Iron Ore

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There are two aspects to iron ore demand: quantity and quality. Since the major trade item is in mineral rather than metallic form, there are many chemical and physical variants of iron ore, but they all serve the same purpose – providing the iron component of steel. Steel production in turn is the driving force for almost all iron ore demand. In spite of the introduction of many new materials in this century, worldwide steel industry growth has tended to average about 1% per year over the long term and this trend is expected to continue. However, technological changes at all stages from iron ore mining through to the production of finished steel have been major factors in determining the quantities and properties of the iron ore demanded.

CANADIAN DEVELOPMENTS

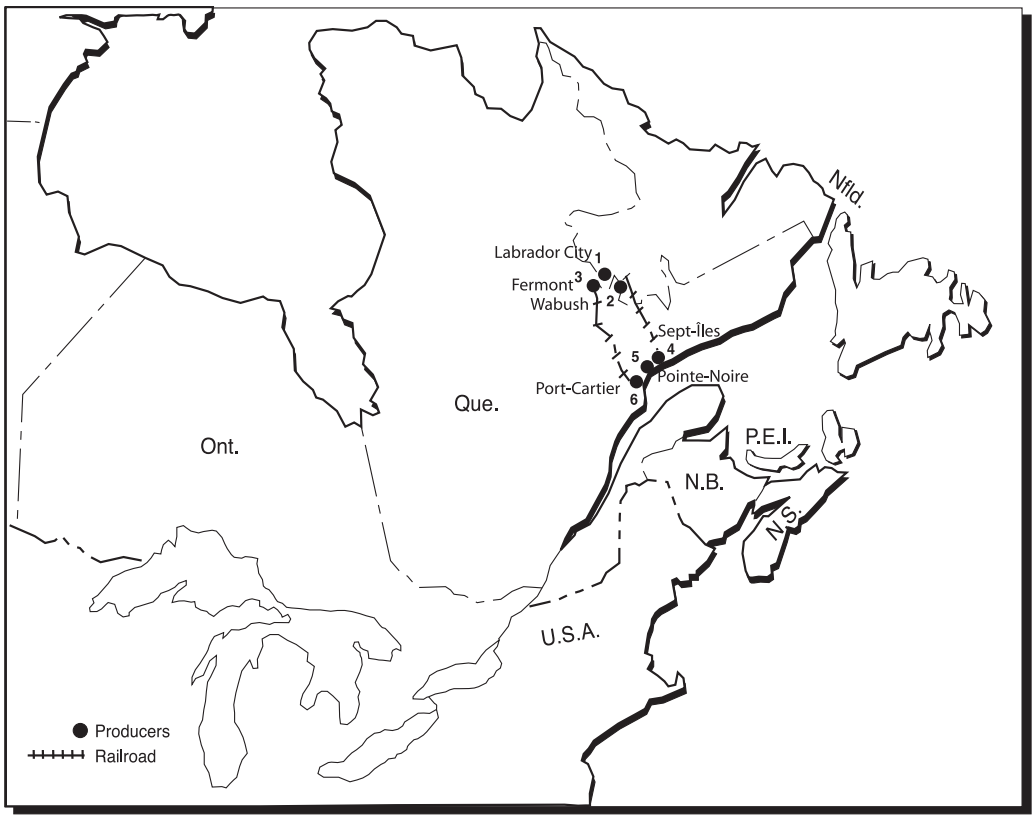
Iron ore is one of Canada's single most important mineral products in terms of both tonnage and in value. Since the closure in 1998 of the **Algoma Iron Ore Division** near Wawa, Ontario, nearly all of Canada's iron ore production has been concentrated in the Labrador Trough, a major geological belt 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.

In 2001, as a result of the global economic slowdown (particularly the depressed demand from the North American steel industry), Canada's iron ore production slumped to slightly less than 27.0 Mt, a decrease of 23.5% compared to the previous year. In line with this reduction, the value of Canada's production fell by 18.9% to $1.16 billion. Likewise, Canada's iron ore exports fell by 16.7% to just under 22.0 Mt with the pellet market registering a drop of 13.5% in exports while the concentrate market fared even worse with a drop of 24.1%. The drastic fall in demand for concentrate in 2001 mirrored that of the previous year when the hike in the price for gas, used for pelletization, was compounded by the economic slowdown.

