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Preface

The Minerals and Metals Sector of Natural Resources Canada is the focus of federal expertise for mineral and metal commodity information. Within the Sector, the Minerals, Metals and Materials Knowledge Branch acts as the federal government's main source of in-depth knowledge, intelligence, and expertise on mineral and metal commodity markets. One of its tasks is to forecast mineral and metal demand, supply, and price.

Within the Branch, the Industry and Commodity Analysis Division is responsible for the major nonferrous metals, precious metals, certain associated minor by-products, and recycled materials such as scrap. The commodity specialists of the Division maintain close contacts with industry on a wide range of topics and issues. This year-end publication represents a more formal means of disseminating metal market developments through the first three quarters of the year and forecasts into the future.

We would appreciate your feedback and encourage you to contact the specialists directly with your comments by telephone, facsimile, or electronic mail (telephone numbers and e-mail addresses are provided at the beginning of each chapter). You can also provide feedback to the coordinator of this publication, Wayne Wagner, by telephone at 613-996-5951, by fax at 613-943-8450, or by e-mail at wayne.wagner@nrcan.gc.ca.

NOTE TO READER

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Introduction

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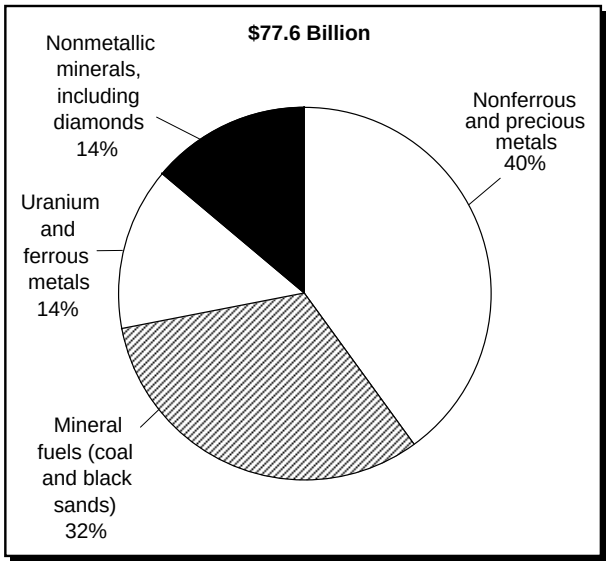
This outlook for the major nonferrous metals was prepared by staff of the Industry and Commodity Analysis Division in December 2007 and reflects the market conditions and expectations at that time.

The Canadian dollar climbed to close at an all-time high of US108.5¢ on November 6 as commodity prices remained high. Since then, the exchange rate has eased and the dollar closed at US101¢ on December 29. As a result, metal prices, which have increased substantially over the past several years, have not increased as much in Canadian dollar terms. Nevertheless, the value of metals and minerals produced in and exported from Canada has risen.

The total value of all mineral commodities produced in Canada, including metals, nonmetals and mineral fuels (including oil sands mining), rose from $59.4 billion in 2005 to an estimated $77.6 billion in 2006 (Figure 1). Exports of crude minerals (excluding petroleum and natural gas), coal, smelted and refined outputs, and mineral products contributed $74.7 billion to the value of Canada's domestic exports in 2006, a 16% increase compared with 2005. This represented 17% of Canada's total exports of $440.1 billion. Metallic minerals and mineral product domestic exports accounted for 80% ($59 billion) of the total non-fuel (including coal) value, nonmetal domestic exports (including structural materials) accounted for 15.5% ($11.5 billion), and coal accounted for 4.6% ($3.4 billion). The United States remains Canada's principal trading partner with domestic exports of non-fuel minerals and mineral products, including coal, to that country valued at $49 billion. Exports to the European Union totaled $11.3 billion; to Japan, $3.2 billion; and to Mexico, $0.6 billion. Canadian imports of non-fuel minerals and mineral products, including coal, reached $62 billion.

Nonferrous metals generated a net trade surplus equivalent to about 27% of that of mineral fuels (excluding coal). Canada's overall merchandise export surplus was due in large part to the net surplus generated by the Canadian mining and metals industry. Non-coal fuel minerals generated a net surplus of $49.3 billion. Nonmetal mineral products generated a combined net trade surplus of $3.2 billion (Figures 2 and 3) in 2006. The nonferrous and precious metals (including scrap), with exports of $43.3 billion and imports of $29.9 billion, generated a net Canadian trade surplus of $13.4 billion. A much higher surplus is expected in 2007 as these metals have, in the first 11 months, generated a $19 billion surplus.

Figure 1
Value of Canadian Minerals and Metals Production, 2006



Source: Natural Resources Canada.

Mergers and acquisitions by and of Canadian companies continued at record levels in 2007. Well-known names in the Canadian mining industry have continued to disappear while others, particularly in the gold sector, have consolidated their positions and grown into major world leaders. Among the Canadian companies to disappear in 2007 were Alcan Inc., Aur Resources Inc., Imperial Smelting and Refining Co. of Canada, Cumberland Resources Ltd., Miramar Mining Corporation, and Nova Pb Inc. Canadian companies that grew significantly as a result of mergers and acquisitions in 2007 include Agnico Eagle Mines Limited, Barrick Gold Corporation, Goldcorp Inc., IAMGOLD

Corporation, Kinross Gold Corporation, and Yamana Gold Inc. More details are available within each of the following commodity chapters.

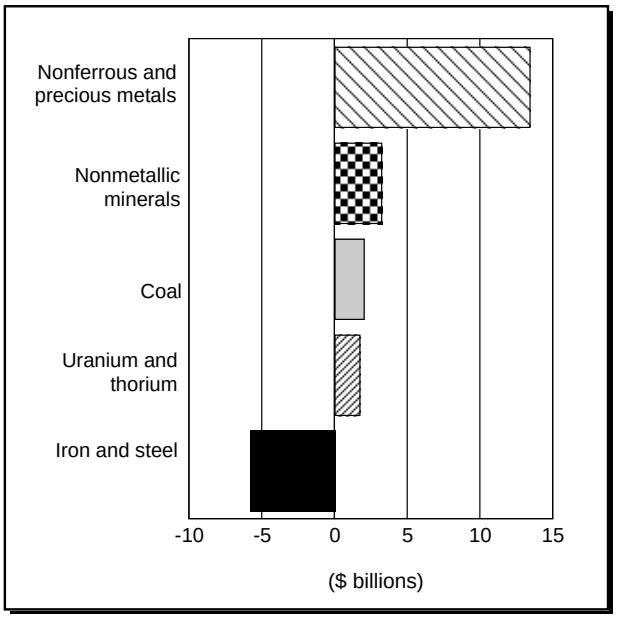
Metal ore reserves have been generally falling in Canada for the last 30 years, but seem to have hit a bottom in 2005. The higher prices for metals have resulted in very high levels of exploration and deposit appraisal activity in 2007. It was expected that expenditures will reach $2.5 billion, surpassing expenditure levels last seen in the late 1980s. While it will take time for these expenditures to result in new mines, these expenditures will support the upturn in reserves and resources for mining companies all across Canada that was first seen in the 2005 data.

Reviews and forecasts for aluminum, copper, gold, lead, nickel, and zinc are included in the following pages. Trade tables covering the value of minerals and mineral products for 2005, 2006, and the first 11 months of 2007 follow these commodity reviews.

We would appreciate your feedback and encourage you to contact the specialists directly with your comments or questions by telephone, facsimile, or e-mail.

Note: Information in this article was current as of December 31, 2007.

Figure 2
Net Export Earnings, 2006
Mineral Commodities Net = $14.5 Billion



Source: Natural Resources Canada.

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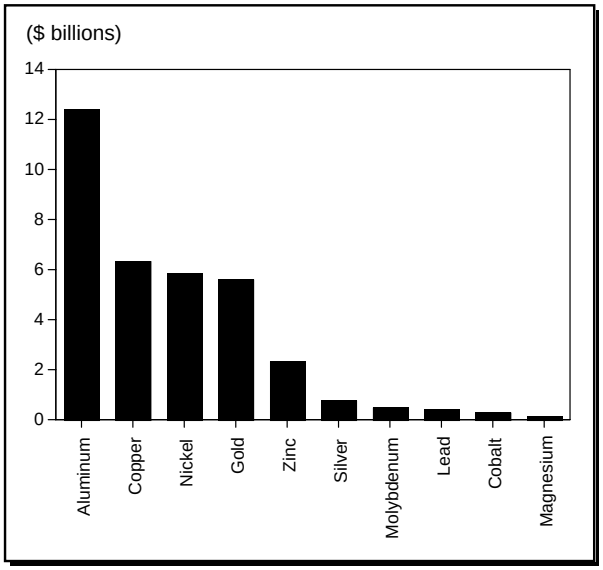
Figure 3
Value of Exports, All Stages, 2006



Source: Natural Resources Canada.

Aluminum

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	2005	**2006** (f)
Primary metal production:	$6.65 billion (e)	$8.8 billion (e)
World rank:	Third	Third
Exports (unwrought):	$5.4 billion	$7 billion
Exports (HS 76):	$9.5 billion	$12 billion
Installed capacity:	3.08 Mt/y	3.09 Mt/y

Canada	2005	2006 (e)	2007 (f)
		(000 tonnes)	
Primary aluminum			
Production	2 890	3 040	3 050
Use	1 100	1 170	1 220

(e) Estimated; (f) Forecast.

