

Iron Ore

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Iron Ore is a mineral which, when heated in the presence of a reductant, will yield metallic iron (Fe). The principal ores of iron are hematite or iron oxide (Fe_2O_3), which contain 70% iron, and magnetite (Fe_3O_4), which contains 72% iron. Almost all of the iron ore mined globally (98%) is used for steelmaking.

Iron ore is one of Canada's most important mineral products in terms of both tonnage and value. Canada is the world's ninth largest iron ore producer and ranks fifth for exports. Since the closure in 1998 of the Algoma Iron Ore Division near Wawa, Ontario, nearly all of Canada's iron ore production has been concentrated in the Labrador Trough, a major geological belt extending through northern Quebec and Labrador. Canada's production in this area (Figure 1) comes from three mining operations owned by Iron Ore Company of Canada (IOC), Quebec Cartier Mining Company (QCM), and Wabush Mines. The remaining production comes from the by-product recovery of magnetite from two base-metal smelters in British Columbia.

CANADIAN DEVELOPMENTS

In 2004, Canada shipped 28.1 Mt of iron ore, a decrease of 15.4% compared with the previous year. The value of production was \$1.37 billion, an increase of 7% compared with 2003. Exports decreased by 14.8% to 23.0 Mt and were valued at \$941 million. Pellet production increased by 4.4% to 21.5 Mt. The three largest importers of Canadian iron ore were the United States, Germany and the United Kingdom, accounting for 27.4%, 23.8% and 9.7%, respectively, of total Canadian iron ore exports.

Production at IOC in 2004 decreased by 21.8% to 11.5 Mt as the result of a 10-week strike at the mine operations. The company is implementing a major cost reduction program aimed at cutting \$120 million by 2005. It also carried on its tailings management program to comply with the Canadian government's Metal Mining Effluent Regulations. The first phase of that project is scheduled for

completion by 2007. QCM's concentrate production for the year amounted to 12.9 Mt and a new record was set for pellet production of 9.2 million dry metric tonnes of pellets from its 6-Mt/y pellet plant. There were no changes in shareholdings in 2004.

Wabush Mines produced 3.8 Mt of pellets in 2004, compared with 5.2 Mt in 2003. The decrease was the result of a 14-week labour strike at its operations. A new five-year labour agreement has been reached with the labour union. The current capacity of the plant is 6.0 Mt/y.

Craigmont Mines, located in Merritt, British Columbia, produced 85 000 t of specialty magnetite from copper mine tailings.

INTERNATIONAL DEVELOPMENTS

World iron ore production grew by 8% in 2004 to reach 1.25 billion t. The growth in production is being driven by surging steel demand, particularly from China and, to a lesser extent, Russia, India and Brazil. World crude steel demand increased by 7% in 2004 to 1037 Mt. Chinese steel demand increased by 23.2% in 2004 over 2003. Table 2 provides a breakdown of world iron ore production by country for 2003 and 2004. China is the world's leading producer of iron ore on a gross tonnage basis, but is ranked third behind Australia and Brazil when compared on the basis of iron ore content. Brazil, Australia, India and China have recorded the largest increases in output in recent years.

CANADIAN PRODUCTION AND PRICE OUTLOOK

In 2004, on account of strong demand for iron ore products from steelmakers (especially in China), plus recent price hikes for steel products, the negotiated price for Canadian iron ore concentrate or fines was raised by 22.33% to US\$38.9/Fe unit for concentrate, and the price for acid pellets increased by 21.20% to US\$64.5/Fe unit. Canadian shipments of iron ore are expected to reach approximately 34 Mt in 2005. The price increases for 2005 were 71.5% higher for concentrates at US\$66.71/Fe unit, and 86.14% higher for acid pellets at US\$120.66/Fe unit.