- Following its acquisition in August 2000 of North Ltd. of Australia and the latter's 56.1% controlling interest in **IOC**, Rio Tinto Ltd. acquired a 20% share of the 18.9% stake in IOC owned by the Labrador Iron Ore Royalty Income Fund. Mitsubishi Corp. owns the remaining 25% stake in IOC. Since acquiring IOC, Rio Tinto has been active in upgrading the Quebec and Labrador installations as well as its load and haul fleet. It also initiated a tailings management program to comply with the new federal Metal Mining Effluent Regulations (MMER). Under this program IOC will build a dyke to confine its tailings in Wabush Lake and to comply with a suspended solids effluent criterion of 15 mg/L. The first phase of that project is scheduled for completion by 2006. Moreover, on September 27, 2001, in response to deteriorating market conditions, Rio Tinto announced it was postponing the refurbishment and reactivation of its pellet plant in Sept-Îles, Quebec. Commissioning of the $361.5 million project, scheduled for June 2002, would have resulted in the addition of 4.5 Mt of capacity to the company's pellet production.

- On the eve of reaching in 2002 its 45th year of incorporation and 500 Mt of iron ore concentrate production, the co-owners (50:50) of **QCM**, **CAEMI Mineração e Metalurgia S.A.** and **Dofasco Inc**., announced their intent to sell their share of the company. CAEMI is being forced to sell its shares by the European Union Commission in response to the takeover of CAEMI by CVRD and Mitsui. Dofasco announced its intent to evaluate strategic options related to its QCM investment. Affected by declining markets, QCM shut down its Mount Wright operation for 14 weeks during the year (including a lockout from March 19 to April 30) and laid off part of its work

Figure 1
Iron Ore in Canada, 2001



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)

force. The pellet plant, for its part, was only closed during the lockout.

- A change in the marketplace forced **Wabush Mines** to scale down its production during the year from 6.2 Mt to 4.5 Mt. This was achieved by idling its facilities for a seven-week period and closing one of its three production lines in December. Meanwhile, the company proceeded with an important capital investment to address an ongoing operating concern regarding excess water in the pit due to the increasing depth of the operations. To date, the results have proven to be very positive.

INTERNATIONAL DEVELOPMENTS

According to the UNCTAD Trust Fund Project for Iron Ore Information, following an upsurge in 2000, world iron ore production decreased by 3.1% in 2001 to reach 931.2 Mt,[1] still the second highest production level ever reached by the industry. The countries registering the highest incremental increases

[1] This figure includes the application of a conversion factor to China's low-grade natural iron ore production so that the latter's % Fe content is about equal, on average, to that in the rest of the world.

were Peru (15.9%), Venezuela (9.2%), India (4.3%), South Africa (3.1%) and Australia (2.4%), while the countries registering the highest incremental decreases were the United States (27.4%), Canada (22.3%), Mauritania (10.0%) and Mexico (9.4%).

Similarly, world exports decreased 2.6% to 477.1 Mt in 2001. Australia maintained its position as the world's number one iron ore exporting country with exports totalling 164.4 Mt in 2001, closely followed, as usual, by Brazil with 155.7 Mt. Countries that improved their track record the most were India (13.3%) and the Republic of South Africa (9.8%), while those that registered the worst decreases were Canada (17.0%), Sweden (16.0%), Mauritania (9.0%) and the former Soviet Union (8.3%).

Variations observed in the import market are less important than in the export market. Total imports reached 477.9 Mt in 2001, a 1.9% decrease from the previous year. The most important retrenchments in 2001 (in quantities) were the European Union with 13.1% whereas, on an incremental basis, the United States registered the largest drop (at 31.8%), illustrating the slowdown of these economies. Japan remains the world's largest importer of iron ore (126.3 Mt), followed by China (92.3 Mt), South Korea (46.5 Mt) and Germany (40.1 Mt). However, China (with an increase of 31.9% in 2001 over the previous year) and South Korea (19.2%) – two countries involved in large infrastructure development programs – appear to be the leading forces of the growth in Asia while the economies of other Asian countries appear to be fragile.

PRICES

On the strength of the world steel industry at the beginning of 2000, during the period when prices are negotiated on the European and Japanese markets, and despite reduced production in North America, iron ore producers were able to negotiate reasonable price increases for the year. Prices jumped respectively by 4.55% and 4.29% for concentrate bound for Europe and Japan and by 1.84% for pellets bound for Europe. However, despite these price increases, the value of Canada's exports fell by 10.7% to about $943 million.

OUTLOOK

The consolidation and restructuring of the global iron ore industry witnessed in the past two years should continue during the coming years to enable producers to improve their competitiveness through economies of scale. This will help the iron ore and steel industry preserve its market share as a supplier of low-cost, versatile, high-performance material of choice for use in a variety of applications.