ANNUAL AVERAGE ALUMINUM PRICES, LONDON METAL EXCHANGE (CASH SETTLEMENT)

2003	2004	2005	2006	2007 (f)
		(US$/t and [US¢/lb])		
1 431 (65¢)	1 716 (78¢)	1 880 (84¢)	2 530 (115¢)	2 400 (110¢)

(f) Forecast.

Aluminum, in both its pure and alloyed form, is used to make a wide variety of products for the consumer and capital goods markets. **Alcan** reports[1] that aluminum's largest markets are transportation (27%), packaging (16%), building and construction (20%), electrical (10%), consumer durables (7%), and machinery and equipment (8%). China accounts for 22% of global demand, North America for 24%, Western Europe for 22%, and Asia, excluding China, for 21%.[1]

[1] www.alcan.com (annual report).

CANADIAN OVERVIEW

Canada's production of primary aluminum is expected to increase by 5% to 3.04 Mt in 2006 from 2.89 Mt in 2005. Monthly Canadian production statistics can be obtained on Natural Resources Canada's Internet site at http://mmsd1.mms.nrcan.gc.ca/mmsd/production/default_e.asp.

Alcan announced its intention to modernize its Kitimat Works primary aluminum smelter in British Columbia through a US$1.8 billion investment. The project would replace existing Söderberg cells with AP35 technology and expand the smelter from its current 277 000-t/y capacity to 400 000 t/y.

Alcan announced that it would build a US$180 million, 80 000-t/y spent pot lining recycling plant in the Saguenay–Lac-Saint-Jean region of Quebec. The plant is expected to begin operations in the second quarter of 2008.

Alcan announced plans for a US$550 million, 60 000-t/y pilot plant of its new AP50 smelting technology in Jonquière, Quebec.

Alcan and employees in Quebec, represented by the Canadian Auto Workers Union (CAW) and the United Steel Workers (USW), ratified new collective labour agreements for an initial term of five years, with possible four-year extensions if Alcan decides to make major investments in the Jonquière Complex (CAW) and at Alma (USW) during the first term.

The Alouette smelter, after completion of its expansion in early 2005, operated at full capacity during all of 2006. This smelter is now the largest in North America and **Aluminerie Alouette Inc.** reports that it is now capable of producing more than 560 000 t/y.

Alcoa and the Quebec government held talks on renewals of energy agreements for its three smelters. No announcements had been made on the results of these talks at the time of writing.

The Aluminium Association of Canada published an economic study outlining the contribution the industry makes

to the economy. Further information and links to web sites of Canadian primary aluminum producers can be found on the Association's web site at www.aac.aluminium.qc.ca.

WORLD OVERVIEW

In China, metal production growth rates have fallen from the exceptionally high growth rates in the early part of the decade to 19% in 2005 (7.8 Mt). Metal production is expected to have increased by at least a further 19% in 2006 (to 9.3 Mt). In addition, alumina production has strongly increased in 2006 based on imports of bauxite.

Tax and other policy changes within China, including a cancellation of value-added-tax (VAT) refunds, the imposition of an export tax on ingot (15%), and higher power rates, may continue to affect the longer-term plans for new smelters and manufacturing activity. However, increased profits resulting from a reduction in domestic alumina prices to US$305/t from prices above US$700/t in early 2006, and the current high price of metal, will counter that influence.

Within China, the consolidation of smaller primary aluminum companies and the rapid expansion of processing facilities is accelerating.

RUSAL, SUAL Group and **Glencore** have proposed to merge their aluminum assets, creating a company that would be the world's largest producer of aluminum and alumina.

After rising slightly in 2005, North American smelter production rates fell slightly in 2006 to 5.3 Mt/y from 5.4 Mt/y in 2005. The decline was due to the closure of smelters in the United States.

Alcan's activities outside of Canada, in addition to ongoing projects, include: a 25-year electricity supply agreement starting in 2010 for the proposed 720 000-t/y Coega aluminum smelter project at Port Elizabeth, South Africa; a Memorandum of Understanding with **Access Madagascar Sarl** on the joint study and development of a bauxite mine and alumina refinery in Manantenina District, Madagascar; approval for mining the Ely bauxite deposit in Queensland, Australia; a Memorandum of Understanding with the Republic of Ghana on studies for a potential bauxite mine and alumina refinery; and an agreement on the purchase of geothermal power for potential expansion in Iceland.

IAMGOLD has proposed the sale of **Omai Bauxite Mining Inc.** (formerly a property of **Cambior Inc.**, 70%, and the Government of Guyana, 30%) and **Omai Services Inc.** to **Bosai Minerals Group Company Ltd.** (www.iamgold.com).

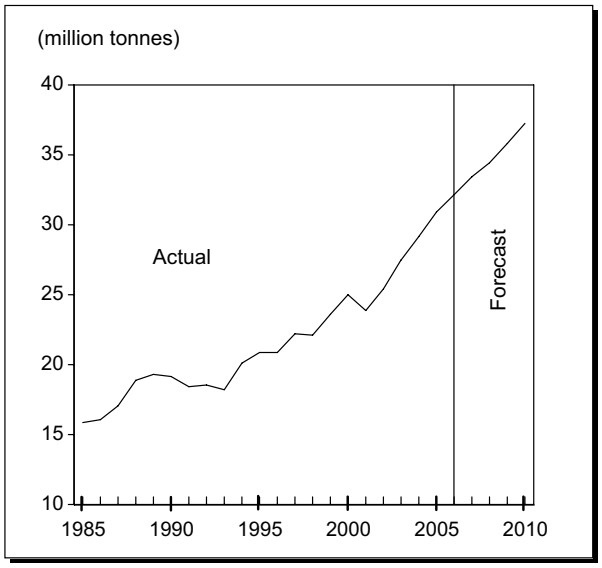
Toronto-based **Global Alumina Corporation** continued work to finance and construct a 2.8-Mt/y alumina refinery in the Boké region of Guinea (www.globalalumina.com).

Additional production of approximately 1.6 Mt (5%) from new and restarted production capacity located around the world (focused in China) is expected in 2007. For additional details, see the Aluminum chapter of the *Canadian Minerals Yearbook* (available on the Internet at www.nrcan.gc.ca/mms/cmy/com_e.html) and the company web sites listed in Table 1.

DEMAND OUTLOOK

The world's apparent use of aluminum in ingot form (apparent use of ingot plus imports of scrap) is estimated to be approximately 35.5 Mt in 2006, about 6% higher than the 33.5 Mt used in 2005. In 2007, world demand for aluminum, depending on the performance of the world economy, is expected to be somewhat lower, although still above its long-term trend of 3% annual growth (Figure 1). Canada's reported use of aluminum increased approximately 4% in 2005 to an estimated 1.1 Mt from a revised 1.06 Mt in 2004. Use is expected to have increased at approximately the same rate in 2006.

Figure 1
World Primary Aluminum Use, 1985-2010



Sources: Actual - International Consultative Group on Nonferrous Metal Statistics; Forecast - author.

CANADIAN AND WORLD PRODUCTION OUTLOOK

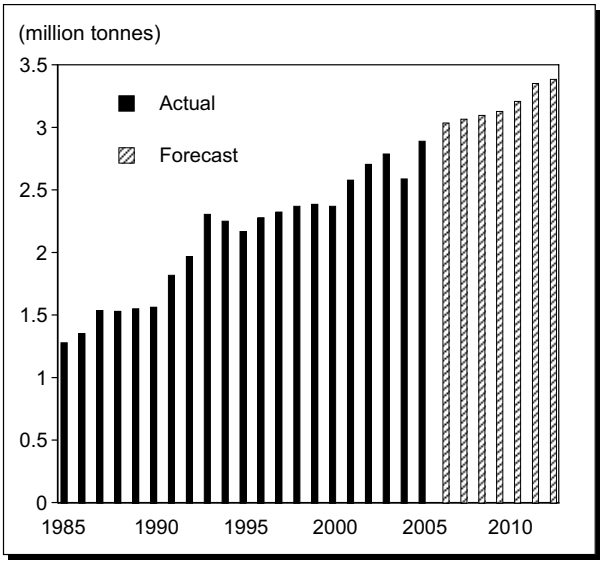
Canadian installed capacity for the production of primary aluminum is now 3.09 Mt/y. With production in 2006 of an estimated 3.04 Mt of primary aluminum, Canada is expected to maintain its rank as the third largest primary producer after China and Russia. Canada is expected to produce slightly higher amounts in 2007 and 2008 due to capacity creep in existing smelters. Canadian production growth has flattened and will remain relatively steady over the next few years, depending on production at Kitimat and closures of Söderberg capacity in the next decade (not included in Figure 2), which will lower Canadian installed capacity should modernizations not occur at these facilities. Smelter expansion projects in Quebec are dependent on the construction of new power projects and/or the negotiation of additional long-term power supply contracts at competitive rates. A number of new power projects have been recently announced by Quebec for the longer term; however, the Régie de l'énergie authorized Hydro-Québec to increase rates by 5.3% as of April 1, 2006, and this may affect longer-term plans.

World production of primary aluminum increased to 31.9 Mt in 2005, up 7% from 29.8 Mt in 2004. Production is expected to increase by over 5% in 2006 to about 33.5 Mt. For 2007, growth will be somewhat higher, possibly in the 8-10% range, due to projected re-openings of closed smelters in the United States and Europe. Accelerated growth in China will likely occur due to lower alumina costs allowing off-line and new plants to take full advantage of the current high metal price.

The International Aluminium Institute (IAI) indicates that members' world daily average primary aluminum production for the year to October was 65 800 t/d, up 500 t/d from a comparable period in 2005. It also reports that the rate for world consolidated production was 93 200 t/d, up from 87 300 t/d at the same time in 2005. Additional information can be obtained from the IAI's web site at www.world-aluminium.org.

