P]

| | | Mining Activity | | | | | | | Total Activity[2] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Production and Related Workers | | | Costs | | | | | | |
| | Establishments | Employees | Person-hours Paid | Salaries and Wages | Fuel and Electricity | Materials and Supplies | Value of Production | Value Added | Employees | Salaries and Wages | Value Added |
| | (number) | (number) | (000) | ($000) | ($000) | ($000) | ($000) | ($000) | (number) | ($000) | ($000) |
| **Metals** | | | | | | | | | | | |
| Nickel-copper-zinc | 27 | 14 272 | 31 420 | 634 541 | 223 704 | 1 846 761 | 6 638 372 | 4 567 907 | 19 626 | 903 110 | 4 606 550 |
| Gold | 66 | 10 192 | 21 825 | 460 219 | 106 372 | 504 141 | 2 061 429 | 1 450 916 | 12 645 | 578 061 | 1 448 191 |
| Uranium | 5 | 4 051 | 7 939 | 194 799 | 56 629 | 158 734 | 984 490 | 769 127 | 4 765 | 232 276 | 773 423 |
| Iron | 7 | 4 578 | 9 738 | 215 015 | 177 860 | 412 878 | 1 346 245 | 755 507 | 6 303 | 293 825 | 757 110 |
| Silver-lead-zinc | 14 | 3 143 | 7 138 | 135 965 | 58 906 | 583 567 | 1 315 547 | 673 074 | 4 522 | 206 778 | 679 705 |
| Miscellaneous metal mines[3] | 6 | 933 | 2 084 | 39 031 | 14 175 | 56 442 | 174 960 | 104 343 | 1 289 | 53 546 | 109 397 |
| Total | 125 | 37 169 | 80 143 | 1 678 571 | 637 647 | 3 562 522 | 12 521 042 | 8 320 873 | 49 150 | 2 272 597 | 8 374 376 |
| **Industrials** | | | | | | | | | | | |
| Potash | 11 | 2 887 | 6 267 | 108 302 | 98 369 | 158 542 | 1 109 275 | 852 364 | 3 893 | 155 966 | 860 512 |
| Stone | 121 | 2 343 | 5 505 | 81 312 | 37 192 | 136 292 | 512 455 | 338 971 | 3 053 | 108 727 | 349 974 |
| Sand and gravel | 142 | 1 839 | 4 171 | 59 253 | 28 853 | 93 490 | 388 598 | 266 255 | 2 833 | 101 884 | 293 767 |
| Miscellaneous nonmetals[4] | 33 | 1 712 | 3 963 | 62 286 | 28 818 | 56 884 | 343 244 | 257 543 | 2 378 | 89 389 | 257 255 |
| Asbestos | 4 | 2 231 | 5 444 | 91 347 | 34 673 | 64 160 | 284 808 | 185 976 | 2 800 | 118 408 | 188 718 |
| Peat | 55 | 1 323 | 2 979 | 26 408 | 5 140 | 23 002 | 114 288 | 86 146 | 1 581 | 34 667 | 84 772 |
| Gypsum | 10 | 666 | 1 494 | 19 929 | 7 201 | 19 556 | 85 802 | 59 046 | 966 | 33 079 | 62 406 |
| Total | 376 | 13 001 | 29 824 | 448 837 | 240 246 | 551 925 | 2 838 471 | 2 046 300 | 17 504 | 642 120 | 2 097 403 |
| Total nonfuel mining industry | 501 | 50 170 | 109 967 | 2 127 408 | 877 893 | 4 114 447 | 15 359 514 | 10 367 174 | 66 654 | 2 914 717 | 10 471 780 |

Source: Energy, Mines and Resources Canada.
[1] Cement manufacturing, lime manufacturing, clay and clay products (domestic clays) are included in the mineral manufacturing industry. [2] Total activity includes sales and head offices. [3] Includes molybdenum mines. [4] Includes salt mines.
P Preliminary.
Note: Totals may not add due to rounding.

## TABLE 6. CANADA, PRINCIPAL STATISTICS OF THE NONFUEL MINING INDUSTRY[1] BY REGION, 1989[P]

| | | Mines, Quarries and Oil Well Activity | | | | | | | Total Activity[2] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Production and Related Workers | | | Costs | | | | | | |
| | Establishments | Employees | Person-Hours Paid | Salaries and Wages | Fuel and Electricity | Materials and Supplies | Value of Production | Value Added | Employees | Salaries and Wages | Value Added |
| | (number) | (number) | (000) | ($000) | ($000) | ($000) | ($000) | ($000) | (number) | ($000) | ($000) |
| Atlantic Provinces | 63 | 6 514 | 14 765 | 245 714 | 126 473 | 574 165 | 1 496 539 | 795 901 | 8 093 | 301 051 | 784 534 |
| Quebec | 175 | 10 806 | 23 431 | 443 769 | 195 367 | 700 056 | 2 182 505 | 1 287 082 | 14 881 | 636 811 | 1 341 916 |
| Ontario | 144 | 18 743 | 41 091 | 830 468 | 244 801 | 1 443 815 | 6 027 805 | 4 339 189 | 25 227 | 1 163 198 | 4 384 121 |
| Prairies Provinces | 72 | 6 963 | 14 642 | 268 049 | 144 121 | 486 218 | 3 143 572 | 2 513 233 | 9 109 | 375 930 | 2 528 307 |
| British Columbia | 39 | 5 491 | 12 215 | 249 610 | 124 777 | 678 246 | 1 705 222 | 902 200 | 7 017 | 313 190 | 900 659 |
| Yukon and Northwest Territories | 8 | 1 653 | 3 823 | 89 797 | 42 354 | 231 948 | 803 871 | 529 568 | 2 327 | 124 537 | 532 243 |
| Canada | 501 | 50 170 | 109 967 | 2 127 408 | 877 893 | 4 114 447 | 15 359 514 | 10 367 174 | 66 654 | 2 914 717 | 10 471 780 |

Source: Energy, Mines and Resources Canada.
1 Cement manufacturing, lime manufacturing, clay and clay products are included in the mineral manufacturing industry. 2 Total activity includes sales and head offices.
P Preliminary.
Note: Totals may not add due to rounding.

**TABLE 7. CANADA, GROSS DOMESTIC PRODUCT OF INDUSTRIAL PRODUCTION, MINING AND MINERAL MANUFACTURING AT FACTOR COST AT 1986 PRICES, 1983–89**

| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989p |
|---|---|---|---|---|---|---|---|
| | | | | ($ million) | | | |
| Total industrial production | 102 435.6 | 114 882.6 | 121 272.9 | 120 356.8 | 125 721.6 | 131 996.4 | 132 099.6 |
| Total mining | 15 836.8 | 18 027.2 | 18 825.2 | 17 502.3 | 18 723.0 | 20 219.8 | 19 774.2 |
| Metals | | | | | | | |
| Gold mines | 610.1 | 679.0 | 740.1 | 880.6 | 988.2 | 1 137.3 | 1 507.2 |
| Other metal mines | 1 761.7 | 2 516.3 | 2 382.5 | 2 346.5 | 2 730.7 | 2 746.6 | 2 515.7 |
| Iron mines | 379.2 | 444.6 | 585.8 | 452.7 | 506.1 | 545.1 | 561.4 |
| Fuels | | | | | | | |
| Crude oil and natural gas | 9 587.3 | 9 899.3 | 10 593.7 | 9 762.6 | 10 486.2 | 11 354.9 | 11 341.8 |
| Nonmetals | | | | | | | |
| Asbestos | 103.8 | 124.9 | 110.2 | 102.0 | 93.7 | 98.1 | 113.5 |
| All nonmetals | 396.5 | 514.1 | 448.3 | 485.4 | 579.5 | 601.2 | 580.6 |
| Potash | 247.7 | 336.2 | 280.5 | 309.9 | 369.8 | 422.3 | 401.7 |
| Salt | 109.9 | 135.9 | 132.9 | 135.6 | 126.0 | 131.4 | 129.7 |
| Coal | 505.7 | 807.5 | 825.2 | 755.3 | 845.7 | 982.5 | 985.1 |
| Quarry and sand pits | 407.7 | 470.9 | 541.2 | 643.7 | 692.6 | 713.1 | 665.1 |
| Services related to mining | 2 136.2 | 2 473.8 | 2 663.2 | 1 937.9 | 1 674.3 | 1 909.6 | 1 374.1 |
| Mineral manufacturing | | | | | | | |
| Primary metals | 4 909.8 | 6 004.0 | 6 351.6 | 6 127.9 | 6 725.2 | 7 114.2 | 7 043.3 |
| Primary steel | 2 403.6 | 2 731.8 | 2 816.3 | 2 625.9 | 2 784.7 | 2 926.5 | 2 938.3 |
| Steel pipe and tube mills | 154.9 | 305.0 | 342.1 | 277.8 | 327.7 | 386.0 | 348.1 |
| Iron foundries | 314.6 | 435.7 | 439.2 | 460.9 | 433.0 | 464.6 | 430.5 |
| Nonferrous smelting and refining | 1 537.9 | 1 855.1 | 1 989.0 | 1 954.5 | 2 296.8 | 2 417.2 | 2 382.1 |
| Nonmetallic mineral products | 2 382.3 | 2 607.7 | 2 845.4 | 2 970.9 | 3 252.7 | 3 297.1 | 3 248.6 |
| Cement | 355.6 | 354.2 | 387.0 | 384.0 | 428.6 | 431.4 | 429.2 |
| Concrete products | 321.0 | 350.7 | 422.7 | 448.5 | 486.5 | 530.4 | 539.9 |
| Ready–mix concrete | 362.1 | 392.9 | 448.4 | 506.9 | 575.7 | 577.3 | 556.7 |
| Glass and glass products | 569.4 | 647.1 | 689.3 | 647.8 | 685.8 | 645.8 | 661.0 |
| Miscellaneous nonmetallic products | 653.0 | 740.6 | 769.3 | 786.7 | 854.1 | 890.5 | 884.1 |
| Petroleum and coal products | 1 777.5 | 1 792.8 | 1 746.0 | 1 731.6 | 1 875.7 | 1 951.6 | 2 006.8 |

Source: Statistics Canada.
p Preliminary.

## TABLE 8. CANADA, GROSS DOMESTIC PRODUCT BY INDUSTRIES AT FACTOR COST AT 1986 PRICES, 1983–89

| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989p |
|---|---|---|---|---|---|---|---|
| | | | | ($ million) | | | |
| Gross domestic product, all industries | 394 994.9 | 418 716.4 | 438 450.1 | 451 839.6 | 470 948.6 | 491 013.8 | 506 092.9 |
| Agriculture | 10 142.0 | 9 814.3 | 9 404.2 | 11 056.7 | 10 067.2 | 8 023.2 | 9 211.2 |
| Fishing and trapping | 852.3 | 776.7 | 945.2 | 980.2 | 918.6 | 935.9 | 1 012.4 |
| Forestry | 2 419.9 | 2 720.3 | 2 635.3 | 2 691.0 | 2 870.3 | 2 696.1 | 2 742.5 |
| Mines (including milling), quarries and oil wells | 15 836.8 | 18 027.2 | 18 825.2 | 17 502.3 | 18 723.0 | 20 219.8 | 19 774.2 |
| Manufacturing | 72 235.6 | 81 552.0 | 86 150.2 | 86 789.7 | 90 261.6 | 94 692.3 | 95 118.4 |
| Construction | 26 695.8 | 25 012.7 | 26 953.0 | 28 082.0 | 29 741.8 | 31 624.1 | 32 988.3 |
| Transportation and storage | 17 316.5 | 19 356.4 | 19 763.4 | 20 253.8 | 21 492.5 | 22 724.4 | 22 838.3 |
| Communications | 11 401.4 | 11 954.3 | 12 634.8 | 13 247.9 | 14 259.3 | 15 537.2 | 17 398.0 |
| Electric power, gas and water utilities | 13 124.0 | 13 793.5 | 14 885.1 | 15 198.0 | 15 862.1 | 16 179.6 | 16 294.2 |
| Trade, wholesale | 17 944.7 | 19 358.2 | 21 765.8 | 23 312.0 | 25 250.6 | 27 343.0 | 28 093.8 |
| Trade, retail | 24 534.7 | 25 982.5 | 27 375.2 | 28 269.4 | 29 973.2 | 31 305.3 | 31 868.6 |
| Finance, insurance and real estate | 58 055.7 | 61 786.9 | 65 747.8 | 69 033.6 | 72 038.7 | 75 404.0 | 78 956.6 |
| Community, business and personal services | 44 363.8 | 46 960.0 | 48 776.9 | 52 119.1 | 54 864.8 | 58 056.0 | 61 446.2 |
| Government service | 30 301.8 | 30 773.9 | 30 954.5 | 31 365.5 | 31 700.7 | 32 039.5 | 32 671.2 |

Source: Statistics Canada.
p Preliminary.