Any change in the economic situation in Asia is expected to have a marked impact on steel markets and, consequently, on iron ore use. China, one of the fastest growing economies in the world, is expected to continue to look to foreign suppliers to satisfy a large part of its iron ore requirements. Chinese imports of iron ore rose from 14.3 Mt in 1990 to over 92 Mt in 2001, representing an annual growth rate of over 18%. The development of a more modern market economy in China and the demand for higher-quality products are expected to lead that country to maintain or increase its present level of imports.

The stabilization of Canadian iron ore shipments in the last quarter of 2001, on a year-to-year basis, tends to indicate the industry reached its low point and that a recovery will start to take place in the first half of 2002. However, according to various indicators, this recovery will not be vigorous and may result in Canadian shipments of iron ore reaching a level of around 32 Mt in 2002. On that account, Wabush Mines expects to produce at about 75% of its capacity in 2002 while QCM is planning a production level in the order of 12-13 Mt. IOC plans to review the situation in early 2002 before it decides whether or not it will maintain its 2001 production level.

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 January 1, 2002. (3) This and other reviews, including previous editions, are available on the Internet at www.nrcan.gc.ca/mms/cmy/index_e.html.

NOTE TO READERS

TABLE 1. CANADA, IRON ORE PRODUCTION AND TRADE, 2000 AND 2001

Item No.		2000		2001 (p)	
		(tonnes) (1)	($000)	(tonnes) (1)	($000)
PRODUCTION (mine shipments)					
	By province				
	Newfoundland and Labrador	21 091 517	902 134	17 306 892	768 288
	Quebec	14 057 035	x	9 600 000	x
	British Columbia	98 340	x	74 246	x
	Total (2)	35 246 892	1 424 448	26 981 138	1 155 187
IMPORTS					
2601.11	Iron ore concentrates, non-agglomerated				
	United States	55 738	1 410	91 194	2 196
	Lebanon	–	–	84	4
	Russia	–	–	46	2
	Mongolia	–	–	73	2
	Greenland	–	–	39	2
	Germany	141	4	29	1
	Australia	–	–	18	1
	France	60	2	35	1
	China	14	1	35	1
	Ukraine	–	–	2	...
	Morocco	–	–	4	...
	Liberia	–	–	2	...
	Iran	–	–	3	...
	Peru	–	–	3	...
	Belgium	–	–	1	...
	Indonesia	2	...	2	...
	Brazil	–	–	7	...
	Canada	155	5	10	...
	India	2	...	8	...
	Gabon	1	...	–	–
	Guinea	2	...	–	–
	Hong Kong	2	...	–	–
	Turkey	8	...	–	–
	Japan	9	...	–	–
	Spain	3	...	–	–
	United Kingdom	15 440	386	–	–
	Mexico	103	4	–	–
	Tanzania	4	...	–	–
	South Africa	34	1	–	–
	Uganda	1	...	–	–
	Total	71 719	1 813	91 595	2 210
2601.12	Iron ore, and concentrates, agglomerated				
	United States	6 344 821	347 946	5 814 337	332 368
	Sweden	–	–	2	...
	Brazil	86 693	6 654	–	–
	Venezuela	62 726	3 255	–	–
	United Kingdom	71	4	–	–
	Taiwan	24	1	–	–
	Total	6 494 335	357 860	5 814 339	332 368
EXPORTS					
2601.11	Iron ore concentrates, non-agglomerated				
	Germany	2 539 276	68 301	1 697 483	47 215
	United Kingdom	1 711 708	40 913	1 124 106	29 838
	Netherlands	691 443	19 535	830 757	24 200
	Japan	685 376	17 902	822 119	21 802
	South Korea	372 999	9 215	482 153	13 807
	France	1 106 050	26 008	535 186	11 387
	United States	485 902	14 236	339 143	10 602
	China	235 197	6 401	164 980	4 666
	Philippines	168 293	4 499	57 979	986
	Austria	–	–	15 703	443
	Total	7 996 244	207 010	6 069 609	164 946

TABLE 1 (cont'd)