The IAI reported that inventories of unwrought aluminum have fallen slightly over the last year and were at 1.5 Mt in November 2006, down from 1.8 Mt in December 2005. IAI total inventories have also declined from 3.2 Mt in December 2005 to 2.8 Mt in November 2006. On the other hand, the IAI reports primary aluminum inventories at London Metal Exchange (LME) warehouses have increased from 644 000 t in December 2005 to 692 000 t at the end of September 2006.

Figure 2
Canadian Primary Aluminum Production, 1985-2012



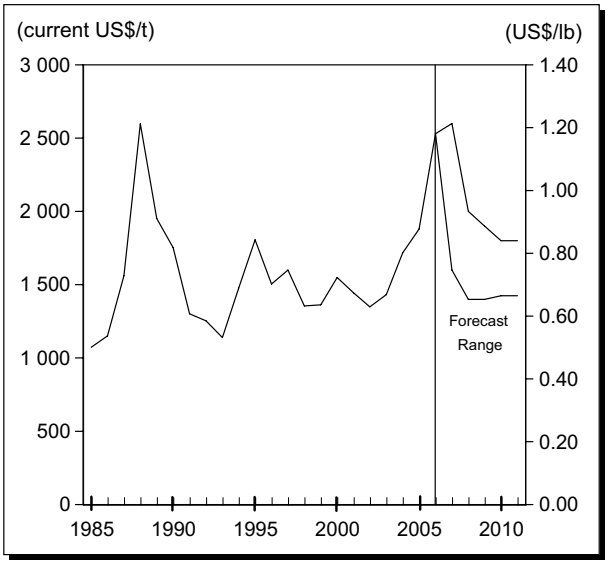
Source: Natural Resources Canada.

PRICE OUTLOOK

U.S. dollar-denominated prices were very strong and volatile in 2006. Cash prices for primary-grade aluminum on the LME started 2006 at approximately US$2270/t (103¢/lb) and sharply peaked at US$3275/t (149¢/lb) in mid-May 2006. Prices subsequently weakened to approximately US$2385/t (108¢/lb) in mid-September; however, prices have since increased to US$2800/t (131¢/lb) at the end of the year for an increase of about 27% for the year. The Canadian currency equivalents for the start of the year were $2625/t (121¢/lb) and in mid-December were $3200/t (145¢/lb), representing an increase of about 22% for the year.

Given the continued strength in alumina prices, and low inventories and current demand for the metal, this strength in prices and volatility is likely to continue in 2007. Depending on the world economy and currency fluctuations, high aluminum prices in the early part of the year would be expected to soften in mid-to-late 2007 with the price at the end of the year in the range of US$2000-$2300/t, for an average for the year of US$2400/t.

Figure 3
Average Aluminum Settlement Price, 1985-2011



Sources: Various journals and Internet sites.

Note: Most information in this article was current as of December 15, 2006.

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TABLE 1. COMPANY WEB SITES FOR FURTHER INFORMATION

Company	Abbreviation	Web Site Address
Alcan Inc.	Alcan	www.alcan.com
Alcoa Inc.	Alcoa	www.alcoa.com
Alcoa World Alumina and Chemicals	AWAC	www.alcoa.com
Alro Slatina	Alro Slatina	www.marcogroup.ch
Aluar Aluminio Argentinio SAIC	Aluar	www.aluar.com.ar
Alum SA Tulcea	Alum SA Tulcea	www.alumtulcea.com
Alumina do Norte do Brasil S.A.	Alunorte	www.cvrd.com.br
Alumina Limited	Alumina Limited	www.aluminalimited.com
Alumina Partners of Jamaica	Alpart	www.kaiseral.com
Aluminerie Alouette Inc.	Alouette	www.alouette.qc.ca
Aluminerie de Bécancour Inc.	A.B.I.	www.alcoa.com
Aluminij d.d. Mostar	Aluminij Mostar	www.aluminij.ba
Aluminium Association of Canada	the Association	www.aac.aluminium.qc.ca
Aluminium Bahrain B.S.C.	Alba	www.albasmelter.com
Aluminium Company of Egypt, The	Egyptalum	www.egyptalum.com.eg
Aluminium Delfzijl	Aluminium Delfzijl	www.aldel.nl
Aluminium Konin - Impexmetal S.A.	Konin	www.aluminium-konin.com.pl
Aluminum Association, Inc. (USA)	Aluminum Association	www.aluminum.org
Aluminum Corporation of China Ltd.	Chalco	www.chinalco.com.cn
Bharat Aluminium Company Limited	Balco	www.balcoindia.com
BHP Billiton	BHP	www.bhpbilliton.com
Brunei Economic Development Board	Brunei Economic Development Board	www.bedb.com.bn
Cambior Inc.	Cambior	www.cambior.com
Century Aluminum Company	Century Aluminum	www.centuryca.com
Coega Smelter	Coega	www.smelter.csir.co.za
Columbia Ventures Corporation	Columbia Ventures	www.nordural.is
Comalco Limited	Comalco	www.comalco.com, www.riotinto.com
Companhia Brasileira de Alumínio	CBA	www.aluminiocba.com.br, www.votorantim.com
Companhia Vale do Rio Doce S.A.	CVRD	www.cvrd.com.br
Corporaciòn Venezolana de Guayana	CVG	www.cvg.com
CVG Alcasa	Alcasa	www.aluminio.com.ve
CVG Bauxilum	Bauxilum	www.bauxilum.com
CVG Industria Venezolana de Aluminio C.A.	Venalum	www.venalum.com.ve
Dubai Aluminium Company Limited	Dubal	www.dubal.ae
East Hope Group	East Hope Group	www.easthope.com.cn
Elkem ASA	Elkem	www.elkem.com
Exploration Orbite V.S.P.A. inc.	Exploration Orbite	www.explorationorbite.com
Federation of Aluminium Consumers in Europe	FACE	www.facealuminium.com
Glencor International AG	Glencore	www.glencore.com
Global Alumina Corporation	Global Alumina	www.globalalumina.com
Grupo Votorantim	Votorantim	www.votorantim.com.br
Hindalco Industries Limited	Hindalco	www.adityabirla.com
Indian Aluminum Limited	Indal	www.indal.com
International Aluminium Institute, The	IAI	www.world-aluminium.org
Iranian Aluminum Company	Iranian Aluminum	www.iralco.net
Kombinat Aluminijuma Podgorica	Kombinat Aluminijuma Podgorica	www.kap.cg.yu
Magyar Aluminium Rt.	Magyar Aluminium	www.mal.hu
Marubeni Corporation	Marubeni	www.marubeni.com
Minmetals Nonferrous Metals Co., Ltd.	Minmetals	www.minmetals.com
National Aluminium Company Limited	Nalco	www.nalcoindia.com
Norsk Hydro ASA/Hydro Aluminium a.s.	Norsk Hydro or Hydro Aluminium	www.hydro.com
Nova Pb	NovaPb	www.novapb.com
Novelis Inc.	Novelis	www.novelis.com
Ormet Corporation	Ormet	www.ormet.com
PT Antam Tbk	Antam	www.antam.com/News/news.htm
Queensland Alumina Limited	QAL	www.qal.com.au
Russian Aluminium	Rusal	www.rusal.com
Saudi Arabian Mining Company	Ma'aden	www.maaden.com.sa
Sherwin Alumina Company	Sherwin Alumina	www.sherwinalumina.com
Siberian-Urals Aluminium Company	SUAL	www.sual.com
Sibirsky Aluminium	Sibirsky (Russian Aluminum)	www.sibirskyaluminum.com
Slovalco A.S.	Slovalco	www.slovalco.sk
Société générale de financement du Québec	SGF	www.sgfqc.com
Sterlite Industries (India) Ltd.	Sterlite	www.balcoindia.com/
SURAL	Sural	www.sural.com
Talum D.D. Kidricevo	Talum	www.talum.si
Titanium Resources Group	Titanium Resources	www.titaniumresources.com
Tomago Aluminium Company Pty Limited	Tomago	www.tomago.com.au
Vietnam National Mineral Corp.	Vimico	. .
Worsley Alumina Pty. Ltd.	Worsley Alumina	www.worsley.geo.net.au

. . URL not available.
Note: Feedback on missing or changed web addresses would be welcomed.

Copper

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Mined production value (2006): $4.6 billion
World rank (mine production): Eighth
Export value (concentrates and unwrought refined): $3.3 billion

Canada	2005 (p)	2006 (e)	2007 (f)
		(000 tonnes)	
Mine production (1)	563	607	605
Refined production	515	500	457
Refined use	225	242	211

(1) Metal in concentrates produced.
(e) Estimated; (f) Forecast; (p) Preliminary.

ANNUAL AVERAGE SETTLEMENT PRICES, LONDON METAL EXCHANGE

2003	2004	2005	2006	2007
		(US$/t)		
1 779	2 865	3 678	6 721	7 110
		(US¢/lb)		
80.7	130	166.8	304.8	322.5

METAL EXCHANGE STOCKS (1)

2005	2006	2007
	(000 tonnes)	
156	252	238

(1) LME, N.Y. COMEX, and Shanghai.

Copper's properties, particularly its high electrical and thermal conductivity, good tensile strength, elevated melting point, non-magnetic properties, and resistance to corrosion, make it and its alloys very attractive for electrical transmission, water tubing, castings, and heat exchangers.