**TABLE 9. CANADA, GROSS DOMESTIC PRODUCT AT FACTOR COST IN CURRENT DOLLARS FOR SELECTED INDUSTRIES BY PROVINCE, 1986**

| | Newfoundland | Prince Edward Island | Nova Scotia | New Brunswick | Quebec | Ontario | Manitoba | Saskat-chewan | Alberta | British Columbia | Yukon and N.W.T. | Canada |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ($ million) | | | | | | |
| Agriculture and related services industries | 21.0 | 107.6 | 159.2 | 144.5 | 1 965.8 | 2 575.6 | 1 057.5 | 2 597.0 | 1 932.2 | 564.9 | 0.1 | 11 125.4 |
| Logging and forestry industries | 45.8 | 2.3 | 79.0 | 189.6 | 584.3 | 509.2 | 26.6 | 33.4 | 82.7 | 1 131.5 | 1.4 | 2 685.8 |
| Fishing and trapping industries | 143.0 | 42.8 | 293.4 | 70.4 | 74.8 | 46.2 | 18.0 | 7.5 | 6.5 | 270.4 | 5.7 | 978.7 |
| Mining, quarrying and oil well industries[1] | 360.6 | 0.8 | 156.2 | 142.7 | 952.9 | 2 184.9 | 301.0 | 1 447.6 | 10 172.5 | 1 411.3 | 478.9 | 17 609.4 |
| Manufacturing industries | 578.1 | 97.7 | 1 526.2 | 1 337.0 | 21 694.9 | 46 636.0 | 2 027.5 | 930.4 | 4 064.9 | 7 257.9 | 10.6 | 86 161.4 |
| Construction industries | 514.2 | 110.1 | 848.0 | 589.3 | 6 136.7 | 10 190.1 | 1 138.4 | 1 207.6 | 3 741.9 | 3 331.7 | 278.3 | 28 086.3 |
| Electric power systems industry, gas distribution systems industry and other utilities industries | 343.3 | 44.0 | 273.8 | 541.8 | 4 409.2 | 5 044.9 | 648.9 | 468.5 | 1 789.2 | 1 526.9 | 71.9 | 15 162.4 |
| Goods-producing industries | 2 006.0 | 405.3 | 3 336.0 | 3 015.3 | 35 818.6 | 67 186.9 | 5 217.9 | 6 692.0 | 21 789.9 | 15 494.6 | 846.9 | 161 809.4 |

Source: Statistics Canada Catalogue 15-203.
1 Cement, lime, clay and clay products (domestic clays) industries are included under "manufacturing."
Note: Totals may not add due to rounding.

**TABLE 10. CANADA, GROSS DOMESTIC PRODUCT AT FACTOR COST IN CURRENT DOLLARS FOR SELECTED INDUSTRIES BY PROVINCE, 1985r**

| | Newfoundland | Prince Edward Island | Nova Scotia | New Brunswick | Quebec | Ontario | Manitoba | Saskat-chewan | Alberta | British Columbia | Yukon and N.W.T. | Canada |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ($ million) | | | | | | |
| Agriculture and related services industries | 22.4 | 79.2 | 138.5 | 118.5 | 1 711.4 | 2 507.8 | 1 113.5 | 2 013.1 | 1 793.4 | 532.6 | 0.1 | 10 030.5 |
| Logging and forestry industries | 45.1 | 1.8 | 69.7 | 164.7 | 528.3 | 472.7 | 29.4 | 30.4 | 67.4 | 1 132.2 | 0.9 | 2 542.6 |
| Fishing and trapping industries | 109.1 | 29.6 | 205.6 | 56.0 | 56.2 | 38.1 | 16.7 | 6.5 | 6.1 | 236.0 | 5.0 | 764.9 |
| Mining, quarrying and oil well industries[1] | 399.7 | 1.0 | 166.7 | 109.2 | 857.9 | 1 994.1 | 430.3 | 2 523.8 | 18 388.8 | 1 698.3 | 543.9 | 27 113.7 |
| Manufacturing industries | 458.7 | 90.4 | 1 184.8 | 1 133.0 | 20 802.3 | 44 187.8 | 1 882.3 | 866.2 | 4 573.8 | 6 480.0 | 12.7 | 81 672.0 |
| Construction industries | 605.2 | 116.2 | 981.1 | 518.0 | 5 774.9 | 8 403.0 | 959.0 | 1 281.5 | 3 790.9 | 3 434.7 | 276.5 | 26 141.0 |
| Electric power systems industry, gas distribution systems industry and other utilities industries | 331.2 | 37.4 | 244.3 | 452.6 | 4 233.1 | 4 546.8 | 603.1 | 442.3 | 1 683.7 | 1 711.9 | 64.6 | 14 351.0 |
| Goods–producing industries | 1 971.4 | 355.6 | 2 990.7 | 2 552.0 | 33 964.1 | 62 150.3 | 5 034.3 | 7 163.8 | 30 304.1 | 15 225.7 | 903.7 | 162 615.7 |

Source: Statistics Canada Catalogue 15-203.
1 Cement, lime, clay and clay products (domestic clays) industries are included under "manufacturing."
r Revised.
Note: Totals may not add due to rounding.

**TABLE 11. CANADA, GROSS DOMESTIC PRODUCT AT FACTOR COST IN CURRENT DOLLARS FOR MINING[1] BY PROVINCE, 1978-86**

| | Newfoundland | Prince Edward Island | Nova Scotia | New Brunswick | Quebec | Ontario | Manitoba | Saskatchewan | Alberta | British Columbia | Yukon and Northwest Territories | Canada |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ($ million) | | | | | | |
| 1978 | 249.2 | 0.1 | 83.1 | 113.7 | 774.5 | 1 255.8 | 190.5 | 855.7 | 5 191.2 | 942.8 | 294.6 | 9 951.2 |
| 1979 | 475.6 | 0.1 | 102.4 | 206.4 | 989.5 | 1 600.8 | 354.5 | 1 014.2 | 7 409.6 | 1 621.4 | 440.4 | 14 214.8 |
| 1980 | 445.1 | 0.1 | 116.1 | 96.2 | 1 223.1 | 2 476.9 | 428.6 | 1 304.4 | 10 033.1 | 1 479.5 | 516.7 | 18 119.5 |
| 1981 | 471.8 | 0.1 | 124.9 | 125.9 | 1 099.6 | 1 883.6 | 290.3 | 1 298.5 | 10 593.0 | 1 264.6 | 358.4 | 17 510.6 |
| 1982 | 313.0 | 0.1 | 190.0 | 124.5 | 866.5 | 1 356.1 | 282.2 | 1 294.3 | 12 531.2 | 1 209.7 | 412.8 | 18 580.3 |
| 1983 | 367.8 | 0.1 | 277.4 | 94.2 | 853.6 | 1 689.4 | 352.6 | 1 640.9 | 14 648.1 | 1 319.5 | 443.9 | 21 687.6 |
| 1984r | 363.0 | 0.5 | 224.9 | 200.9 | 793.8 | 2 186.4 | 414.7 | 2 528.3 | 16 472.6 | 1 865.3 | 515.2 | 25 565.6 |
| 1985r | 399.7 | 1.0 | 166.7 | 109.2 | 857.9 | 1 994.1 | 430.3 | 2 523.8 | 18 388.8 | 1 698.3 | 543.9 | 27 113.7 |
| 1986 | 360.6 | 0.8 | 156.2 | 142.7 | 952.9 | 2 184.9 | 301.0 | 1 447.6 | 10 172.5 | 1 411.3 | 478.9 | 17 609.4 |

Source: Statistics Canada Catalogue 15-203.
1 Cement, lime, clay and clay products (domestic clays) industries are not included (see manufacturing).
r Revised.
Note: Totals may not due to rounding.

**TABLE 12. CANADA, GROSS DOMESTIC PRODUCT AT FACTOR COST IN CURRENT DOLLARS FOR MINERAL MANUFACTURING INDUSTRIES BY PROVINCE, 1986**

| | Primary Metal Industries | Nonmetallic Mineral Products Industries | Fabricated Metal Products Industries | Petroleum and Coal Products Industries | Mineral Manufacturing Industries |
|---|---|---|---|---|---|
| | | ($ million) | | | |
| Newfoundland | x | 21.1 | 7.8 | x | 29.7 |
| Prince Edward Island | – | 1.2 | 3.9 | – | 5.0 |
| Nova Scotia | x | 39.9 | 46.1 | x | 310.2 |
| New Brunswick | x | x | 47.2 | x | 246.4 |
| Quebec | 1 750.7 | x | 1 268.9 | 95.7 | x |
| Ontario | 3 524.9 | 1 627.7 | 3 843.2 | 660.4 | 9 656.1 |
| Manitoba | 87.7 | 80.1 | 144.9 | x | x |
| Saskatchewan | x | 58.1 | 47.3 | x | 237.9 |
| Alberta | 230.5 | 251.0 | 348.8 | 384.8 | 1 215.1 |
| British Columbia | 405.6 | 215.5 | 381.5 | x | x |
| Yukon and Northwest Territories | – | x | – | x | 4.4 |
| Canada | 6 120.2 | 2 979.1 | 6 139.6 | 1 729.0 | 16 967.9 |

Source: Statistics Canada.
x Confidential, included in total; – Nil.

**TABLE 13. CANADA, GROSS DOMESTIC PRODUCT AT FACTOR COST IN CURRENT DOLLARS FOR MINERAL MANUFACTURING INDUSTRIES BY PROVINCE, 1985r**

| | Primary Metal Industries | Nonmetallic Mineral Products Industries | Fabricated Metal Products Industries | Petroleum and Coal Products Industries | Mineral Manufacturing Industries |
|---|---|---|---|---|---|
| | | ($ million) | | | |
| Newfoundland | x | 16.3 | 8.4 | x | 28.5 |
| Prince Edward Island | – | x | 4.1 | – | x |
| Nova Scotia | x | x | 47.8 | x | 73.9 |
| New Brunswick | x | x | 40.9 | x | 140.6 |
| Quebec | 1 734.0 | 596.1 | 1 286.8 | 144.0 | 3 760.9 |
| Ontario | 3 551.1 | 1 340.3 | 3 511.3 | 292.3 | 8 695.0 |
| Manitoba | 64.3 | 65.4 | 125.6 | x | x |
| Saskatchewan | x | x | 46.8 | x | 209.2 |
| Alberta | 293.3 | 225.2 | 352.9 | 919.3 | 1 790.8 |
| British Columbia | 360.7 | x | 386.0 | 62.8 | x |
| Yukon and Northwest Territories | – | x | – | x | 7.7 |
| Canada | 6 079.8 | 2 574.5 | 5 810.6 | 1 529.5 | 15 994.4 |

Source: Statistics Canada.
x Confidential, included in total; – Nil; r Revised.