Item No.		2000		2001 (p)	
		(tonnes) (1)	($000)	(tonnes) (1)	($000)
EXPORTS (cont'd)					
2601.12	Iron ore and concentrates, agglomerated				
	United States	7 504 883	340 019	4 187 959	195 991
	Germany	2 618 565	124 951	3 245 483	157 796
	Italy	2 149 678	102 031	1 691 891	83 015
	Trinidad and Tobago	–	–	1 169 587	68 981
	United Kingdom	1 665 538	76 717	1 213 452	57 934
	Netherlands	1 053 277	51 595	955 690	48 791
	Australia	736 003	35 340	952 449	44 553
	Taiwan	248 963	10 820	659 138	31 411
	China	448 015	21 567	427 394	21 453
	Belgium	563 296	26 889	308 148	14 709
	Turkey	299 030	11 326	292 342	14 433
	France	464 548	21 159	251 732	12 625
	Malaysia	99 985	4 147	148 571	7 912
	Egypt	–	–	136 055	6 495
	Japan	149 135	7 204	80 871	3 988
	Switzerland	–	–	59 801	2 855
	Philippines	164 591	4 510	85 145	2 725
	South Korea	75 001	3 701	45 897	2 289
	Portugal	151 622	7 241	–	–
	Total	18 392 130	849 217	15 911 605	777 956
	Total exports, all classes				
	Germany	5 157 841	193 252	4 942 966	205 011
	United States	7 990 785	354 255	4 527 102	206 593
	United Kingdom	3 377 246	117 630	2 337 558	87 772
	Netherlands	1 744 720	71 130	1 786 447	72 991
	Italy	2 149 678	102 031	1 691 891	83 015
	Trinidad and Tobago	–	–	1 169 587	68 981
	Australia	736 003	35 340	968 152	44 996
	Taiwan	248 963	10 820	659 138	31 411
	China	683 212	27 968	592 374	26 119
	Japan	834 511	25 106	902 990	25 790
	France	1 570 598	47 167	786 918	24 012
	South Korea	448 000	12 916	528 050	16 096
	Belgium	563 296	26 889	308 148	14 709
	Turkey	299 030	11 326	292 342	14 433
	Malaysia	99 985	4 147	148 571	7 912
	Egypt	–	–	136 055	6 495
	Philippines	332 884	9 009	143 124	3 711
	Switzerland	–	–	59 801	2 855
	Portugal	151 622	7 241	–	–
	Total	26 388 374	1 056 227	21 981 214	942 902

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. CANADA, IRON ORE SHIPMENTS, 1996-2001

Company and Location	Ore Mined	Product Shipped	1996	1997	1998	1999	2000	2001 (p)
			(000 tonnes, natural or wet)					
Algoma Ore Division Algoma Steel Inc. Wawa, Ontario	Siderite	Sinter (1)	733	795	651	–	–	–
Iron Ore Company of Canada Schefferville, Quebec	Hematite, goethite and limonite	Direct shipping	–	–	–	–	–	–
Carol Lake, Newfoundland and Labrador	Specular hematite and magnetite	Concentrate	4 038	4 678	5 172	3 983	3 955	3 415
		Acid pellets	2 430	..	..	2 408	..	..
		Fluxed pellets	8 075	11 372	12 248	3 190	11 466	9 908
		Limestone pellets	..	..	..	3 870	..	..
		Direct reduced pellets	..	..	..	211	..	..
		Chips	169	..	..	..	..	..
Loadstone Limited Newfoundland and Labrador	Magnetite	Concentrate	300	100	–	–	–	–
Quebec Cartier Mining Company Mount Wright, Quebec	Specular hematite	Concentrate	7 264	7 159	(r) 6 757	6 304	6 163	3 500
		Acid pellets	2 521	3 795	(r) 3 577	2 820	..	2 200
		Self-fluxed pellets	5 481	4 324	(r) 2 824	3 036	8 234	2 000
		Low-Si pellets	51	225	(r) 1 638	1 591	..	1 100
		Low-Si self-fluxed pellets	–	–	103	1 045	..	1 000
Wabush Mines Wabush, Labrador and Pointe-Noire, Quebec	Specular hematite and magnetite	Acid pellets	3 155	(r) 3 440	(r) 3 127	(r) 3 223	(r) 5 983	2 945
		Fluxed pellets	2 158	(r) 2 257	(r) 2 518	(r) 2 009	..	1 499
		Concentrate	–	..	..	(r) 35	..	..
		Chips	24	..	..	..	..	110
British Columbia producers	Magnetite	Concentrate	88	100	102	(r) 92	102	81
Total			36 486	38 245	38 717	(r) 33 790	(r) 35 903	27 758

Source: Natural Resources Canada.
– Nil; .. Not available; (p) Preliminary; (r) Revised.
(1) Includes about 400 000 t of iron-bearing material not from the mine.