CANADIAN OVERVIEW

Commercial production at **Teck Cominco Limited**'s Duck Pond copper-zinc mine in Newfoundland and Labrador was achieved in March and the first concentrate was shipped in April. Teck Cominco acquired the mine as a result of its acquisition of Aur Resources Limited in September. Duck Pond is expected to produce about 14 500 t/y of copper contained in concentrates and about 34 000 t/y of zinc in concentrate, 575 000 oz/y of silver, and 5000 oz/y of gold over a seven-year period.

Breakwater Resources Limited re-opened the Langlois zinc-copper mine in mid-2007.

Xstrata Plc continues to develop the Perseverance zinc-copper mine located near Matagami, Quebec. Start-up is expected in the third quarter of 2008 and the mine life is five years. The annual production of 228 000 t of zinc concentrate will be shipped and processed at the CEZ refinery in Valleyfield, Quebec. Planned annual copper concentrate output is about 35 000 t and will be processed at the Horne smelter in Rouyn-Noranda, Quebec.

In February **Teck Cominco Limited** announced it would proceed with a further six-year extension of the life of the Highland Valley Copper mine, located near Kamloops, B.C., from 2013 to 2019.

Northgate Minerals Corporation reported a net loss in the third quarter of 2007 as the result of a non-cash write-down of the carrying value of its Kemess North project of $32 million following the release of the Joint Federal-Provincial Review Panel report recommending that the project not be allowed to proceed. The Panel concluded that the project as proposed should not proceed as the risks of significant adverse environmental, social, and cultural effects outweigh its economic and social benefits. The Kemess South mine is expected to cease production at the end of 2010 due to the depletion of reserves.

Sherwood Copper Corporation's Minto copper-gold mine reached commercial production in October. The Minto mine is located about 250 km northwest of Whitehorse, Yukon, on the west side of the Yukon River. Sherwood has raised planned throughput from 1650 t/d to 2400 t/d as of December and plans to increase it to 3500 t/d by 2009. Proven and probable reserves as of March 2007 total 9 454 000 t grading 1.90% Cu, 0.69 g/t Au, and 7.54 g/t Ag. The mine plan calls for average annual production of 41 000 t of copper in concentrate over a nine-year mine life. The concentrates produced will be shipped out of the Port of Skagway, Alaska, to Asian smelters.

Yukon Zinc Corporation is advancing the development of the Wolverine deposit, located in the Finlayson District in southeastern Yukon. First production is scheduled for the second quarter of 2009. Proven and probable ore reserves as of October 2007 total 5.15 Mt grading 9.66% Zn, 1.36 g/t Au, 0.91% Cu, 281.8 g/t Ag, and 1.26% Pb. The company plans to produce separate zinc, lead and copper concentrate products. Annual production for the first three years is 53 400 t of zinc, 4670 t of copper, and 5850 t of lead.

In November, joint-venture partners **NovaGold Resources** and **Teck Cominco** announced they would suspend construction at the Galore Creek copper-gold project in northwestern British Columbia due to a substantial increase in the capital cost from $2.2 billion to approximately $5 billion. A major portion of the increase relates to cost increases and a longer required schedule to construct the tailings dam and water management structures. Reduced operating margins as a result of the stronger Canadian dollar were also a contributing factor to rendering the project uneconomic at a long-term copper price of US$1.50/lb. Under an amended partnership agreement, Teck Cominco will invest an additional $72 million in the project over the next five years to evaluate alternative development strategies.

Shortly after the announcement of suspension of the Galore Creek project, the B.C. Ministry of Energy, Mines and Petroleum Resources suspended its plan to build an electricity transmission line to the northern part of the province.

RedCorp Ventures expects its Tulsequah Chief mine to start production in January 2009. The mine is expected to produce 9000 t/y of copper, 40 200 t/y of zinc, 3.9 t/y of lead, 50 000 oz of gold, and 1.7 million oz of silver. The initial mine life is eight years, and ongoing exploration results look promising.

The first of a two-phase expansion was completed in December at the Gibraltar mine located near Williams Lake, B.C., and owned by **Taseko Mines Limited**. The first phase, completed by December 2007, involved expanding the grinding circuit and replacing the flotation recovery system. Mill capacity has increased to 46 000 t/d and forecast 2008 production is 32 000 t of copper in concentrate. A second phase of the expansion will allow the new mill to expand to 55 000 t/d by increasing capacity in other circuits in the concentrator; Phase 2 is scheduled to be completed by the end of 2008 and will raise annual copper production to 45 000 t. Taseko has also refurbished and restarted the SX/EW plant at Gibraltar. Planned annual production is up to 3200 t of copper cathode.

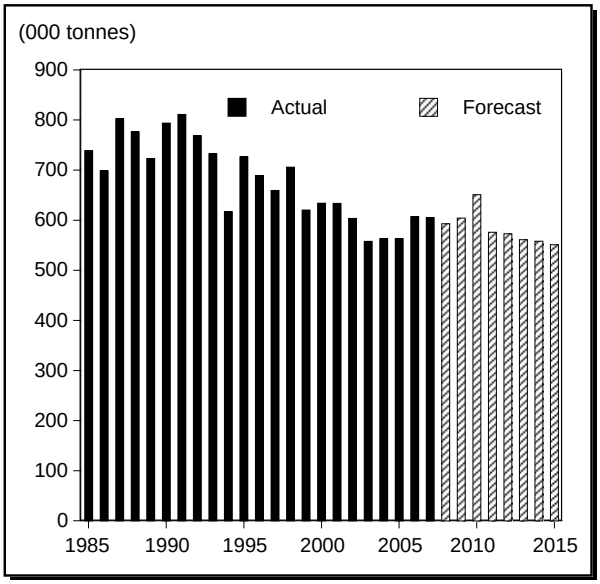
In January, **Imperial Metals Corporation** won a takeover battle with **Taseko Mines Limited** for control of **bcMetals Corporation**, owner of the Red Chris property in northern B.C. Imperial Metals is pursuing development of the Red Chris project despite uncertainty about whether the B.C. government will proceed with a 335-km extension of the Northwest Transmission Line from Terrace to Bob Quinn Lake. The feasibility of the project also depends on the outcome of an appeal by the Minister of Fisheries and Oceans, the Minister of Natural Resources, the Attorney General of Canada, and bcMetals Corporation of a federal court ruling in September. The Court ruled that the federal environmental assessment of Red Chris completed in May 2006 was procedurally incorrect and therefore must be set aside and revisited. The appeal is expected to be heard by the Federal Court of Appeal in the summer of 2008 with a decision in the fall of 2008. If the appeal is unsuccessful, the responsible federal authorities will be required to carry out a comprehensive study-level review. The decision does not affect the provincial environmental assessment certificate issued in August 2005, which concluded that the project is not likely to cause significant adverse effects.

CANADIAN PRODUCTION OUTLOOK

Mined copper output for 2007 is forecast at 605 000 t, down only slightly from 2006 output of 607 000 t. Estimated 2007 production includes output from start-ups at Duck Pond, Minto, and Langlois. Mined output in 2008 is expected to fall to 593 000 t as increased output from new mines will only partially offset an anticipated 22 000-t reduction in copper output from the Highland Valley copper mine related to its campaign to push back the pit wall of the mine to access additional ore. A forecast of mine output to 2015 is plotted in Figure 1 and indicates that output is likely to spike in 2010 at 650 000 t, then decline to 575 000 t in 2011 following the closure of the Kemess mine. Beyond 2010, it is possible that output could be maintained above the 600 000-t/y level should any projects in development be brought into production.

Based on January to November data reported to Natural Resources Canada via monthly surveys, forecast refined copper output for 2007 is 457 000 t, down significantly from 2006 output of 500 000 t. The reduced output was mainly related to a 44-day strike that occurred at the CCR refinery in Montréal in June and July.

Figure 1
Canadian Mine Production of Copper, 1985-2015



Source: Natural Resources Canada.

WORLD COPPER USAGE BY AREA

	Jan.-July 2007	Jan.-July 2006	
	(000 tonnes)		(%)
United States	1 293	1 333	-3.0
Other America	656	671	-2.2
Europe	3 127	3 196	-2.2
Japan	733	747	-1.9
China	2 796	2 033	37.5
Other Asia	1 964	1 844	6.5
Oceania	78	82	-4.9
Africa	143	135	5.9
Total world	10 790	10 041	7.5
World, excluding China	7 994	8 008	-0.2

Source: International Copper Study Group.

MARKET REVIEW AND OUTLOOK

Supply/Demand Outlook

A copper supply/demand balance forecast for 2007 and 2008 released by the International Copper Study Group in May highlights the fundamentals that have been supporting strong copper prices over the last two to three years. Although mine production growth in 2007 is expected to rebound compared to 2006, refined production growth for the 2007-08 period is not expected to keep pace with forecast demand. Demand from China will continue to be the key driver. In 2006, Chinese demand for refined copper accounted for 22% of global demand. A comparison of world copper usage by geographic area shown in the table at top right indicates that, excluding China, demand growth in the first half of 2007 compared with 2006 in the rest of the word declined by 0.2%.

PRICE OUTLOOK

Copper prices have been trading significantly above historical levels since 2005 as a result of annual deficits in the refined supply/demand balance during the 2003-06 period. The refined copper market for 2008 is expected to swing into a small surplus, mainly as the result of contracting demand growth in the developed world in the second half of 2007.