WORLD OUTLOOK

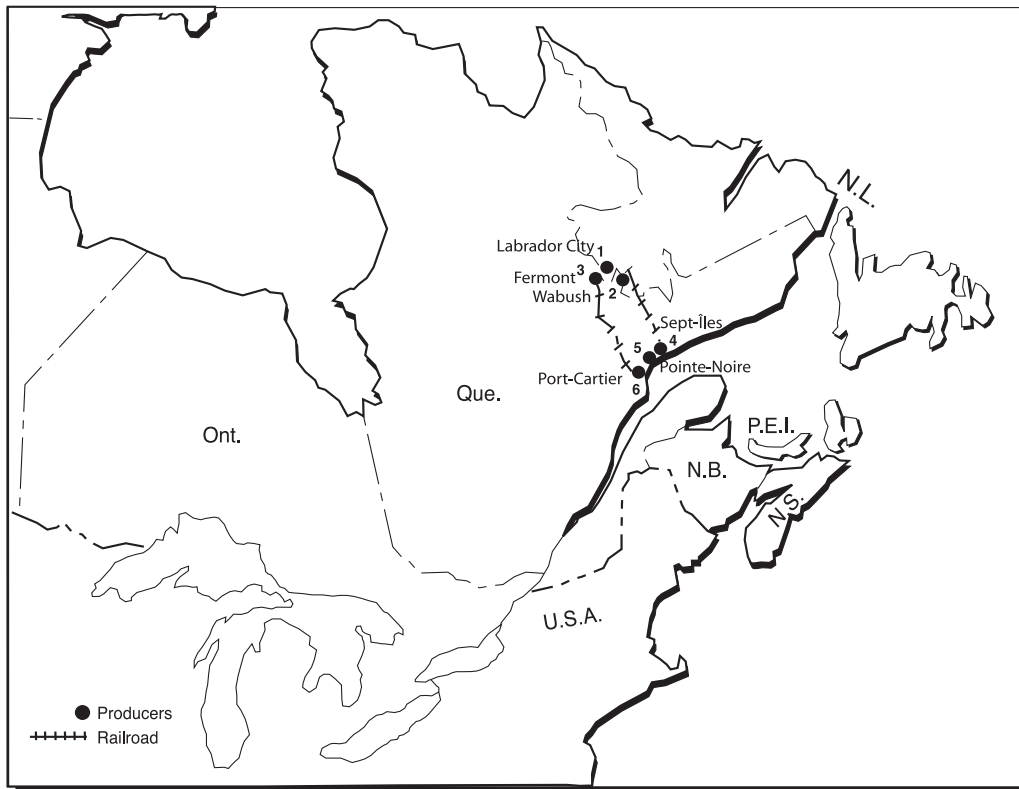
The outlook for the global iron ore industry will depend to a large extent on whether the phenomenal increases in Chinese demand witnessed in recent years continues. China will have to continue to rely on iron ore imports to meet its demand for steel. In 2004, Brazil, Australia and India were all major suppliers to China. Going forward, India may export less iron ore as its domestic steelmaking capacity ramps up. Indications are that supply will remain tight over the next couple of years until production from new capacity comes on stream. Consequently, the price outlook for iron ore products should remain very positive.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 64. (2) Information in this review was current as of June 30, 2005. (3) This and other reviews, including previous editions, are available on the Internet at www.nrcan.gc.ca/mms/cmy/com_e.html.

NOTE TO READERS

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Figure 1
Iron Ore in Canada, 2004



Numbers refer to locations on map above.

PRODUCERS

1. Iron Ore Company of Canada, Carol Lake Division (mine/concentrator/pellet plant)
2. Wabush Mines (mine/concentrator)
3. Quebec Cartier Mining Company (mine/concentrator)
4. Iron Ore Company of Canada (port)
5. Wabush Mines (pellet plant/port)
6. Quebec Cartier Mining Company (pellet plant/port)