## TABLE 14. CANADA, INDUSTRIAL FATALITIES PER THOUSAND WORKERS[1] BY INDUSTRY GROUPS, 1987–89

| | Fatalities[2] | | | Number of Workers | | | Rate per 1000 Workers | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1987 | 1988 | 1989p | 1987 | 1988 | 1989p | 1987 | 1988 | 1989p |
| | | (number) | | | (000) | | | | |
| Agriculture | 12 | 9 | 11 | 179 | 164 | 381 | 0.07 | 0.05 | 0.03 |
| Forestry | 61 | 62 | 57 | 62 | 65 | 66 | 0.98 | 0.95 | 0.86 |
| Fishing[3] | 24 | 12 | 8 | 15 | 18 | 30 | 1.60 | 0.67 | 0.27 |
| Mining[4] | 116r | 85 | 58 | 181 | 185 | 165 | 0.64r | 0.46 | 0.35 |
| Manufacturing[5] | 118r | 124 | 71 | 2 017 | 2 097 | 2 069 | 0.06 | 0.06 | 0.03 |
| Construction | 120r | 125 | 109 | 565 | 613 | 751 | 0.21 | 0.20 | 0.15 |
| Transportation[6] | 117r | 108 | 101 | 848 | 860 | 947 | 0.14r | 0.13 | 0.11 |
| Trade | 45r | 42 | 35 | 1 928 | 1 997 | 2 231 | 0.02 | 0.02 | 0.02 |
| Finance[7] | 5 | 9 | 4 | 661 | 691 | 738 | 0.01 | 0.01 | 0.01 |
| Service[8] | 41r | 48 | 44 | 3 501 | 3 631 | 4 212 | 0.01 | 0.01 | 0.01 |
| Public administration[9] | 38 | 40 | 30 | 814 | 820 | 790 | 0.05 | 0.05 | 0.04 |
| Unknown | 10 | 7 | 10 | .. | .. | .. | .. | .. | .. |
| Total | 707r | 671 | 538 | 10 771 | 11 141 | 12 380 | 0.07r | 0.06 | 0.04 |

Source: Labour Canada.
1 Includes fatalities resulting from occupational chest illnesses such as silicosis, lung cancer, etc. 2 Excludes the province of Quebec for which data are unavailable. 3 Includes trapping and hunting. 4 Includes quarrying and oil wells. 5 Includes deaths of workers who were on pension for an earlier disabling injury. 6 Includes storage, communication, electric power and water utilities, and highway maintenance. 7 Includes insurance and real estate. 8 Includes community, business and personal services. 9 Includes defence.
p Preliminary; .. Not available; r Revised.

## TABLE 15. CANADA, RATE OF INDUSTRIAL FATALITIES[1] PER THOUSAND WORKERS BY INDUSTRY GROUPS[2], 1983–89

| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989p |
|---|---|---|---|---|---|---|---|
| Agriculture | 0.13 | 0.13 | 0.12 | 0.05 | 0.07 | 0.05 | 0.03 |
| Forestry | 0.97 | 0.88 | 1.08 | 0.90 | 0.98 | 0.95 | 0.86 |
| Fishing[3] | 1.07 | 1.93 | 2.17 | 1.00 | 1.60 | 0.67 | 0.27 |
| Mining[4] | 0.63 | 0.57 | 0.69 | 0.59 | 0.64r | 0.46 | 0.35 |
| Manufacturing[5] | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.03 |
| Construction | 0.25 | 0.31 | 0.28 | 0.27 | 0.21 | 0.20 | 0.15 |
| Transportation[6] | 0.17 | 0.15 | 0.16 | 0.14 | 0.14r | 0.13 | 0.11 |
| Trade | 0.03 | 0.03 | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 |
| Finance[7] | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Service[8] | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| Public administration[9] | 0.07 | 0.08 | 0.07 | 0.07 | 0.05 | 0.05 | 0.04 |
| Total | 0.08 | 0.08 | 0.09 | 0.07 | 0.07r | 0.06 | 0.04 |

Source: Labour Canada.
1 Excludes the Province of Quebec for which data is unavailable. 2 Includes fatalities resulting from occupational chest illnesses such as silicosis, lung cancer, etc. 3 Includes trapping and hunting. 4 Includes quarrying and oil wells. 5 Includes deaths of workers who were on pension for an earlier disabling injury. 6 Includes storage, communication, electric power and water utilities and highway maintenance. 7 Includes insurance and real estate. 8 Includes community, business and personal services. 9 Includes defence.
p Preliminary; r Revised.

## TABLE 16. CANADA, INDUSTRIAL FATALITIES[1] BY OCCUPATIONAL INJURIES AND ILLNESSES,[2] 1987–89

| | Occupational Injuries | | | Occupational Illnesses | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1987 | 1988 | 1989p | 1987 | 1988 | 1989p | 1987 | 1988 | 1989p |
| Agriculture | 12 | 9 | 11 | – | – | – | 12 | 9 | 11 |
| Forestry | 61 | 61 | 56 | – | 1 | 1 | 61 | 62 | 57 |
| Fishing[3] | 24 | 12 | 8 | – | – | – | 24 | 12 | 8 |
| Mining[4] | 64r | 46 | 35 | 52r | 39 | 23 | 116r | 85 | 58 |
| Manufacturing[5] | 73r | 91 | 58 | 45r | 33 | 13 | 118r | 124 | 71 |
| Construction | 101r | 96 | 86 | 19 | 29 | 23 | 120r | 125 | 109 |
| Transportation[6] | 112r | 102 | 94 | 5r | 6 | 7 | 117r | 108 | 101 |
| Trade | 42r | 36 | 31 | 3 | 6 | 4 | 45r | 42 | 35 |
| Finance[7] | 5 | 7 | 4 | – | 2 | – | 5 | 9 | 4 |
| Service[8] | 39r | 46 | 41 | 2r | 2 | 3 | 41r | 48 | 44 |
| Public administration[9] | 31 | 35 | 26 | 7 | 5 | 4 | 38 | 40 | 30 |
| Unknown | 7r | 5 | 5 | 3r | 2 | 5 | 10 | 7 | 10 |
| Total | 571r | 546 | 455 | 136r | 125 | 83 | 707r | 671 | 538 |

Source: Labour Canada.

1 Excludes the province of Quebec for which data is unavailable. 2 Includes fatalities resulting from occupational chest illnesses such as silicosis, lung cancer, etc. 3 Includes trapping and hunting. 4 Includes quarrying and oil wells. 5 Includes deaths of workers who were on pension for an earlier disabling injury. 6 Includes storage, communication, electric power and water utilities, and highway maintenance. 7 Includes insurance and real estate. 8 Includes community, business and personal services. 9 Includes defence.

p Preliminary; r Revised; – Nil.

## TABLE 17. CANADA, NUMBER OF STRIKES AND LOCKOUTS BY INDUSTRIES, 1987–89

| | 1987 | | | 1988 | | | 1989p | | |
|---|---|---|---|---|---|---|---|---|---|
| | Strikes and Lockouts | Workers Involved | Duration in Person–Days | Strikes and Lockouts | Workers Involved | Duration in Person–Days | Strikes and Lockouts | Workers Involved | Duration in Person–Days |
| Agriculture | 1 | 18 | 3 830r | 1 | 18 | 4 610 | 1 | 107 | 2 030 |
| Forestry | 5 | 881r | 2 430r | 4 | 963 | 19 520 | 1 | 368 | 53 000 |
| Fishing and trapping | – | – | – | – | – | – | 3 | 3 897 | 35 650 |
| Mines | 14 | 8 539r | 156 540r | 13 | 4 229 | 134 410 | 17 | 7 129 | 189 600 |
| Manufacturing | 304r | 82 562r | 1 717 402r | 258 | 51 070 | 1 320 851 | 248 | 41 587 | 1 179 520 |
| Construction | 20r | 8 345r | 53 150r | 21 | 34 156 | 632 030 | 35 | 34 353 | 137 040 |
| Transportation and utilities | 66r | 124 982r | 687 110r | 47 | 38 338 | 1 996 840 | 66 | 26 522 | 407 970 |
| Trade | 96r | 9 071r | 337 240r | 80 | 4 178 | 175 780 | 71 | 4 352 | 211 600 |
| Finance, insurance and real estate | 12r | 557r | 36 920r | 9 | 462 | 23 780 | 13 | 465 | 4 410 |
| Service | 119r | 58 060 | 487 815r | 93 | 38 362 | 425 128 | 134 | 285 985 | 1 197 530 |
| Public administration | 31r | 289 095r | 328 030r | 22 | 35 039 | 169 620 | 34 | 49 879 | 246 330 |
| Various industries | – | – | – | – | – | – | – | – | – |
| All industries | 668r | 582 110 | 3 810 467 | 548 | 206 815 | 4 902 569 | 623 | 454 644 | 3 664 680 |

Source: Labour Canada
p Preliminary; r Revised; – Nil.

## TABLE 18. CANADA, NUMBER OF STRIKES AND LOCKOUTS BY MINING AND MINERAL MANUFACTURING INDUSTRIES, 1987–89

| | 1987 | | | 1988 | | | 1989p | | |
|---|---|---|---|---|---|---|---|---|---|
| | Strikes and Lockouts | Workers Involved | Duration in Person–Days | Strikes and Lockouts | Workers Involved | Duration in Person–Days | Strikes and Lockouts | Workers Involved | Duration in Person–Days |
| **Mines** | 14 | 8 539r | 156 540r | 13 | 4 229 | 134 410 | 17 | 7 129 | 189 600 |
| Metals | 10 | 7 188r | 149 270r | 8 | 3 488 | 93 430 | 7 | 2 978 | 113 510 |
| Mineral fuels | 2 | 1 060 | 1 000 | – | – | – | 4 | 3 261 | 36 320 |
| Nonmetals | 1 | 272 | 6 210 | 3 | 691 | 40 460 | 5 | 855 | 38 960 |
| Quarries | 1 | 19 | 60 | 2 | 50 | 520 | 1 | 35 | 810 |
| **Mineral Manufacturing** | 40r | 11 832r | 441 140r | 28 | 8 481 | 211 200 | 31 | 3 119 | 150 400 |
| Primary metals | 21 | 8 759r | 363 490r | 15 | 6 178 | 157 990 | 4 | 955 | 93 880 |
| Nonmetallic mineral products | 19r | 3 073r | 77 650r | 13 | 2 303 | 53 210 | 24 | 1 730 | 52 320 |
| Petroleum and coal products | – | – | – | – | – | – | 3 | 434 | 4 200 |

Source: Labour Canada
p Preliminary; r Revised; – Nil.