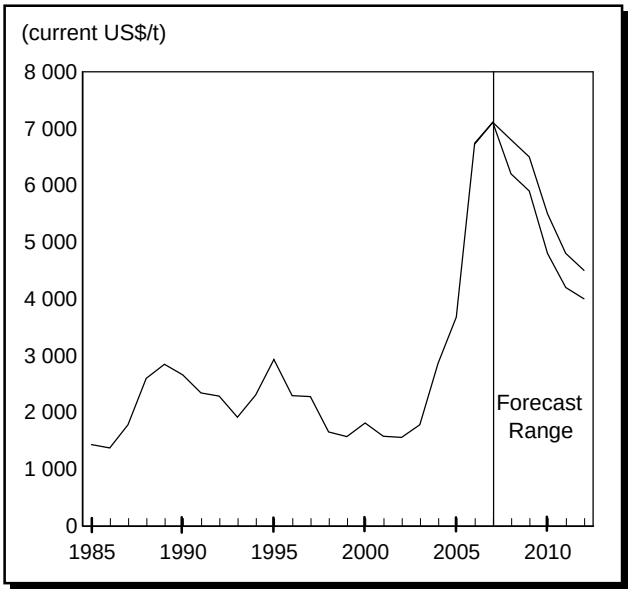
Prices going forward will be influenced by the degree to which strong demand growth from developing countries will continue to compensate for weak demand in developed regions, and by the direction of investment fund interest. A Reuters poll released in January 2008 indicates a wide range of views. The forecasts of the 2008 annual average price from 44 analysts range from a low of US$2.72/lb to a high of US$3.54/lb with an average of US$3.07/lb. Prices over the 2008 and 2009 period are expected to remain firm, but to be down slightly from the peak levels seen over 2006 and the first half of 2007. Price volatility will likely remain as the market gauges the magnitude of the slowdown in the U.S. economy.

	2005	2006	2007	2008	2006/05	2007/06	2008/07
	(000 tonnes)				(% change)		
Mine production	14 508	14 877	15 166	16 204	1.9	6.8	6.4
Refined production	15 836	16 512	17 398	18 059	5.4	3.8	3.8
Copper usage	16 739	16 614	17 160	17 884	3.3	4.2	4.0
Refined copper balance	-903	-102	-122	176	n.a.	n.a.	n.a.

n.a. Not applicable.

The chart below plots a scenario of prices in the $2.80-$3.00/lb range over 2007-08 and a downward trend toward the US$2.00/lb level by the end of 2010 when supply from new projects could be sufficient to allow rebuilding of global inventories.

Figure 2
Copper Prices, 1985-2012
Annual Average LME Grade A Copper Settlement



Source: Natural Resources Canada.

ADDITIONAL INFORMATION

More information about Canadian companies is available on the Internet at www.sedar.com/issuers/issuers_en.htm. Canadian monthly copper statistics are available in Table 3 at http://mmsd1.mms.nrcan.gc.ca/mmsd/data/default_e.asp. For an in-depth review of exploration trends in Canada, see the report entitled *Overview of Trends in Canadian Mineral Exploration* at www.nrcan.gc.ca/mms/pubs/explor_e.htm.

Notes: (1) Forecasts and projections are subject to change by such factors as changing copper prices, exploration successes or failures, ability to arrange financing, technological developments, and environmental permitting.
(2) Information in this article was current as of January 15, 2008.

NOTE TO READERS

Gold

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2006 mine production:	$2.0 billion
World rank:	Eighth (mine production)
Exports:	$5.5 billion

Canada	2006	2007 (e)	2008 (f)
		(tonnes)	
Production	104	102	112

(e) Estimated; (f) Forecast.

ANNUAL AVERAGE PRICES, LONDON BULLION MARKET ASSOCIATION

2004	2005	2006	2007	2008 (f)
(London PM, US$/oz)				
409.17	444.45	603.77	695.39	875

(f) Forecast.

Gold is valued for its rarity, lustrous beauty, ductility, high resistance to corrosion, and conductivity. It has been treasured for its decorative and monetary value for at least 8000 years. Gold has a high density, its weight being equal to 19.3 times an equivalent volume of water. The main industrial uses for gold are in jewellery (83%) and electronics (8%). Gold bullion coins, such as the Maple Leaf coin, are also important products.

Canadian Overview

Labour, equipment and materials markets have been booming and continue to place pressure on costs. In addition, the rapid rise of the Canadian dollar has partly countered the increase in gold prices in Canadian terms. As a result, some projects, such as NovaGold Resources Inc.'s and Teck Cominco Limited's Galore Creek project, have been delayed.

Mergers and acquisitions continued in 2007 as companies positioned themselves to increase their reserve base and overall market share. Many exploration and development projects are under way across the country in both new and old mining camps, and gold production will increase in 2008 and beyond as this work finds new deposits and increases reserves in existing mines. Activity within Canada included:

- On the refining side, **n.v. Umicore s.a.** agreed to acquire **Imperial Smelting & Refining Co. of Canada Ltd.**, located in Toronto. Imperial is a leading supplier of precious metal products and recycling services for the jewellery industry in Canada.

- In early 2007, **Agnico Eagle Mines Limited** entered into a definitive agreement to take over **Cumberland Resources Ltd.** Agnico plans to place Cumberland's Meadowbank deposit in Nunavut into production and expects to start production of 440 000 oz/y from the deposit in 2010.

- **Newmont Mining Corporation** merged with **Miramar Mining Corporation**, which has been working on a number of deposits in the Hope Bay area of Nunavut. At the Doris North project, Miramar had received a water licence and expected that milling operations would start in late 2008 once additional permits were received. Doris North and Doris Central host an indicated resource of about 1.1 Mt containing approximately 726 000 oz of gold at a grade of 19.3 g/t Au.

- Other completed, proposed and ongoing mergers include: **Anaconda Mining Inc.** completed the acquisition of **Colorado Minerals Inc.**, **Imperial Metals Corporation** took over **bcMetals Corporation**, **Hawthorne Gold** and **Cusac Gold Mines** agreed to merge, **Breakwater Resources Ltd.** will merge with **Metco Resources Inc.**, **Morgain Minerals** and **Aurogin Resources** merged to form **Castle Gold Corporation**, **Wesdome Gold Mines Ltd.** completed its takeover of **Western Quebec Mines Inc.**, **Kinross Gold Corporation** completed the acquisition of **Bema Gold Corporation**, and **Century Mining Corporation** has made an unfriendly offer to purchase all of the outstanding common shares of **Sulliden Exploration Inc.**

- **Goldcorp Inc.** acquired Kinross's share of the Porcupine and Musselwhite gold mines in Ontario. Production at its Red Lake mine is expected to increase to 740 000 oz in 2008 as an expansion is completed in the second quarter. The company expects to produce one million ounces annually from the mine within five years.

- **Richmont Mines Inc.** closed the East Amphi mine project in northwestern Quebec in June and sold the property to **Osisko Exploration Ltd.** At its Island Gold project 70 km north of Wawa, Ontario, Richmont and **Patricia Mining Corp.** started commercial production on October 1, 2007, and expected to increase mill throughput to 675 t/d. Island Gold has proven and probable reserves of 1 013 854 t of ore at an average diluted grade of 8.55 g/t Au.

- **Agnico Eagle Mines Limited** is completing construction of its Lapa and Goldex gold mine projects in northwestern Quebec. Lapa is expected to start production in the fourth quarter of 2008 and to produce around 140 000 oz/y in 2009 and 2010. (On a longer-term basis, it is expected to average 2.7 t/y of gold.) Goldex is expected to start production in April 2008 and will produce about 5 t/y of gold.

- **Agnico Eagle Mines Limited** approved construction of the LaRonde Extension project to access deeper ore that is not accessible by the current Penna Shaft at the LaRonde mine. The extension holds more than 19.2 Mt of ore containing approximately 3.6 million oz of gold.

- **Aurizon Mines Ltd.** announced that the Casa Berardi mine in northwestern Quebec was in commercial production in April 2007, and that production from the mine was to increase to 2200 t/d in early 2008. The company reports 122 462 oz of gold were produced at the mine in the first three quarters of 2007.

- In the Val-d'Or area of Quebec, **Century Mining Corporation** reactivated the Lamaque underground mine in April 2007 at a mining rate of 350 t/d. Subsequently, it has closed the adjacent Sigma open pit and plans to replace the mill feed by ramping up underground operations to 1800 t/d by 2009. Measured and indicated underground resources at the end of 2006 were 3.9 Mt grading 4.99 g/t Au.

- **Cross Lake Minerals Ltd.** reached full operation in November at its QR mine located approximately 60 km southeast of Quesnel, British Columbia. The company expects to produce approximately 30 000 oz in 2008.

- **Northgate Minerals Corporation** continued exploration work on the Young-Davidson property near Matachewan, Ontario, to expand reserves and extend the mine. In British Columbia, the company expected the Kemess mine to produce 285 000 oz of gold in 2007.

- **Anaconda Mining Inc.** expected to start production in January 2008 at its Pine Cove gold mine project in Baie Verte, Newfoundland and Labrador, at a rate of 500 t/d. Probable reserves of 2.3 Mt have a grade of 2.76 g/t Au.

- **Terrane Metals Corp.** completed a preliminary economic assessment of its Mt. Milligan copper deposit in British Columbia. The proposed project would have an average annual production of 273 300 oz of gold and 97 million lb of copper for the first six years of a 15-year mine life. A full feasibility study was expected to be completed in early 2008.