TABLE 1. CANADA, IRON ORE PRODUCTION AND TRADE, 2002-04

Item No.	2002		2003		2004 (p)	
	(tonnes) (1)	(\$000)	(tonnes) (1)	(\$000)	(tonnes) (1)	(\$000)
PRODUCTION (mine shipments)						
By province						
Newfoundland and Labrador	18 859 921	803 358	19 926 649	790 744	14 945 800	765 847
Quebec	11 949 996	x	13 324 379	x	13 100 000	x
British Columbia	92 001	x	71 395	x	85 295	x
Total (2)	30 901 918	1 278 126	33 322 423	1 281 287	28 131 095	1 370 592
EXPORTS						
2601.11	Iron ore concentrates, non-agglomerated					
Germany	1 794 390	54 560	1 700 231	45 547	1 663 314	48 477
United States	220 230	5 703	573 524	13 817	1 275 375	39 695
United Kingdom	1 231 630	31 906	1 145 099	26 408	936 982	25 888
France	1 576 558	36 118	1 046 187	21 490	591 854	17 746
Netherlands	1 332 628	37 544	795 280	19 186	377 745	10 781
South Korea	298 379	7 600	60 692	1 489	292 626	9 903
Romania	-	-	430 545	10 084	287 842	8 960
Poland	-	-	64 011	1 530	248 542	6 852
China	288 218	8 235	330 818	8 291	226 861	6 213
Japan	420 040	11 240	346 654	8 713	194 940	5 257
Denmark	-	-	-	-	116 464	3 798
Norway	-	-	-	-	93 443	2 900
Australia	14 998	418	-	-	111	3
Philippines	168 685	7 621	-	-	-	-
Turkey	186 491	9 550	-	-	-	-
Total	7 532 247	210 495	6 493 041	156 555	6 306 099	185 873
2601.12	Iron ore, agglomerated					
United States	5 374 954	242 367	6 396 169	254 944	4 507 225	205 508
Germany	4 061 355	197 870	3 680 082	164 425	3 790 884	170 759
China	586 988	29 328	1 576 489	75 256	1 985 783	95 417
United Kingdom	764 134	36 118	1 313 924	55 566	1 309 068	63 699
Italy	1 432 491	71 192	2 165 696	100 994	1 258 662	58 208
Australia	618 303	30 946	748 205	33 352	730 956	32 085
Taiwan	713 034	33 670	832 647	37 744	632 695	27 736
Japan	131 050	6 582	220 409	9 855	482 748	21 779
Netherlands	1 199 889	59 904	1 122 951	48 922	363 224	16 915
Egypt	415 369	18 290	410 213	15 638	287 731	13 889
France	999 320	50 207	240 841	10 707	166 056	8 343
Denmark	-	-	-	-	149 596	8 120
Turkey	682 046	34 045	830 292	37 137	163 093	7 296
Libyan Arab Jamahiriya	-	-	293 055	10 648	188 355	6 092
Switzerland	139 005	6 635	-	-	67 543	3 276
Norway	-	-	5 000	223	45 001	2 325
Czech Republic	-	-	-	-	50 391	1 569
Poland	-	-	122 405	2 799	64 139	1 438
Belgium	-	-	2	2	2	...
Trinidad and Tobago	777 590	44 074	402 026	15 811	-	-
Saudi Arabia	35 389	1 791	-	-	-	-
Qatar	35 533	1 798	-	-	-	-
Iceland	-	-	8 459	378	-	-
South Korea	-	-	87 748	3 828	-	-
Malaysia	306 354	15 149	137 974	6 721	-	-
Romania	-	-	74 916	3 242	-	-
Sweden	-	-	23 102	1 139	-	-
Hungary	42 099	1 999	-	-	-	-
Total	18 314 903	881 965	20 692 605	889 331	16 243 152	744 454
Total exports	25 847 150	1 092 460	27 185 646	1 045 886	22 549 251	930 327

TABLE 1 (cont'd)