# METALLIC MINERALS AND PRODUCTS

## Nonferrous and Precious Metals Prices

### NONFERROUS AND PRECIOUS METALS PRICES[1]

| | 1980s Extremes | | | | October 1990 | | |
|---|---|---|---|---|---|---|---|
| | Low | | High | | Low | High | Average |
| | (US$/lb.) | | (US$/lb.) | | (US$/lb.) | | |
| Aluminum | 0.41 | 03/06/82 | 1.95 | 13/06/88 | 0.83 | 0.92 | 0.88 |
| Copper | 0.56 | 18/10/84 | 1.68 | 08/12/88 | 1.17 | 1.31 | 1.24 |
| Lead | 0.15 | 18/03/86 | 0.35 | 20/05/87 | 0.32 | 0.38 | 0.35 |
| Nickel | 1.42 | 26/11/82 | 10.84 | 28/03/88 | 3.86 | 4.46 | 4.16 |
| Zinc | 0.25 | 31/10/85 | 0.97 | 02/03/89 | 0.58 | 0.65 | 0.61 |
| | (US$/troy oz.) | | (US$/troy oz.) | | (US$/troy oz.) | | |
| Gold | 285.00 | 26/02/85 | 502.75 | 14/12/87 | 365.75 | 400.00 | 381.33 |
| Silver | 4.86 | 20/05/86 | 10.92 | 27/04/87 | 4.07 | 4.79 | 4.39 |

Source: Nonferrous Division, Mineral Policy Sector.
1 Prices used are the London Metal Exchange (LME) settlement prices for the nonferrous metals and the London Bullion Market Association (LBMA) morning fix for the precious metals.

## SPECIAL ITEMS

### GDP - Effect of a New Base Year on Mineral Industry Apparent Contribution

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#### Introduction

Statistics Canada has recently adopted a new base year of 1986 for purposes of reporting Gross Domestic Product by Industry at Factor Cost in constant dollar terms. The previous base year was 1981. The first report on the new basis (with industry output valued at 1986 prices) was published in October 1990 (June 1990 issue - Cat. No. 15-001).

As noted by Statistics Canada, the frequency of rebasing is a compromise between using a newer, more representative year and maintaining a stable definition of output over a reasonable period of time. Rebasing has traditionally been done at ten-year intervals: 1961, 1971 and 1981. Rebasing to 1986 prices is the first time that Statistics Canada has reduced the interval to five years and conforms to U.N. recommendations regarding frequency of rebasing.

In addition to rebasing, the restated series also incorporates data revisions and other adjustments by Statistics Canada. The June 1990 issue contains the restated data for the years 1986 through 1989. Estimates for the earlier period, 1961 through 1985, have been linked to those from 1986 forward and were scheduled to be published separately in November 1990, in Cat. No. 15-512 - "Gross Domestic Product by Industry, (1986 = 100), 1961 - 1985."

#### Percentage Contribution to the Economy

The effect of changing the base year from 1981 is that large shifts in relative prices between the two years could have a significant impact on the calculated contribution that individual industries make to the overall economy. For example, the Statistics Canada data show that the implied contribution to the economy by the Mining, Quarrying and Oil Well Industries in 1989 was 5.6% based on 1981 prices compared to 3.9% at 1986 prices. Basically, this results from the fact that both crude oil prices and metal prices were lower in 1986 than in 1981.

The major losses in the percentage contribution by the Mining, Quarrying and Oil Wells Industries were shown to take place in the crude petroleum and natural gas industries (3.18% contribution at 1981 prices versus 2.24% at 1986 prices); gold mining (0.47% versus 0.30%); and other metal mines (0.86% versus 0.50%). This illustrates the negative effect on an industry's contribution that results from adopting a new base year that has lower relative prices within that industry.

For the Mineral Sector specifically, a review of the published data indicates that the contribution in 1989 by the sector overall (i.e. Stages I to IV, including coal but excluding oil and gas) was 5.6% based on 1981 prices versus 4.8% based on 1986 prices. Essentially, all of this difference occurs in Stage I - Mining. Table 1 compares the implied contribution of each stage to the economy for the past few years based on GDP at 1981 prices and GDP at 1986 prices. With the adoption of the new base year (1986), the Mineral Sector's contribution is in the order of approximately 5%.

Publication of GDP **in current prices** usually lags by about three years, thereby precluding a timely comparison of industries on that basis. In 1987, the latest year for which data are available, the Mineral Sector accounted for a 5.1% contribution in current dollar terms. (Annual estimates of GDP by industry in current prices are published by Statistics Canada in Cat. No. 15-201, "Input-Output Structure of the Canadian Economy.")

#### Growth Rates

The combined effect of Statistics Canada's revisions and adjustments to the data also is reflected in the growth rates. The data indicate, for

**TABLE 1. PERCENTAGE CONTRIBUTION TO TOTAL CANADA GDP – MINERAL SECTOR BY STAGE**

| | Stage I | Stage II | Stage III | Stage IV | Total |
|---|---|---|---|---|---|
| | | | (percent) | | |
| **At 1981 Prices** | | | | | |
| 1986 | 2.0 | 1.1 | 1.1 | 1.2 | 5.5 |
| 1987 | 2.1 | 1.2 | 1.1 | 1.3 | 5.7 |
| 1988 | 2.2 | 1.2 | 1.1 | 1.3 | 5.7 |
| 1989 | 2.2 | 1.1 | 1.1 | 1.3 | 5.6 |
| **At 1986 Prices** | | | | | |
| 1986 | 1.3 | 1.0 | 1.2 | 1.2 | 4.7 |
| 1987 | 1.4 | 1.1 | 1.2 | 1.2 | 4.9 |
| 1988 | 1.4 | 1.1 | 1.2 | 1.2 | 4.9 |
| 1989 | 1.4 | 1.1 | 1.1 | 1.2 | 4.8 |

Note: Stage I - mining and concentrating
Stage II - metallurgical extraction
Stage III - minerals and metals-based semi-fabricating
Stage IV - metal fabricating

**TABLE 2. ANNUAL GROWTH RATES OF GDP AT FACTOR COST – MINERAL SECTOR BY STAGE**

| | Stage I | Stage II | Stage III | Stage IV | Total |
|---|---|---|---|---|---|
| | | | (percent) | | |
| **At 1981 Prices** | | | | | |
| 1987/86 | 9.4 | 7.7 | 6.4 | 8.3 | 8.2 |
| 1988/87 | 7.4 | 6.1 | 4.0 | 4.1 | 5.7 |
| 1989/88 | 3.4 | -0.7 | –1.7 | 3.9 | 1.7 |
| **At 1986 Prices** | | | | | |
| 1987/86 | 13.1 | 10.9 | 6.5 | 6.1 | 9.2 |
| 1988/87 | 6.0 | 5.2 | 3.6 | 3.9 | 4.7 |
| 1989/88 | 1.5 | –0.4 | –3.2 | 2.2 | 0.1 |

example, that the Mineral Sector (Stages I to IV) grew by 1.7% in 1989 on the basis of the 1981 dollar series, compared to a nominal increase of 0.1% on the basis of the 1986 dollar series. Table 2 summarizes the impact on growth rates within the Mineral Sector for the period 1987 to 1989.

It should be noted that the historical growth rates have not changed for the period prior to the new base year, although the series have been linked to the new base. As noted in the introduction, the 1961-85 historical series were scheduled to be published separately by Statistics Canada, via Cat. No. 15-512.[1]

## Update on Canadian Mining and Second Quarter 1990 Financial Results (Preliminary Data)

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### Summary Look at Metal Prices

The EMR Canadian Monthly Metal Price Index has been trending upward in 1990, gaining over 10% by the end of June (and almost 20% by the end of August) from its low point in January of this year. However, when compared to the average value of the first six months of 1989 (during which the Index peaked in February), the average value of the Index over the first half of 1990 fell by 22%. In comparing the August 1990 basis to the August 1989 basis, the Metal Price Index based on Canadian currency decreased by 6.6%, but by only 4.1% when based on American currency.

On a quarter-over-quarter basis, the average value of the Index decreased in the first quarter of 1990, but increased in the second quarter to bring it back to a level which was just slightly below the 1989 last quarter average. To account for these results, the following Canadian price movements were noted: compared to the first quarter of 1990, quarterly average prices in the second quarter for zinc and nickel rose strongly by about 18% and 11% respectively, with copper rising about 8%. Offsetting these quarterly average gains were slight decreases of about 3% in lead and 4.5% in silver, with a decline of about 11% in gold.

During July and August 1990, monthly average prices for copper, lead, and especially nickel have been increasing. The price of zinc (LME, S.H.G.) which had been improving from its 1990 low of 0.587 US¢/lb., decreased from its 1990 high of 0.805 US¢/lb. in May to around 0.730 US¢/lb. on average in August. The price of silver (London, AM Fix) had been trending downward following a peak of US$8.51 per troy ounce in May 1987; however, it was pulled up (along with the price of other precious metals) by the Gulf Crisis, to an average of about US$5.00 per troy ounce during August. Finally, the price of gold (London, AM Fix), which had rallied at the beginning of the year, fell to a low of US$353 in June. Gold prices had already begun to improve somewhat in July, but in response to the uncertainties created by Iraq's invasion of Kuwait, gold rose to a high of US$415 on August 23 before declining to about US$388 by month end, leaving a monthly average for August of about US$395.

### Quarterly Trend in Sales (Universe of Corporations)

Statistics Canada recently released preliminary income statement data based on the second quarter 1990 survey of industrial corporations.

After posting large percentage gains in the last two quarters of 1987 and somewhat smaller gains through 1988 and the first quarter of 1989, seasonally-adjusted sales in the **Metal Mines** industries fell on a quarter-to-quarter basis through the remainder of 1989 and the first quarter of 1990.