- **Lake Shore Gold Corp.** acquired the Bell Creek mine and mill in Timmins, Ontario, from Goldcorp and Kinross. The company plans to use the mill to process ore from the Timmins West property, on which a prefeasibility study was completed with positive results. A mineral reserve estimate outlined 3.3 Mt of probable reserves containing about 826 000 oz, along with additional indicated and inferred resources.

- **IAMGOLD Corporation** completed an internal scoping study on the Westwood project 40 km east of Rouyn-Noranda that confirmed the potential for Westwood to produce 200 000 oz/y for approximately 15 years with production expected to begin in 2012. The inferred resources contain over 14 Mt of ore at an average grade of 7.3 g/t Au.

- **Metanor Resources Inc.** received a certificate of authorization to restart the mill at the Bachelor mine near Desmaraisville, Quebec, and to mill a 50 000-t bulk sample from the Barry site. The company received a positive preliminary economic assessment on the properties and is working to further evaluate the deposits.

WORLD OVERVIEW

Barrick Gold Corporation acquired Arizona Star Resource Corp. Arizona Star owned a 51% interest in the Cerro Casale deposit in the Maricunga district of Region III in Chile; Kinross owns the remaining 49%. Cerro Casale is one of the world's largest undeveloped gold and copper deposits estimated to contain over 25 million oz of gold and 2.8 Mt of copper.

Barrick completed its acquisition of the Kainantu gold mine and exploration licences in Papua New Guinea from Highlands Pacific Limited. Highlands estimated the resources for the Irumafimpa and Kora properties contained 2 million oz of gold at an average grade of 20.2 g/t Au.

Barrick and NovaGold have formed a new limited liability company, Donlin Creek LLC, jointly owned by Barrick and NovaGold to oversee development of the Donlin Creek project in Alaska. Work in 2008 will be directed at completion of a final feasibility study. Measured and indicated gold resources are more than 19 million oz of gold.

Barrick purchased Emperor Mines Limited's 20% interest in the Porgera mine in Papua New Guinea. Barrick's interest in Porgera will increase from 75% to 95% of this

deposit, which has been estimated to contain over 6 million oz of gold in proven reserves and over another 3 million oz in probable reserves.

Toronto-based **Yamana Gold Inc.** merged with **Northern Orion Resources Inc.**, which had an interest in the Alumbrera mine in Argentina, and took over **Meridian Gold Inc.** with interests in Chile, Mexico, and the United States. In addition to these acquisitions, Yamana expected to boost its gold output from the Gualcamayo project in Argentina and at the Sao Vicentea project in Brazil, both of which are under construction and are expected to begin production in 2008. The feasibility studies for Gualcamayo satellite deposits and the C1 Santa Luz deposit in Brazil were expected to be released in January 2008.

Kinross Gold Corp. expected both the Kupol mine (413 000 oz/y) in Russia and the Paracatu mine (557 000 oz/y) in Brazil would start production in mid-2008. The Buckhorn project (160 000 oz/y) in the United States was expected to begin production somewhat later in the second half of 2008.

Agnico-Eagle expects to complete construction and start up the Kittila gold mine in northern Finland in September 2008. The project is expected to produce over 5 t/y of gold.

Agnico-Eagle also made a positive development decision for the Pinos Altos gold project in northern Mexico. Current gold reserves at Pinos Altos total 2.2 million oz grading 3.5 g/t Au with approximately 65.7 million oz of silver. Production is expected to begin in 2009.

In Mexico, **Goldcorp Inc.**'s Los Filos mine reached commercial production on January 1, 2008, and gold production was expected to ramp up throughout the year with expected production for the year of 280 000 oz. At the Peñasquito project, the proposed size of the operation has been increased to 130 000 t/d of ore and the schedule for production has been accelerated. Production of 70 000 oz was expected in 2008 with ongoing production of about 400 000 oz/y of gold plus silver, zinc and lead.

Eldorado Gold Corporation hopes to re-open the Kisladag mine in Turkey, which was temporarily closed by the government in August. At the Tanjianshan mine in China, commercial production was achieved in February. Tanjianshan produced 138 000 oz in 2007 and was expected to produce about 110 000 oz in 2008.

Northgate Minerals Corporation announced a merger with Perseverance Corporation Limited, the owner of the Fosterville and Stawell gold mines in Victoria, Australia, with a combined annual production of approximately 200 000 oz.

Ivanhoe Mines and its partner **Rio Tinto** reached a draft agreement with the Mongolian government on the Oyu Tolgoi (Turquoise Hill) gold and copper project in southern Mongolia. Final approval of the agreement by the National Parliament has not yet been received. The deposit is expected to contain over 31 million oz of gold and more than 32 Mt of copper.

Petaquilla Minerals Ltd. expected that the Molejon gold project in Panama would start production in the first quarter of 2008 at 2200 t/d. The company expects initial production at Molejon to be 120 000 oz/y.

Aurelian Resources Inc. continued working on its Fruta del Norte project in Ecuador where it has outlined an initial inferred resource of 58.9 Mt grading 7.23 g/t Au and 11.8 g/t Ag for 13.7 million oz of contained gold and 22.4 million oz of contained silver.

Sino Gold Limited completed construction of the Jinfeng gold mine in Guizhou Province in southern China. Production of 180 000 oz/y is expected from the mine at full operation. The company is also proceeding with the White Mountain gold project in Jilin Province in northern China with expected completion in late 2008. Production of 70 000 oz/y was planned.

On South Island in New Zealand, **OceanaGold Corporation** expected to open the Frasers underground operation in early 2008 to expand its production to above 280 000 oz/y. A further mine (Didipio) in the Philippines was expected to open in the first half of 2009 to increase the company's annual production to above 320 000 oz.

IAMGOLD expected to complete a pre-feasibility study in the first quarter of 2008 at the company's Quimsacocha gold project in the southern part of Equador.

MARKET OUTLOOK

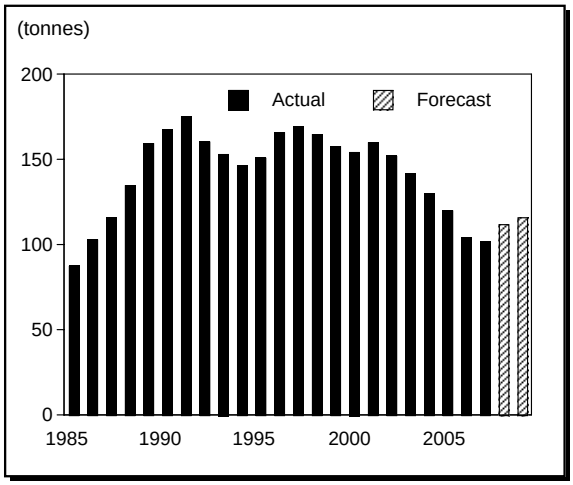
Strong jewellery demand in the first part of 2007 and a wave of investment demand in the latter half of the year have helped push gold prices to a level in U.S. dollar terms not seen since 1987. In early 2008, prices had reached the peak achieved in 1980. Demand for fabricated gold jewellery increased by about 15% in the first three quarters of 2007, although the third quarter of the year saw the demand for jewellery decline from the previous quarter due to the higher price. Demand for gold from exchange traded funds increased during 2007 and the World Gold Council estimated fund holdings had reached 869 t by the end of December.

At these price levels, additional exploration and gold production should be expected as companies make plans for placing new deposits into production and expanding reserves in existing operations.

CANADIAN PRODUCTION OUTLOOK

About 90% of Canada's gold production comes from hard-rock underground and open-pit gold mines. The remainder is from base-metal mines and from placer mining operations (Figure 1).

Figure 1
Mine Production of Gold in Canada, 1985-2009



Source: Natural Resources Canada.

In 2007, Canadian gold production continued to decline, totaling an estimated 102 t, a decrease of 2% compared to 103.9 t in 2006. The reduction in production resulted primarily from mine closures in Ontario (Golden Giant) and Quebec (East Amphi), combined with lower output as a result of lower-grade ore at Barrick's Eskay Creek mine in B.C. Several operations and mine re-openings partially offset these reductions, including the Casa Berardi mine in Quebec, San Gold's Manitoba projects, and by-product production from Teck Cominco's Duck Pond mine in Newfoundland and Labrador.

In 2008, increased production from Aurizon Mines Ltd.'s Casa Berardi mine, Cross Lake's QR mine, Goldcorp's Redlake mine, Agnico Eagle's Goldex deposit, and by-product production from Sherwood Copper Corporation's Minto mine in the Yukon are expected to more than counter the winding down of the Eskay Creek mine in B.C. Canada's gold production is expected to increase by approximately 10 t in 2008.

PRICE OUTLOOK

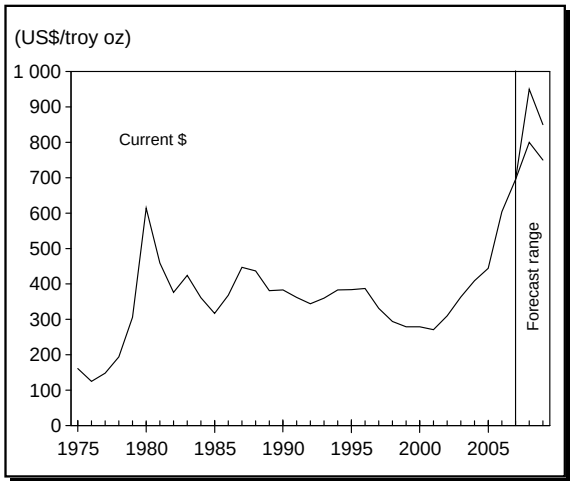
Gold prices increased substantially in U.S. dollar terms throughout 2007. After trading in the $650-$700/oz range to August, prices increased to end the year near historical highs. On average, the price of gold was up 15% over the 2006 average, reaching an annual average of US$695/oz.