TABLE 3. RECEIPTS, USE AND INVENTORIES OF IRON ORE AT CANADIAN IRON AND STEEL PLANTS, 2000 AND 2001

	2000	2001
	(000 tonnes)	
Receipts imported	6 850	5 974
Receipts from domestic sources	6 468	6 444
Total receipts at iron and steel plants	13 318	12 418
Use of iron ore	14 042	12 381
Inventory at docks, plants, mines and furnace yards, December 31	8 818	10 420
Inventory change	465	1 602

Source: American Iron Ore Association.

TABLE 4. WORLD IRON ORE PRODUCTION, 1999-2001

	1999	2000	2001
	(000 tonnes, natural)		
China	92 200	96 100	102 000
Brazil	188 700	200 400	208 700
Australia	162 700	176 300	180 500
Russia	81 900	87 000	82 500
India	70 200	75 000	79 200
United States	57 800	63 000	45 800
Ukraine	47 100	55 000	54 700
Canada	34 000	35 900	27 900
South Africa	29 500	33 700	34 800
Sweden	18 900	20 600	19 500
Venezuela	17 000	17 400	19 000
Mauritania	10 400	11 500	10 300
Kazakhstan	9 100	15 000	14 100
Other countries	48 900	50 900	52 400
Total	868 400	937 800	931 400

Sources: Natural Resources Canada; Interfax; UNCTAD Trust Fund Project on Iron Ore Information.

TABLE 5. SELECTED PRICES OF IRON ORE BOUND FOR JAPAN AND EUROPE, 1987-2001

Ore	Market	Source	1987	1989	1991	1993	1995	1997	1999	2000	2001
						(US¢/Fe Unit Dmt, f.o.b.)					
Fines	Europe	CVRD	24.50	26.56	33.25	29.09	28.38	30.15	27.59	28.79	30.03
(including		Iscor	..	20.70	..	22.61	21.79	23.35	(r) 21.37	22.30	23.26
concentrate)		Kiruna	25.25	30.00	37.1	30.50	30.85	32.70	29.55	31.83	33.30
		Carol Lake	24.03	27.00	34.6	28.50	27.70	30.00	27.20	28.60	29.90
		Mt. Wright	24.03	27.00	34.6	28.50	27.70	30.00	27.20	28.60	29.90
	Japan	CVRD	21.89	23.61	30.05	25.02	24.45	26.16	23.99	25.01	26.06
		Iscor	18.85	20.37	25.09	21.23	20.32	21.78	19.93	20.80	21.69
		Hamersley (2)	24.28	26.34	32.96	27.90	26.72	28.64	26.21	27.35	28.52
		Carol Lake	20.93	22.52	28.18	24.26	23.23	24.90	22.79	23.78	24.80
Lump	Europe	Iscor	23.50	..	34.72	29.38	30.39	32.13	(r) 29.70	31.41	32.42
		Hamersley (1)	33.15	43.00	50.25	42.06	45.15	45.91	40.75	45.56	47.21
	Japan	CVRD	21.89	25.20	30.96	25.91	26.31	27.63	25.54	27.02	27.89
		Iscor	21.99	26.05	31.51	27.17	28.29	30.02	27.76	29.36	30.31
		Hamersley (2)	28.33	33.23	40.83	34.78	35.32	37.09	34.28	36.26	37.43
Pellets	Europe	CVRD	36.70	47.33	52.15	43.64	49.14	52.10	46.46	49.24	50.10
		Kiruna	41.15	53.50	57.50	45.70	52.40	55.10	48.70	53.00	54.08
		Carol Lake	37.15	48.35	53.00	44.25	50.05	53.25	47.15	50.60	51.53
		Mt. Wright	37.15	48.35	53.00	44.25	50.05	53.25	47.15	50.60	51.53
	Japan	CVRD	35.04	44.49	49.03	41.03	46.19	48.98	43.68	46.29	47.10
		Savage River	34.17	42.10	46.39	38.83	43.72	46.35	41.33	43.80	44.57

Sources: *The Tex Report; Skillings Mining Review*; UNCTAD.

.. Not available; Dmt Dry metric tonne; f.o.b. Free on board; (r) Revised.

(1) c.i.f. Rotterdam; (2) f.o.b. Dampier.

Note: Price is reported in cents, U.S. currency, for each percentage point of iron in a tonne of ore, e.g., at 30¢/Fe unit, ore grading 65% iron would bear a price of 65 x 30¢ = US$19.50/t.