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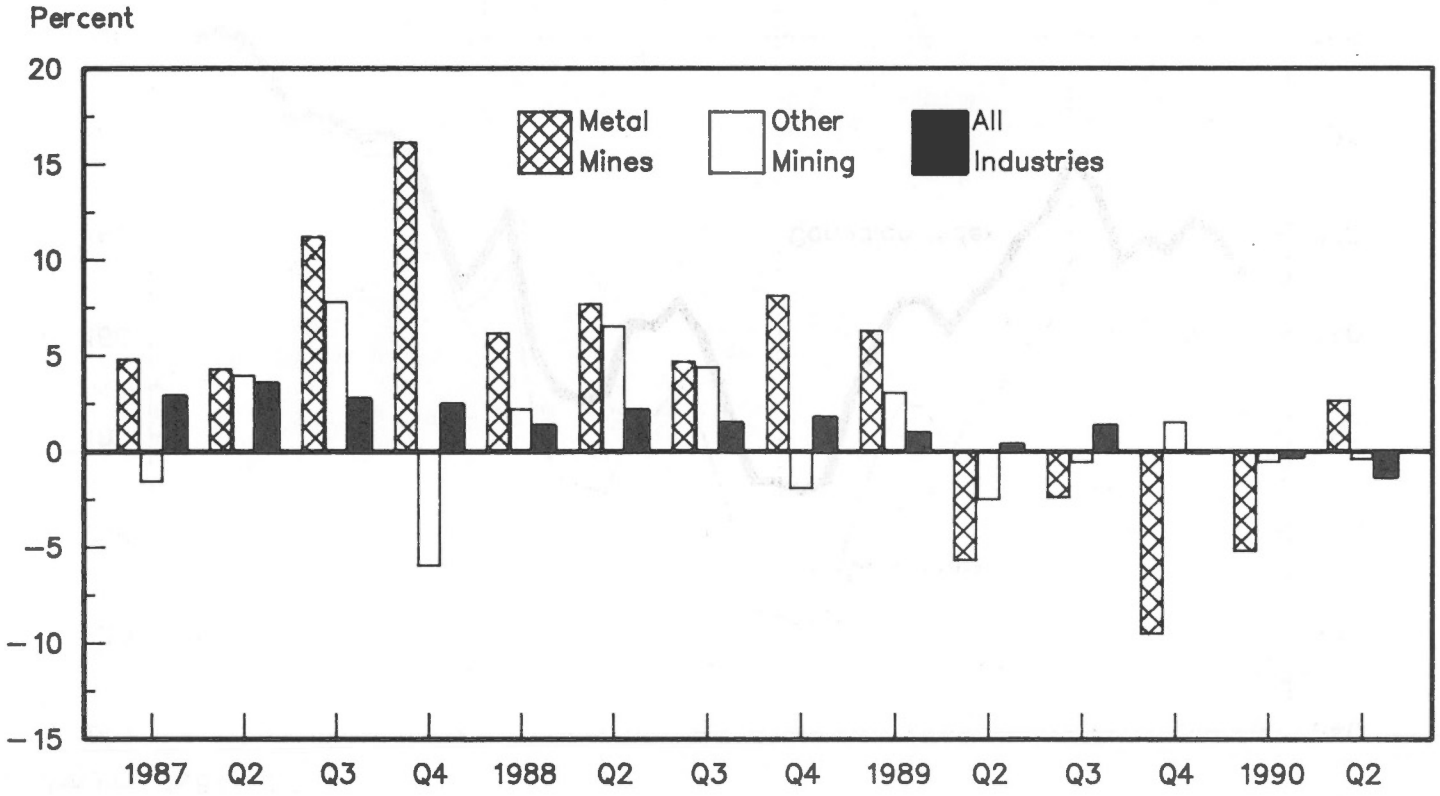
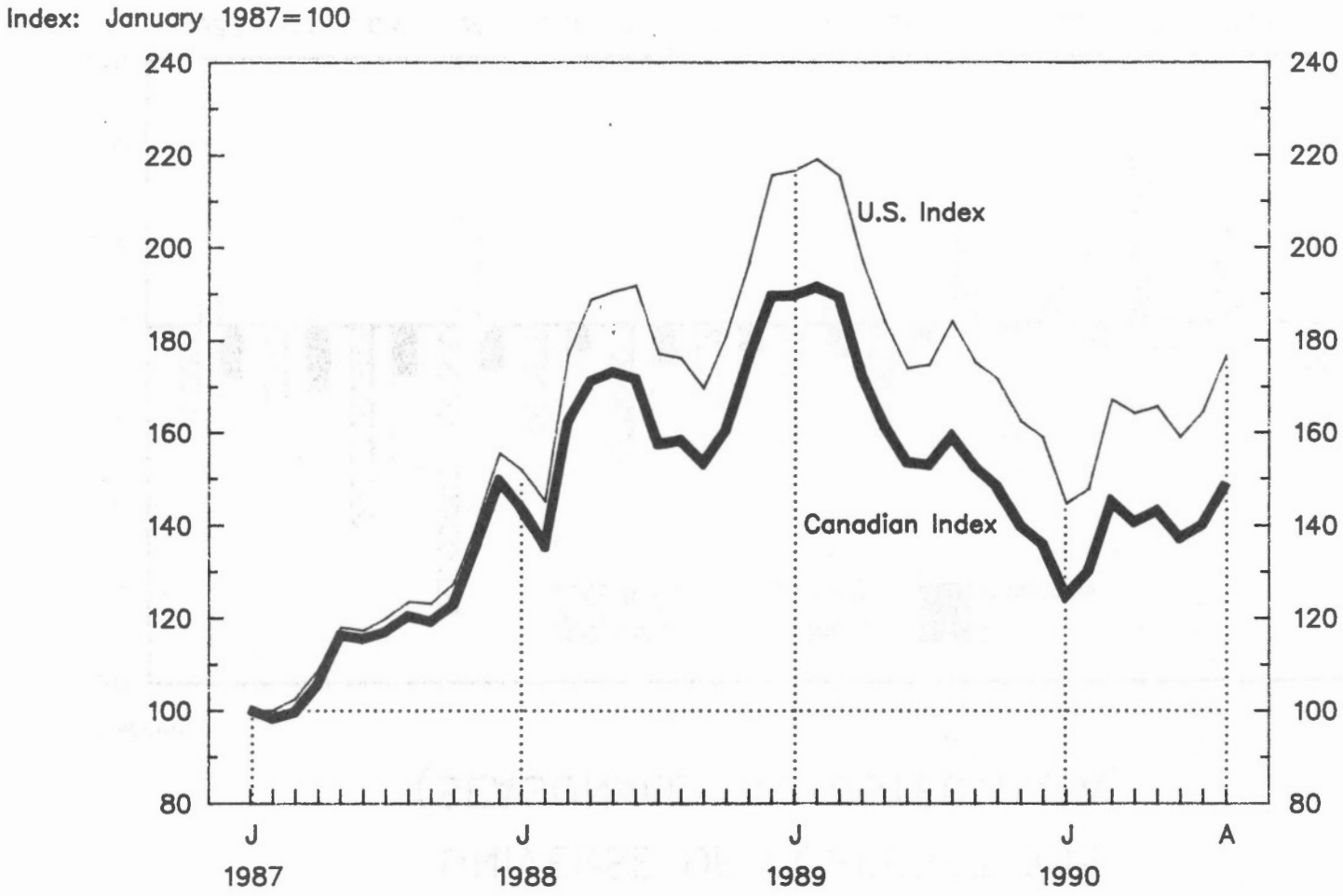
1 While the linking procedure employed by Statistics Canada has the advantage of preserving the growth rates for this earlier period, 1961-85, it has the disadvantage that the data shown for component industries will not add to their associated aggregates. Users who wish to calculate industry shares over this period should use estimates of GDP in current dollars.

# QUARTERLY PERCENTAGE CHANGE IN SALES
# UNIVERSE OF CORPORATIONS
# (SEASONALLY ADJUSTED DATA)



# EMR MONTHLY METAL PRICE INDEX

## JANUARY 1987 TO AUGUST 1990



On a preliminary estimate basis, but in accord with the higher quarterly average prices (as discussed above), it appears that sales increased by almost 3% in the second quarter of 1990. However, a comparison of total sales for the first two quarters of 1990 with the same period last year reveals an almost 18% decline in sales. Again, this is in accord with the 22% decline in the average value of the Metal Price Index for the first six months of 1990 compared with the same period in 1989.

Sales for the **Other Mining** industries have remained relatively stable since the 4.5% increase in the third quarter of 1988, with none of the large gains and declines experienced by the **Metal Mines** industries. After a slight 1.5% increase in the last quarter of 1989, sales slipped marginally by 0.6% and 0.5% in the first two quarters of this year.

The **All Industries** group of corporations show even more stability overall; however, there has been a gradual trending downward since the third quarter of 1989, with an almost 1.5% decrease in sales in the second quarter of 1990 compared to the first quarter of 1990.

## Return of Assets (Large Corporations)

Balance sheet data for the second quarter of 1990 are not yet available; therefore, calculation of the second quarter rate of return on assets is not possible. However, among the industrial corporations coded to the Metal Mines group, return on assets fell steadily from a high of 18.0% in the first quarter of 1989 to a low of 7.9% in the first quarter of 1990. It is noted, though, that this most recent level approximates the second quarter of 1987 level of about 7.2% which was, at the time, the highest rate of return achieved since the recession. The preliminary seasonally-adjusted income (before income taxes) data for the second quarter of 1990 show an increase of 31% over the first quarter of 1990. Depending on other changes in second quarter interest payments on short and long-term debt and in the level of total assets, an improved rate of return on assets is possible in the second quarter of 1990.

The return on assets for those corporations coded to the Other Mining industries (such as asbestos, potash, and salt) has shown a generally upward trend since a low of 2.2% in the third quarter of 1985. In fact, rates of return in the neighbourhood of 16% in the third quarter of 1989 and the first quarter of 1990 are close to pre-recession levels. However, second quarter returns may be down, as preliminary seasonally-adjusted income (before income taxes) fell in the second quarter by about 3.7%.

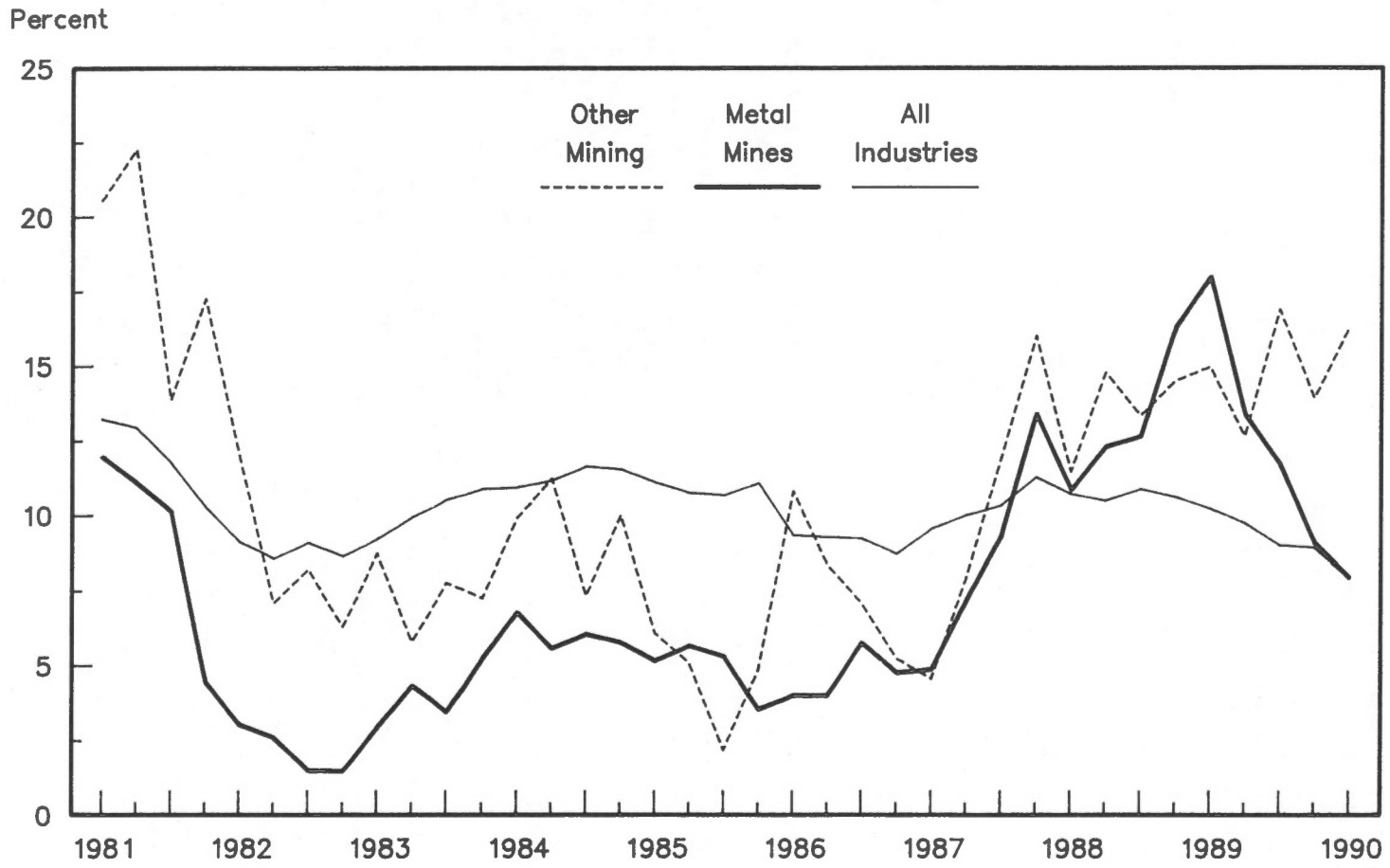
The rate of return for all industrial corporations as a group (All Industries) has gradually declined since the middle of 1988 from 10.8% to 7.9% in the first quarter of 1990, to reach the same level as the Metal Mines group. Second quarter 1990 seasonally-adjusted income (before income taxes) fell over 4% from the first quarter of 1990.