While the price rise in U.S. dollar terms is welcome news for producers, the net effect of the stronger Canadian dollar against the U.S. dollar, coupled with higher energy and operating costs at some Canadian mines, muted the good news somewhat. The annual average gold price in Canadian dollar terms was $747/oz in 2007, up 9% from $684/oz in 2006. The rise in prices saw a number of projects, many around previously closed operations, coming back into focus in 2007.

Low interest rates, the ongoing current account deficit in the United States, and turmoil in financial markets continued to put downward pressure on the U.S. dollar in 2007. This in turn put upward pressure on gold prices. The agreement by central banks to limit sales, de-hedging by producers, the risk of inflation, higher energy prices, and lower mine output all combined with strong physical demand to support higher gold prices in 2007. The liberalization of gold markets in China and India is expected to increase investor demand in both of these important markets and to provide price support. Merger and acquisition activity will also continue in 2008 as large producers continue efforts to increase their market share.

Strong support for prices in the US$800/oz range at the end of 2007, and a rapid increase to US$900/oz in the early part of January, suggests that the price of gold will remain strong in 2008. Prices are expected to trade in the US$800-$1000/oz range during 2008 (Figure 2). Should the financial problems seen in the last half of 2007 accelerate, prices could move up spectacularly, although any such rise may not be long lasting.

Figure 2
London Bullion Market Association Annual Average Gold Prices, 1975-2009



Source: Natural Resources Canada.

Note: Information in this article was current as of December 31, 2007.

NOTE TO READERS

The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

TABLE 1. WEB SITES FOR FURTHER INFORMATION

	Web Site Address
COMPANY	
Afcan Mining Corporation	www.afcan-mining.com
Agnico-Eagle Mines Limited	www.agnico-eagle.com
Alexis Minerals Corporation	www.alexisminerals.com
Anaconda Mining Inc.	www.anacondamining.com
Aur Resources Inc.	www.aurresources.com
Aurizon Mines Ltd.	www.aurizon.com
Barrick Gold Corporation	www.barrick.com
Bema Gold Corporation	www.bema.com
Bralone Gold Mines Ltd.	www.bralorne.com
Breakwater Resources Ltd.	www.breakwater.ca
Callinan Mines Limited	www.callinan.com
Campbell Resources Inc.	www.ressourcescampbell.com
Centerra Gold Inc.	www.centerragold.com
Century Mining Corporation	www.centurymining.com
Claude Resources Inc.	www.clauderesources.com
Comaplex Minerals Corp.	www.comaplex.com
Cross Lake Minerals Ltd.	www.crosslakeminerals.com
Crystallex International Corporation	www.crystallex.com
Cusac Gold Mines Ltd.	www.cusac.com
Eldorado Gold Corp.	www.eldoradogold.com
Etruscan Resources Inc.	www.etruscan.com
Goldcorp Inc.	www.goldcorp.com
Handy and Harman of Canada, Limited	www.handyharmancanada.com
High River Gold Mines Ltd.	www.hrg.ca
Highland Gold Mining Ltd.	www.highlandgold.com
HudBay Minerals Inc.	www.hudbayminerals.com
IAMGOLD Corporation	www.iamgold.com
Imperial Metals Corporation	www.imperialmetals.com
Inmet Mining Corporation	www.inmetmining.com
International Tower Hill Mines Ltd.	www.ithmines.com
Ivanhoe Mines	www.ivanhoe-mines.com
Johnson Matthey Plc	www.matthey.com
Kinross Gold Corporation	www.kinross.com
Kirland Lake Gold Inc.	www.klgold.com
Lihir Gold Limited	www.lihir.com.pg
Miramar Mining Corporation	www.miramarmining.com
New York Mercantile Exchange (NYMEX)	www.nymex.com
Newcrest Mining Limited	www.newcrest.com.au
Newmont Mining Corporation	www.newmont.com
North American Palladium Ltd.	www.napalladium.com
Northern Dynasty Minerals Ltd.	www.northerndynastyminerals.com
Northern Mining Explorations Ltd.	www.xnord.com
Northgate Minerals Corporation	www.northgateminerals.ca
Orvana Minerals Corp.	www.orvana.com
Osisko Exploration Ltd	www.osisko.com
Peter Hambro Mining Plc	www.peterhambro.com
Richmont Mines Inc.	www.richmont-mines.com
River Gold Mines Ltd.	www.rivergoldmine.com
Rocmec Mining Inc.	www.rocmecmines.com
Royal Canadian Mint	www.mint.ca
San Gold Corporation	www.sangoldcorp.com
Semafo Inc.	www.semafo.com
Teck Cominco Limited	www.teckcominco.com
The London Gold Market Fixing Ltd.	www.goldfixing.com
Vale Inco (CVRD Inco Limited)	www.inco.com
Wesdome Gold Mines Ltd.	www.wesdome.com
Xstrata plc	www.xstrata.com
Yamana Gold Inc.	www.yamana.com
GOLD MARKETS	
Dubai Gold and Commodities Exchange	www.dgcx.ae
London Bullion Market Association	www.lbma.org.uk
Multi Commodity Exchange of India	www.mcxindia.com
Shanghai Futures Exchange	www.shfe.com.cn
Shanghai Gold Exchange	www.sge.sh
Tokyo Commodities Exchange (TOCOM)	www.tocom.or.jp

Lead

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2006 mine production:	$116.6 million
World rank (metal production):	Seventh
2006 exports:	$379.1 million

Canada	2005	2006	2007 (e)
		(000 tonnes)	
Mine production	79	82	86
Refined production	229	250	248
Use (refined)	42	41	39

(e) Estimated.

ANNUAL AVERAGE SETTLEMENT PRICES, LONDON METAL EXCHANGE

2005	2006	2007 (a)	2008 (f)
	(US$/t)		
975.65	1 285.28	2 577.80	2 500

(f) Forecast.
(a) Monthly average to November 2007.

Lead-acid batteries for automotive, industrial, and consumer purposes account for about 75-80% of the world's demand for lead. The corrosion-resistant nature of lead also makes it suitable for applications in sheeting for roofing purposes, while its radiation attenuation properties prevent the emission of harmful radiation from television, video, and computer monitors. Certain dispersive or readily bio-available uses, such as lead in gasoline, in piping for drinking water systems, and in household paints, have been or are being phased out in Canada and in certain other countries due to health concerns.

CANADIAN OVERVIEW

Acadian Mining Corporation commenced commercial production at its Scotia open-pit lead-zinc mine near Gays River, Nova Scotia, in the second quarter of 2007. The mine was purchased by ScoZinc Limited, a subsidiary of Acadian, from **HudBay Minerals**. The Scotia mine was expected to produce 9070 t of zinc in concentrate and up to 3200 t of lead in concentrate in 2007 at an average milling rate of 2000 t/d. Production in 2008 is expected to be up to 9500 t of lead in concentrate. Current proven and probable reserves stand at 4.59 Mt grading 3.6% Zn and 1.7% Pb. The lead concentrate is destined for an overseas smelter. In addition, the company is exploring the adjacent Getty deposit, which contains an inferred resource of 2.86 Mt grading 1.6% Pb and 2.09% Zn.

Blue Note Mining Inc. commenced commercial production at its Caribou underground and Restigouche open-pit lead-zinc mines located near Bathurst, New Brunswick. The mines, formerly owned by **Breakwater Resources**, had been on care and maintenance since 1998. There is a 3000-t/y concentrator and tailings facility at the Caribou site. The first shipment of 5600 t of zinc concentrate was shipped in October for delivery to Nyrstar in Belgium. The shipment of lead concentrates to Xstrata's Belledune, New Brunswick, smelter commenced in August 2007. The company is using the Isa Mill technology, which employs ultra-fine grinding, to achieve higher metal recoveries. Total reserves at the two mines are 4.92 Mt at 6.6% Zn and 3.45% Pb.

Recycled lead producer Nova Pb Inc. has been purchased by Newalta Income Fund. Nova Pb is a leading supplier of custom lead alloys for the automotive and industrial battery sector. The recycling plant, located in Ste-Catherine, Quebec, south of Montréal, has the capacity to process up to 200 000 t/y of used batteries and can produce up to 100 000 t/y of lead.

Tamarlane Ventures Inc. is undertaking extensive exploration at the former producing Pine Point mine in the Northwest Territories. The company is focusing on the R190 deposit, which contains reserves of 1.0 Mt grading 11.16% Zn and 5.49% Pb, and indicated resources in several other deposits totaling 10.9 Mt at a grade of 4.69% Zn and 2.43% Pb. The Pine Point mine, owned by Cominco Limited, ceased production in 1987 after producing 62 Mt of ore containing 3.8 Mt of zinc and 1.2 Mt of lead.

WORLD OVERVIEW

Apex Silver Mines Limited has commenced production at the large San Cristóbal silver-zinc-lead mine in Bolivia. The mine is located in the Potosi district of southwestern Bolivia. The deposit has proven and probable reserves to the end of 2006 of 250 Mt at 1.54% Zn, 0.53% Pb, and 55.3 g/t Ag. This equates to 3.87 Mt of contained zinc metal and 1.32 Mt of contained lead metal. Annual metal production from the mine is estimated at 185 000 t of zinc in concentrate and 85 000 t of lead in concentrate.