Item No.	2002		2003		2004 (p)	
	(tonnes) (1)	(\$000)	(tonnes) (1)	(\$000)	(tonnes) (1)	(\$000)
IMPORTS						
2601.11	Iron ore concentrates, non-agglomerated					
	24 535	661	14 112	400	41 576	1 013
United States	–	–	102	4	719	36
South Africa	–	–	3	...	367	11
Venezuela	111	2	57	3	254	7
Germany	–	–	–	–	149	6
Sweden	112	5	–	–	176	5
France	1	...	15	1	25	1
Mexico	–	–	–	–	20	1
Iran	6	...	11	...	1	...
Brazil	2	...	2	...	6	...
Canada	9	...	1	...	...	...
China	–	–	–	–	1	...
Sierra Leone	4	...	–	–	1	...
India	–	–	–	–	8	...
Mauritania	–	–	–	–	...	...
South Korea	26 190	557	29	1	6	...
Peru	–	–	–	–	2	...
Italy	–	–	–	–	9	...
Guatemala	–	–	2	...	1	...
Armenia	–	–	–	–	2	...
Chile	–	–	7	...	1	...
Ecuador	–	–	–	–	...	...
Chana	–	–	–	–	1	...
Colombia	–	–	–	–	8	...
Japan	–	–	–	–	...	...
Russia	–	–	–	–	1	...
Tanzania	–	–	–	–	1	...
Thailand	–	–	–	–	4	...
Serbia and Montenegro	–	–	67	2	–	–
Mongolia	–	–	9	...	–	–
Switzerland	–	–	...	...	–	–
United Kingdom	–	–	1	...	–	–
Denmark	2	...	–	–	–	–
Bolivia	–	–	5	...	–	–
Afghanistan	1	...	–	–	–	–
Turkey	164	6	330	12	–	–
Spain	2	...	–	–	–	–
New Caledonia	1	...	–	–	–	–
Mail	7	...	2	...	–	–
Greece	–	–	2	...	–	–
Dominican Republic	–	–	–	–	–	–
Total	51 147	1 231	14 757	423	43 339	1 080
2601.12	Iron ore, agglomerated					
	6 793 385	375 266	6 633 290	321 548	7 807 979	395 515
United States	2	...	–	–	127 750	30 619
Venezuela	10	1	1	...	72	4
United Kingdom	22	1	2	...	12	1
Australia	–	–	–	–	8	1
Pakistan	–	–	35	1	2	...
Guatemala	–	–	–	–	1	...
Chile	–	–	–	–	1	...
New Caledonia	6	...	8	...	–	–
China	42	2	–	–	–	–
Germany	15	1	–	–	–	–
Japan	49	2	–	–	–	–
Russia	5	...	–	–	–	–
South Africa	–	–	2	...	–	–
Brazil	–	–	23	1	–	–
Canada	–	–	9	...	–	–
Madagascar	–	–	–	–	–	–
Total	6 793 536	375 273	6 633 370	321 550	7 935 825	426 140
Total imports	6 844 683	376 504	6 648 127	321 973	7 979 164	427 220

Sources: Natural Resources Canada; Statistics Canada; American Iron Ore Institute.

– Nil; ... Amount too small to be expressed; (p) Preliminary; x Confidential.

(1) Dry tonnes for production (shipments) by province or territory; natural weight for imports and exports. (2) Total iron ore shipments include shipments of by-product iron ore.

**TABLE 2. IRON ORE, WORLD MINE
PRODUCTION, (1) 2003 AND 2004**

	2003	2004 (e)
	(million tonnes)	
United States	46	54
Australia	187	220
Brazil	212	220
Canada	31	31
China	261	280
India	106	110
Iran	16	16
Kazakhstan	17	17
Mauritania	10	10
Mexico	11	12
Russia	92	95
South Africa	38	40
Sweden	22	22
Ukraine	62	66
Venezuela	18	18
Other countries	34	40
Total world	1 160	1 250

Source: U.S. Geological Survey; Mineral Commodity Summaries, January 2005.

(e) Estimated.

(1) Agglomerates concentrates, direct shipping ore, and by-product ore for consumption.

Note: Numbers may not add to totals due to rounding.