## Year-to-Year Income Comparisons (Universe of Corporations)

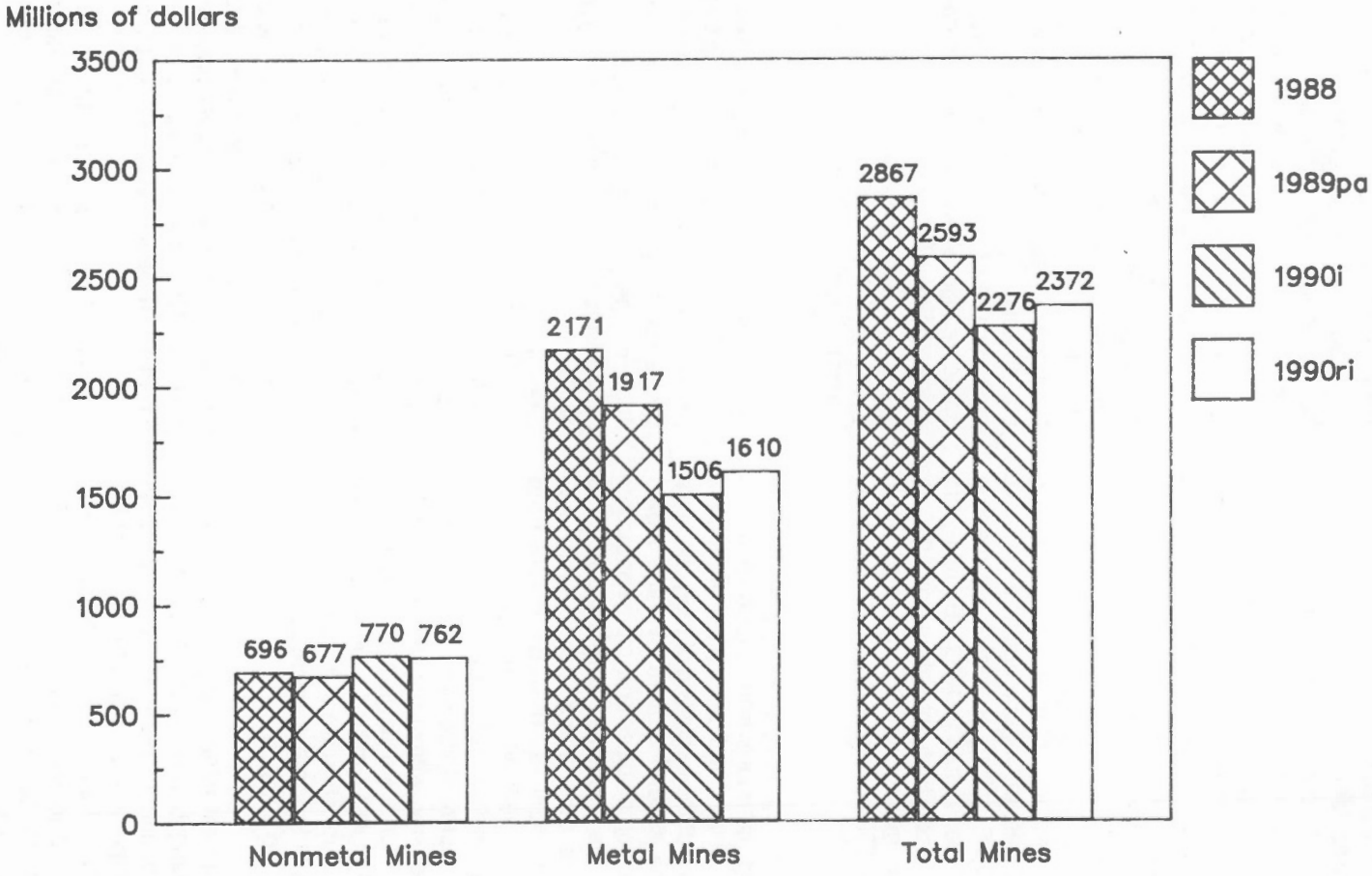
Mid-1988 to mid-1989 was an unusually high income period for the Metal Mines group, making comparisons of first and second quarters of 1990 to the same periods of last year quite dramatic. As examples (and to the extent that the preliminary income statement data prove to be correct) the following observations can be made: Operating Income declined by 54% from $713 million in the second quarter of 1989 to $331 million for the second quarter of 1990; Income After Taxes (but before extraordinary items) fell from $643 million in the second quarter of 1989 to $483 million for the second quarter of 1990, a decline of almost 25%; and Cash Flow decreased by almost 17% when comparing the same two quarters.

The seasonally-adjusted data to compare the first and second quarters of 1990 are not available for either Income After Taxes (but before extraordinary items) or the Cash Flow calculation, but other indications such as a 2.7% increase in seasonally-adjusted sales, an increase of almost 23% in seasonally-adjusted Operating Income, and the above-mentioned 31% increase in the seasonally-adjusted income before income taxes (for large corporations) indicate an improved second quarter compared to the first quarter of 1990 for the Metal Mines group.

# RETURN ON ASSETS
# LARGE CORPORATIONS



# CAPITAL EXPENDITURES IN CANADIAN MINING
## NEW INVESTMENT




Note: Data exclude repair expenditures and exclude petroleum and gas.
pa Preliminary actual; i Intentions; ri Revised intentions.

## Capital Expenditures (New Investment)

In July 1990, Statistics Canada released mid-year revised investment spending intentions by private and public companies in Canada. Industry groupings in the Investment Intentions Survey do not capture the same population as the Industrial Corporations Financial Statistics Survey cited above, so direct comparisons may not be made. For example, while the coal industry is **excluded** from the financial data for Other Mining, it is included in the Total Nonmetal Mines group in the investment survey.

Overall, mining companies (excluding petroleum and gas) in Canada originally intended to spend $2275.6 million on new investment in 1990, or 12.2% less, than in 1989. By mid-year, they had increased their intentions for 1990 to about $2371.5 million, which if fulfilled, would represent an 8.5% decrease from the 1989 level of $2593 million.

Metal mining companies increased their 1990 spending intentions from $1506 million to about $1610 million, up almost 7% from their earlier intentions at the beginning of the year. This may reflect the second quarter average higher prices for some commodities and improved income measures of the industrial corporations cited above. On the other hand, even the revised intentions represent a 16% decrease from expenditures in 1989, which were already 12% down from the previous year. The most dramatic decrease in investment intentions appears in the gold mining industry, whose original intentions to spend $465 million were down almost 46% from the 1989 level of $852 million. Although revised intentions are up somewhat to $509 million, expectations still indicate a decrease of 40% in 1990 compared to 1989.

The nonmetal mines, as a group, plan to spend in the neighbourhood of 12 to 13% more on capital investment in 1990 than in 1989. Coal mines, which represent over half the value of the total nonmetal mines group in some years, originally planned to spend about 41% more in 1990 than in 1989, but at mid-year revised their intentions downwards to a level representing a 35% increase over 1989.

The total economy, including all sectors, originally planned to spend $144.3 billion, or 7.4% more in 1990. Although mid-year intentions were down slightly to $142.9 billion, this level of expenditures would still represent a 6.4% increase over 1989. The results of the mid-year survey may be surprising in light of the deteriorating Canadian economy which shrank by 0.4% in the second quarter. They are also in contrast to the Conference Board's Index of Business Confidence which took its fourth-largest drop ever in the second quarter of 1990. Responses to the Conference Board's latest Survey of Business Attitudes and Investment Spending Intentions show that only 19% of those businesses surveyed felt that now was a good time to invest in plant and equipment. However, as some investment plans are conceived to be carried out over a long time frame, reactions to a general economic slowdown may be delayed.

## Appendix

This report contains recent developments in selected areas of Canadian mining based on data available in September 1990. The purpose is to give a summary picture of the on-going performance of the industry and, where possible, a comparison with the All Industries or total economy results.

The Metal Price Index, developed at EMR, tracks a specific commodity price for six metals: copper, lead, zinc, nickel, gold, and silver. The weighting factor for each of the prices is the relative share of production (shipments) of that metal family as cited in Statistics Canada publication, "Canada's Mineral Production," Catalogue 26-202. These six metals accounted for over 75% of the dollar value of metals produced (shipped) in Canada in 1988 and 1989. Although the Metal Price Index is usually presented as being based on Canadian currency, it is also available based on the originally-quoted American prices.

Quarterly balance sheet and income statement data are derived from Statistics Canada publication, "Industrial Corporations Financial Statistics," Catalogue 61-003. Corporations with several establishments are assigned to the

industry that accounts for the largest share of value added. However, superceding this general classification rule, corporations which have as their primary activity, vertically integrated operations in the mining and smelting of nonferrous metals, are classified to Metal Mines. Also, the statistics in this catalogue do not include government-owned corporations, and cover Canadian operations only. The All Industries aggregate excludes finance industries as well as agriculture, fishing and trapping. Other MIning excludes coal data which are included in the Mineral Fuels aggregate table and cannot be separated. As with many statistical series, the latest data are subject to revision, with the published statistics meant to convey trends on a timely basis.

Because balance sheet data are available only for companies having $10 million or more of total assets, financial ratios using balance sheet items refer to "large corporations." However, income statement data are available for the universe of corporations and are used where possible.

The capital expenditure data (new investment) on mining companies in Canada are obtained from Statistics Canada publications, "Private and Public Investment in Canada, Intentions" and "Revised Intentions," Catalogues 61-205 and 61-206, and "Exploration, Development and Capital Expenditures for Mining and Petroleum and Natural Gas Wells," Catalogue 61-216. The data presented in this report do not include the petroleum and natural gas industry or the smelting and refining establishments in the sub-manufacturing industries.

## Canadian Mine Openings, Expansions, Suspensions and Closures January 1990 - August 1991

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Since the beginning of 1990, fifteen mines have come into production in Canada. Twelve of these mines were new operations while three were base-metal mines that re-opened. The new operations include seven gold mines, three base-metal mines, one manganese and iron mine, and one asbestos mine (Table 1). In the latter part of 1990, four base-metal mines are set to re-open and two new gold mines are expected to begin commercial production. There will also be several expansions to capacity completed, mostly at base-metal mines.

The most important new mines and re-openings in 1990 include NorthWest Gold Corp.'s Colomac mine in the Northwest Territories; LAC Minerals Ltd.'s Bousquet No. 2 mine, and Noranda Minerals Inc., Cambior inc. and Nova-Cogesco Resources Inc.'s Silidor mine in Quebec; Giant Yellowknife Mines Limited's Hoyle mine, and Deak Resources Corporation and GSR Mining Corporation's Kerr mine in Ontario (all gold mines); Westminer Canada Limited's Gays River mine in Nova Scotia; Inco Limited's Thompson Open Pit South mine, and Hudson Bay Mining and Smelting Co., Limited's Callinan mine in Manitoba; Curragh Resources Inc.'s Vangorda mine in the Yukon (all base-metal mines); and, Westmin Resources Limited, Pioneer Metals Corporation and Canacord Resources Inc.'s Premier Gold mine, and Princeton Mining Corporation's McDame asbestos mine in British Columbia.

Up until the end of October 1990, twenty-three mining operations were suspended or closed; two more are scheduled to close before year-end. The most significant mine closures were Teck Corporation and Amax Lead & Zinc Inc.'s Newfoundland zinc mine in Newfoundland; Noranda Minerals Inc.'s Norita mine in Quebec; Falconbridge Limited's East mine, ERG Resources Inc.'s Timmins tailings mine, Dofasco Inc.'s Adam and Sherman mines, Rio Algom Limited's Panel and Quirke mines in Ontario; and, Brenda Mines Ltd.'s Brenda mine in British Columbia. In New Brunswick, the Caribou zinc-lead-copper mine owned by Breakwater Resources Ltd., which previously opened and closed in 1989, re-opened early in 1990 and closed again on October 26. Cominco Ltd.'s Sullivan zinc-lead-silver mine located at Kimberley, British Columbia, which shut down in February, is gearing up for re-opening in November.

Openings planned for 1991 include four new gold mines: Cominco Ltd. and Prime Resources Group Inc.'s Snip mine in British

Columbia; Société minière Sphinx Inc.'s Duvay-Obalski mine in Quebec; Northfield Minerals Inc. and Rockford Minerals Inc.'s Cheminis mine in Ontario; and, Claude Resources Inc. and Mantle Investments Limited's Seabee mine in Saskatchewan. United Keno Hill Mines Limited is scheduled to open its Bellekeno, Onek, Husky Southwest, Silver King and Lucky Queen silver mines in the Yukon. Two new base-metal mines, Inco Limited's Lower Coleman mine in Ontario, and Curragh Resources Inc. and Hillsborough Resources Limited's Mt. Hundere mine in the Yukon, are also planned to open. Two gold mines are expected to re-open: Coxheath Gold Holdings Limited's Tangier mine in Nova Scotia, and GSR Mining Corporation, Tyranex Gold Inc. and Brown Mining Group's Tyranite mine in Ontario.

In the new year, Campbell Resources Inc.'s Joe Mann gold mine in Quebec, Teck Corporation, Cominco Ltd. and Imperial Metals Corporation's Afton/Ajax copper-gold mine, and Consolidated Brinco Limited's Quinsam coal mine in British Columbia are expected to continue their ambitious mine and mill expansions.

As of late 1990, the only significant base-metal mine closures planned for 1991 are the Springer and Perry copper-gold mines in Chapais, Quebec. The closure of these two mines will effectively end the Opemiska Division of Minnova Inc.'s copper-gold operation in the Chapais-Chibougamau mining area. Teck Corporation has also decided to suspend operations at its small Beaverdell silver mine near Kelowna, British Columbia at the end of February 1991.

During the period studied, actual and planned mine openings and expansions have added some 75 000 t/d of new production capacity and nearly 5000 jobs, offsetting losses of some 117 000 t/d of capacity and some 5500 jobs resulting from mine closures and suspensions (temporary closures). The overall result is a net loss of 42 000 t/d of production capacity and some 500 jobs in the mining industry. The two largest contributing factors to this loss in production capacity are the suspension of the Timmins gold tailings operation in Ontario and the closure of the Brenda mine in British Columbia after 30 years of operation. Timmins was the largest gold tailings operation in Canada, while Brenda was one of the largest copper-molybdenum-gold mines in Canada. The largest single mine employment loss occurred at the Quirke uranium mine at Elliot Lake, Ontario.

On a regional basis, Northern Ontario was severely affected by the closure of two uranium mines (Rio Algom Limited's Panel and Quirke mines at Elliot Lake) and two iron mines (Dofasco Inc.'s Adams mine at Kirkland Lake and its Sherman mine at Temagami). Some 2400 workers were laid off as a result of these closures alone. The second most affected region was the Chapais-Chibougamau area in Quebec, where two gold-copper mines (Cedar Bay and S-3) were closed. Only a year earlier, two other gold-copper mines in the same area had closed (Cooke and Henderson II), and two additional mines (Springer and Perry) are scheduled to close in the near future.

The good news is that Inco Limited has just announced that it has earmarked $287 million to expand nickel production at its Thompson operations in Manitoba. Inco is developing the large 1-D orebody for production in 1992 and plans to expand production by 50% by 1997 at the nearby Birchtree mine, which re-opened in 1989 after sitting idle for 12 years. Although there will be no change in Inco's current workforce at the Thompson operations, some 200-300 construction jobs will be created. As a result of this expansion program, the Thompson operations will become Inco's second biggest nickel-producing operation in the world, behind Sudbury and ahead of Indonesia.

**TABLE 1. CANADIAN MINE OPENINGS, EXPANSIONS, SUSPENSIONS AND CLOSURES: JANUARY 1990 – AUGUST 1991**

| Mining Project/ Location | Capacity (t/d) | Employment | Status | Date | Mine Type | Main Commodities | Operating Company (with owners/partners in parentheses) | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | **NEW OPERATIONS** | | | | |
| **Precious Metals** | | | | | | | | |
| Premier Gold/ Stewart, B.C. | 2 000 | 120 | NM | Jan. 1, 1990 | O/P | Gold, silver | Westmin Resources Limited, (Pioneer Metals Corporation and Canacord Resources Inc.) | The new mining operation includes the former Silbak and Big Missouri mines. The mill is currently operating at more than 2300 t/d. |
| Golden Bear/ Telegraph Creek, B.C. | 360 | 106 | NM | Jan. 31, 1990 | O/P U/G | Gold, silver | Golden Bear Operating Company Limited, (North American Metals Corp. and Chevron Minerals Ltd.) | Production cut back 50% due to roaster problem in treating refractory oxide ore. |
| Silidor/ Rouyn-Noranda, Que. | 1 100 | 120 | NM | April 1, 1990 | U/G | Gold, silver | Noranda Minerals Inc., (Cambior inc. and Nova-Cogesco Resources Inc.) | Production rate of 33 000 t/m reached on September 7, 1990. |
| Golden Pond West (Casa Berardi ouest)/ La Sarre, Que. | 390 | 60 | NM | April 1, 1990 | U/G | Gold, silver | Inco Gold Company and (Golden Knight Resources Inc.) | To process 140 000 t/y to produce 40 000 oz./y of gold during the initial 12 years of operations. |
| Jasper/ La Ronge, Sask. | 250• | 80 | NM | June 7, 1990 | U/G | Gold, silver | Cameco – A Canadian Mining & Energy Corporation and (Shore Gold Fund Inc.) | Expects to produce about 85 000 oz. of gold during its anticipated two-year mine life. |
| Hoyle/ Timmins, Ont. | 2 700 | 150 | NM | July 1990 | U/G | Gold, silver | Giant Yellowknife Mines Limited | |
| Colomac/ Indin Lake, N.W.T. | 9 000 | 300 | NM | Aug. 23, 1990 | O/P | Gold, silver | NorthWest Gold Corp. | Plans to produce 200 000 oz./y gold . |
| Garrison/ Kirkland Lake, Ont. | 360 | 12 | NM | Nov. 1990 | O/P | Gold, silver | Deak Resources Corporation | Ore mined to be milled at company's nearby Kerr mill. |
| Bousquet No. 2/ Malartic, Que. | 1 360 | 235 | NM | Nov./Dec. 1990 | U/G | Gold, silver | Lac Minerals Ltd. | Ore milled at Est-Malartic mill. Exact date of commercial production in 1990 (possibly before end of year) has yet to be announced. Previously set date of June has changed. |
| Snip/ Stewart, B.C. | 300 | 154 | N/M | Jan. 1991 | U/G | Gold, copper, silver | Cominco Ltd. and (Prime Resources Group Inc.) | Previously planned production date in 1990 has changed. |
| Duvay-Obalski/ Amos, Que. | 200• | 6 | NM | May 1991 | O/P | Gold, silver | Société minière Sphinx Inc. | Heap-leached 36 000 t in 1990. Plans to treat 200 000-400 000 t/y when production begins in 1991 depending on financing. |

**TABLE 1. (cont'd)**

| Mining Project/ Location | Capacity (t/d) | Employment | Status | Date | Mine Type | Main Commodities | Operating Company (with owners/partners in parentheses) | Remarks |
|---|---|---|---|---|---|---|---|---|
| Cheminis/ Virginiatown, Ont. | 350 | 20 | NM | Spring 1991 | U/G | Gold, silver | Northfield Minerals Inc. and (Rockford Minerals Inc.) | Northfield Minerals is in the process of aquiring 100% ownership of the mining project. Production has potential to reach 1800 t/d. |
| Seabee/ La Ronge, Sask. | 360 | 80 | NM | Aug/Sept. 1991 | U/G | Gold, silver | Claude Resources Inc. and (Mantle Investments Limited) | Planned mine life is about 5 years. |
| **Base Metals** | | | | | | | | |
| Callinan/ Flin Flon, Man. | 1 200[e] | 160 | NM | April 1990 | U/G | Copper, zinc | Hudson Bay Mining and Smelting Co., Limited | Mine life based on current ore reserves of 2.8 million s.t. is 6 years. |
| Estrades/ Joutel, Que. | 700 | 20 | NM | Aug. 1990 | U/G | Zinc, gold, copper, silver, lead | Breakwater Resources Ltd., (Golden Group Explorations Inc. and Golden Hope Resources Inc.) | Mine life of 5.4 years based on production rate of 175 000 t/y. |
| Thompson O/P South/ Thompson, Man. | 3 000[e] | 176 | NM | Aug. 1990 | O/P | Nickel, copper, precious metals | Inco Limited | |
| Vangorda/ Faro, Y.T. | 8 000 | 500[a] | NM | Nov. 1990 | O/P | Zinc, lead, silver | Curragh Resources Inc. | Planned mine life about 2-3 years. Required workers will be drawn from company's current workforce at Faro. |
| Lower Coleman/ Sudbury, Ont. | 1 500[e] | 28 | NM | Spring 1991 | U/G | Nickel, copper, precious metals | Inco Limited | |
| Mt. Hundere/ Watson Lake, Y.T. | 1 100 | 110 | NM | Aug. 1991 | O/P | Zinc, lead | Curragh Resources Inc. and (Hillsborough Resources Limited) | Planned milling rate 1100 t/d. About 140 employees would be required. |
| **Others** | | | | | | | | |
| Ruth Lake/ Schefferville, Que. | 450 | 80 | NM | July 1990 | U/G | Manganese, iron ore | La Fosse Platinum Group Inc. | Plans to expand production capacity in the future. |
| McDame/ Cassiar, B.C. | 5 000 | 367 | NM | Sept. 1990 | U/G | Asbestos | Princeton Mining Corporation | Production will offset production loss from the Cassiar mine which is expected to be closed in 1991 due to ore exhaustion. |
| Westray/ Pictou County, N.S. | 3 000 | 210 | NM | Aug./Sept. 1991 | U/G | Coal | Curragh Resources Inc. | |

## RE-OPENINGS AND EXPANSIONS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Precious Metals** | | | | | | | | |
| Tangier/ Tangier, N.S. | 180 | 69 | RO | July 1, 1991 | U/G | Gold, silver | Coxheath Gold Holdings Limited | Plans to employ 69 on-site workers. Dewatering begins January 1, 1991. |
| Tyranite/ Gowganda, Ont. | 300 | 4 | RO | Jan. 1991 | O/P | Gold, silver | GSR Mining Corporation, (Tyranex Gold Inc. and Brown Mining Group) | Planned production rate for 1990-91 is 9000 t/m. Plans to employ 20 workers. |
| Elsa operations/ Elsa, Y.T. | 400 | 80 | RO | Feb. 1991 | U/G O/P | Silver, lead | United Keno Hill Mines Limited | Plans to resume production at the Bellekeno (underground) and the Onek, (open-pit) mines first then proceed to the Husky Southwest, Silver King and Lucky Queen open-pit mines. Some 80 workers will be required. |
| Kerr/ Virginiatown, Ont. | 1 360 | 166 | RO, ME | 1990-1991 | U/G | Gold, silver base metals | Deak Resources Corporation and (GSR Mining Corporation) | Mine and mill acquired from bankrupt Golden Shield Resources Ltd. in 1989. Increasing one of the three 1360-t/d gold circuits to 1800 t/d and to convert one other to 1540 t/d for treating base-metal ore. |
| Joe Mann/ Chibougamau, Que. | 900 | 219 | E | 1989-1992 | U/G | Gold, silver | Campbell Resources Inc. | Increasing production capacity to 1630 t/d by mid-1991. Gold production to increase to 60 000 oz. in 1990, 85 000 oz. in 1991, and 100 000 oz. in 1992. Milling at the Camchib mill. Mine-site mill on standby for higher grade material. |
| **Base Metals** | | | | | | | | |
| Gays River/ Gays River, N.S. | 1 350 | 150 | RO, E | Jan. 1, 1990 | U/G | Zinc, lead | Westminer Canada Limited | The original mill was converted to treat gold ore from Forest Hill and Beaver Dam mines in 1987-89. It was reconverted to treat lead-zinc ore from Gays River mine in 1989. Plans to expand production capacity to 1430 t/d by 1992. |
| Caribou/ Bathurst, N.B. | 3 000 | 200 | RO, E | March 1990 | U/G | Zinc, lead, silver | Breakwater Resources Ltd. | Mine had expanded capacity to 3000 t/d recently. Mining suspended on October 26 due to low metal prices (see Suspensions and Closures below). |
| Heath Steele/ Bathurst, N.B. | 2 400 | 172 | E | Throughout 1990 | U/G | Zinc, lead, copper, silver | Noranda Minerals Inc. | Increasing capacity to 2400 t/d in 1990. |

TABLE 1. (cont'd)

| Mining Project/ Location | Capacity (t/d) | Employment | Status | Date | Mine Type | Main Commodities | Operating Company (with owners/partners in parentheses) | Remarks |
|---|---|---|---|---|---|---|---|---|
| Mobrun/ Rouyn-Noranda, Que. | 1 200 | 155 | E | Continued in 1990 | U/G | Copper, zinc, gold, silver | Audrey Resources Inc. and (Minnova Inc.) | Expansion continued from 1989. Mine to operate at 120% of initially planned capacity of 1000 t/d. Will concentrate on development of the 1100 lens in 1990-1991. |
| Redstone/ Timmins, Ont. | 320 | 50 | RO | Sept. 1990 | U/G | Nickel | Timmins Nickel, Inc. and (BHP-Utah Mines Ltd.) | Shut down early 1990; resumed at 320 t/d. |
| Creighton No. 3/ Sudbury, Ont. | 700• | 80 | RA | Nov. 1990 | U/G | Nickel, copper, precious metals | Inco Limited | Mining suspended in March, 1990 due to low nickel prices. All workers were relocated during the shutdown. New hirings are now required. It is Inco's highest-cost and lowest-grade mine in Ontario. |
| Sullivan/ Kimberley, B.C. | 9 000 | 700 | RO | Nov. 1990 | U/G | Zinc, lead, silver | Cominco Ltd. | Mine closed from February 15 to end of October 1990 due to low metal prices. 300 laid off workers recalled August, 400 in fall of 1990. |
| Langmuir No. 1/ Timmins, Ont. | 450 | 45 | RO | Mid-Nov. 1990 | U/G | Nickel | Timmins Nickel, Inc. | |
| West Macdonald/ Dufresnoy Twp., Que. | 1 360 | 40 | RO | Dec. 1990 | O/P | Zinc, gold | Deak Resources Corporation | Ore will be processed at Kidd Creek, Timmins, Ontario, and concentrate will be refined at Valleyfield, Quebec. |
| Afton/Ajax/ Kamloops, B.C. | 9 000 | 200 | E | 1989-1991 | O/P | Copper, gold | Teck Corporation (Cominco Ltd. and Imperial Metals Corporation) | Mill capacity expanded to 9000 t/d in 1990 from 7000 t/d in 1989; plans to increase to 11 000 t/d in 1991. |
| **Others** | | | | | | | | |
| Quinsam/ Campbell River, B.C. | 700 | 75 | E | 1990-1991 | O/P U/G | Coal | Consolidated Brinco Limited | Plans to double production to 500 000 t/y by 1991. Ten more employees may be needed. |
| **SUSPENSIONS AND CLOSURES** | | | | | | | | |
| **Precious Metals** | | | | | | | | |
| Aquarius/ Timmins, Ont. | 270 | 50 | | Jan. 1990 | U/G | Gold, silver | Asarco Exploration Company of Canada, Limited | Mining ceased late 1989. Mine on standby pending decision to go into open-pit mining. |
| Montauban/ Quebec City, Que. | 400 | 101 | | Feb. 1990 | U/G | Gold, silver | Muscocho Explorations Ltd. | Mine closed due to exhaustion of ore reserves. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Abcourt-Barvue/ Barraute, Que. | 350 | 48 | March 1990 | U/G | Silver, zinc | Abcourt Mines Inc. | Mining suspended due to low silver price. |
| S-3/ Chibougamau, Que. | 450 | Included with Cedar Bay | March 1990 | U/G | Gold, copper, silver | Campbell Resources Inc. | Mine closed due to exhaustion of ore reserves. |
| Timmins Tailings/ Timmins,Ont. | 40 000 | 54 | April 16, 1990 | S | Gold, silver | ERG Resources Inc. | Operation suspended due to lower than expected head grade and recovery. |
| Francoeur/ Rouyn-Noranda, Que. | 400 | 96 | June 11, 1990 | U/G | Gold, silver | Rouyn Mining Resources Inc. and (LAC Minerals Ltd.) | Mining suspended due largely to high cost of transporting ore to LAC Minerals' Est-Malartic mill for custom milling. LAC's 50% interest in the mine is currently up for sale. Rouyn Mining is considering constructing a mill on site. |
| Cedar Bay/ Chibougamau, Que. | 350 | 46 | June 1990 | U/G | Gold, copper, silver | Campbell Resources Inc. | Mining suspended due to high costs. |
| Scadding/ Sudbury, Ont. | 180 | 15 | July 1990 | U/G | Gold, silver | Orofino Resources Limited | Mining ceased February 1988 but milling continued. Production for 1990 5500 oz. gold. Mill now dismantled. |
| Kremzar/ Wawa, Ont. | 450 | 100 | Aug. 1990 | U/G | Gold, silver | Canamax Resources Inc. | Mining suspended due to low gold price. |
| Ketza River/ Whitehorse, Y.T. | 290 | 100 | Aug. 1990 | U/G | Gold, silver | Canamax Resources Inc. | Mining suspended due to low gold price. |
| Magnacon/ Mishibishu Lake, Ont. | 550 | 150 | Oct. 22, 1990 | U/G | Gold, silver | Muscocho Explorations Ltd., (Echo Bay Mines Ltd., Flanagan McAdam Resources Inc. and Windarra Minerals Ltd.) | Mining suspended due to high costs and low gold price. The companies intend to sell the mill. |
| Caribou/ Bathurst, N.B. | 3 000 | 200 | Oct. 26, 1990 | U/G | Zinc, lead, silver | Breakwater Resources Ltd. | Mining suspended due to lower metal prices. |
| Sleeping Giant/ Soissons Twp., Que. | 900 | 190 | End of Oct. 1990 | U/G | Gold, silver | Aurizon Mines Ltd. | Mining to be suspended due to high operating costs. |
| Johnny Mountain/ Terrace, B.C. | 270 | 83 | Aug. 31, 1990 | U/G | Gold, silver, copper | Skyline Gold Corporation | Mining suspended due to declining ore reserves and lower gold prices. |
| Blackdome/ Clinton, B.C. | 180 | 134 | Dec. 10, 1990 | U/G | Gold, silver | MinVen Gold Corporation | Plans to suspend mining operation due to a significant decline in ore grade. |
| Beaverdell/ Beaverdell, B.C. | 100 | 36 | End of Feb. 1991 | U/G | Silver, lead, zinc | Teck Corporation | Mining will be suspended due to low metal prices. |
| **Base Metals** | | | | | | | |
| Sullivan/ Kimberley, B.C. | 9 000 | 700 | Feb. 1990 | U/G | Zinc, lead, silver | Cominco Ltd. | Mining suspended from February 15 to end of October 1990 due to low metal prices. See re-opening above. |

**TABLE 1. (cont'd)**

| Mining Project/ Location | Capacity (t/d) | Employment | Status | Date | Mine Type | Main Commodities | Operating Company (with owners/partners in parentheses) | Remarks |
|---|---|---|---|---|---|---|---|---|
| Creighton No. 3/ Sudbury, Ont. | 700• | 80 | | March 1990 | U/G | Nickel, copper, precious metals | Inco Limited | Mining suspended in March 1990 due to low nickel price. See re-opening above. |
| East/ Sudbury, Ont. | 1 500 | 250 | | April 1990 | U/G | Nickel, copper, precious metals | Falconbridge Limited | Mine closed due to exhaustion of ore reserves. |
| Brenda/ Peachland, B.C. | 30 000 | 435 | | June 8, 1990 | O/P | Copper, molybdenum, gold, silver | Brenda Mines Ltd. | Mine closed due to exhaustion of ore reserves. 400 employees laid off indefinitely. Retaining only 35 workers for 3-5 year site cleanup. |
| Norita/ Matagami, Que. | 1 350 | 40 | | June 1990 | U/G | Zinc, copper, gold, silver | Noranda Minerals Inc. | Mine closed due to exhaustion of ore reserves. Employees relocated to company's Isle Dieu Mattagami mine with 15 workers being kept on site to continue exploration in nearby orebody. |
| Newfoundland Zinc/ Daniel's Harbour, Nfld. | 1 450 | 150 | | Aug. 1990 | U/G | Zinc | Teck Corporation and (Amax Lead & Zinc Inc.) | Mine closed due to exhaustion of ore reserves. |
| Perry/ Chapais, Que. | 1 360 | 250 | | End of June 1991 | U/G | Copper, gold | Minnova Inc. | Mine to close due to exhaustion of ore reserves. |
| Springer/ Chapais, Que. | 1 360 | Included with Perry | | End of June 1991 | U/G | Copper, gold | Minnova Inc. | Mine to close due to exhaustion of ore reserves. |
| **Others** | | | | | | | | |
| Adams/ Kirkland Lake, Ont. | 3 500 | 335 | | March 31, 1990 | O/P | Iron ore | Dofasco Inc. | Mine closed due to high costs and low ore grade. |
| Sherman/ Temagami, Ont. | 10 890 | 360 | | March 31, 1990 | O/P | Iron ore | Dofasco Inc. | Mine closed due to high costs and low ore grade. |
| Panel/ Elliot Lake, Ont. | 3 000 | 600 | | Aug. 21, 1990 | U/G | Uranium | Rio Algom Limited | Mining suspended due to low uranium price. |
| Quirke/ Elliot Lake, Ont. | 5 000 | 1100 | | Aug. 21, 1990 | U/G | Uranium | Rio Algom Limited | Mining suspended due to low uranium price. |

• Estimate; ▪ Employment will be drawn from existing company workforce; NM New mine; RO Re-opening; ME Mill expansion; RA Re-activation; E Expansion; S Surface; UG Underground; OP Open-pit.

Note: (1) A mine that closed and re-opened in the same year is accounted for in the appropriate categories.
(2) The Hislop West gold mine near Timmins, Ontario is not included above because it is a very short life-span salvage operation. Mining began on September 4, 1990 and is expected to be completed at the end of November. Total ore to be mined is about 27 000 t. The mine employs 24 workers and is owned by Golpost Resources Inc. and operated by St. Andrew Goldfields Ltd.
(3) Inco Limited, announced on October 30 that it earmarked $287 million to expand production at its Thompson operations in Manitoba. It is developing the 1-D orebody for production in 1992 and plans to expand nickel production at the nearby Birchtree mine by 50% by 1997. However, there will be no change in the company's current workforce at the Thompson operations.

# NEW PUBLICATION

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