Ivernia Inc. suspended operations at its Magellan mine in Western Australia in April 2007 after lead contamination was discovered at the port of Esperance. A plan has been proposed to restart shipments of lead concentrates in bulk bags within sealed containers from the port of Fremantle. The company hopes to restart shipments of lead concentrates in early 2008.

Production at the Red Dog mine in Alaska, owned by **Teck Cominco Limited**, to the end of the third quarter of 2007 was 100 000 t of lead in concentrate, compared to 91 000 t for the same period in 2006.

Xstrata plc has announced a major expansion at its Mount Isa, Australia, mining complex. The first stage of the expansion will see concentrator capacity increase to 220 000 t of lead in concentrate, followed by a further 50 000-t increase in 2008. This increase in capacity will allow for increased production from the George Fisher and Black Star mines. The company is also proceeding with the conversion of the McArthur River mine in the Northern Territory, Australia, from an underground mine to an open-pit operation. Along with this conversion, the company is increasing capacity at the concentrator by 38%.

LEADING WORLD LEAD PRODUCERS

Producers Lead in Concentrate	2006	Producers Lead in Metal	2006
	(000 t)		(000 t)
China	1 251	China	2 680
Australia	621	United States	1 303
United States	429	Germany	379
Peru	313	United Kingdom	298
Mexico	133	Japan	280
Canada	83	Mexico	253
Kazakhstan	66	Canada	250

DEMAND OUTLOOK

According to the International Lead and Zinc Study Group (ILZSG), demand for refined lead metal worldwide is expected to be 8.32 Mt in 2007 and will rise 4.1% in 2008 to 8.67 Mt. Strong industrial growth in China, estimated at 10.2% in 2008, is in part due to a rapid rise in the production of electric bicycles. Demand in the United States should increase 2% in 2008 while demand in Europe is forecast to increase 1.6%.

Global lead mine output should reach 3.64 Mt of lead in concentrate in 2007 and is forecast to increase a further 10.4% in 2008 to 4.02 Mt. The output of refined lead metal is expected to be 8.23 Mt in 2007 and is predicted to increase by 5.4% to 8.67 Mt in 2008. Thus, the market for refined lead in 2008 is expected to be in balance.

In 2006, China supplied 32% of the world's refined lead metal. In the future, China will depend increasingly on imports of lead concentrates to supply a growing lead smelting capacity. Domestic demand, especially for consumer products, including electric bicycles, will continue to increase at a rate of 10-15% over the next few years as China's domestic economy continues to grow. This growth may be dampened slightly by weaker demand or slight declines for the metal in Europe and North America.

CANADIAN PRODUCTION OUTLOOK

Canadian zinc-lead mines produced 83 100 t of lead in concentrate in 2006. The 2007 production should be 86 400 t and the forecast for 2008 is 111 800 t, an increase of 29% over 2007. This increase is due to added production from the Caribou and Restigouche mines in New Brunswick and the Scotia mine in Nova Scotia.

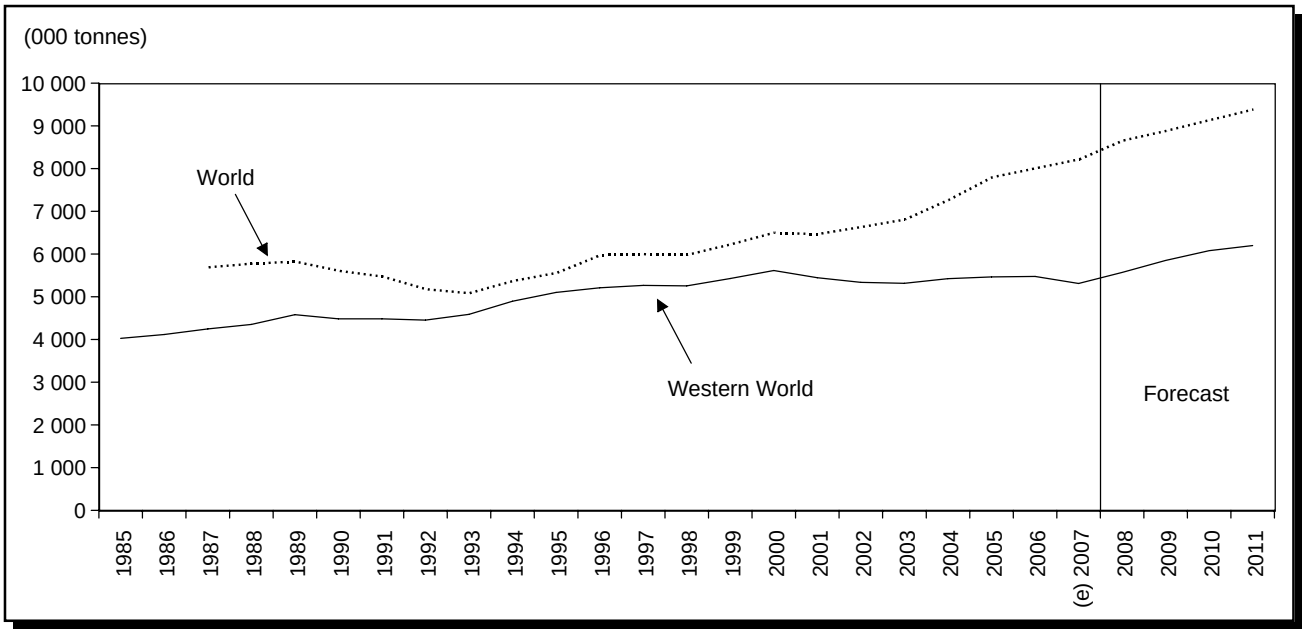
Canadian smelters should produce 248 300 t of refined lead in 2007, a slight decrease compared to 2006, and are forecast to produce 269 000 t in 2008, an increase of 8.3%. The 2008 production can be broken down between 155 000 t of primary lead and 114 000 t of lead from recycling operations.

PRICE OUTLOOK

The annual average London Metal Exchange (LME) settlement price for 2006 was US$1285/t. In January 2007, the monthly average lead price was US$1666/t. During 2007, prices climbed steadily, reaching a high in October of US$3720/t. In fact, the metal traded above US$3900/t for several days in October. The price at mid-December 2007 was US$2655/t, a 32% decrease from the all-time high. Prices have largely been driven by strong industrial demand in China and India, a trend that is likely to continue for the next few years. The temporary shut-down of the Magellan lead mine in Australia probably contributed to a stronger run-up in prices during 2007. The anticipation that Magellan will come back on-line in 2008 already has had a dampening effect on prices during the last quarter of 2007.

According to ILZSG, total lead stocks stood at 283 000 t at the end of 2006. As of October 2007, lead stocks had declined to 263 500 t. LME-controlled lead stocks ended 2006 at 41 000 t, and stood at 40 000 t as of October 2007.

Figure 1
World Lead Use, 1985-2011



Sources: Natural Resources Canada; International Lead and Zinc Study Group.
(e) Estimated.

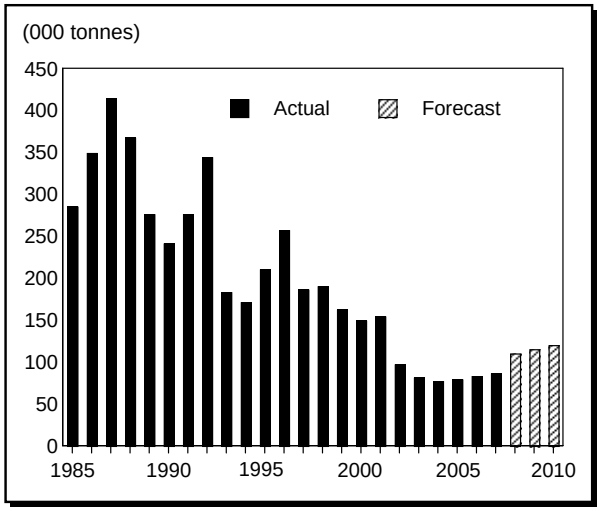
Lead metal prices should be in the range of US$2400-$2600/t for 2008. As of mid-December 2007, lead prices for delivery in three months was US$2435/t.

Note: Information in this article was current as of December 31, 2007.

NOTE TO READERS

The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

Figure 2
Canadian Mine Production of Lead, 1985-2010



Source: Natural Resources Canada.

Nickel

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(Abbreviations used in this article include: e = Estimated; f = Forecast; p=Preliminary; Ni = nickel; Cu = copper; Co=cobalt; FeNi = ferronickel; LME = London Metal Exchange; data in brackets refer to the same period of the previous year.)

2006 production: $9.3 billion
World rank: Second (mine)
2006 exports: $10 billion

Canada	2006	2007 (e)	2008 (f)
		(000 tonnes)	
Mine production	233	250	265
Refined production (1)	154	155	170
Use/consumption (2)	9	10	9

(e) Estimated; (f) Forecast.
(1) Refined includes nickel in salts, oxides, etc. (2) Use does not include nickel in scrap (series changed).

ANNUAL AVERAGE CASH SETTLEMENT PRICES, LONDON METAL EXCHANGE

	2003	2004	2005	2006	2007	2008 (f)
US$/t	9 640	13 852	14 733	24 287	37 181	27 000
US$/lb	4.37	6.28	6.68	10.99	16.87	12.25

(f) Forecast.

Nickel's resistance to corrosion, high strength over a wide temperature range, pleasing appearance, and suitability as an alloying agent make it useful in a wide variety of applications. Markets for primary nickel include stainless steel (over 60%), nickel-based alloys, electroplating, alloy steels, foundry products, batteries, and copper-based alloys. Nickel is intensively recycled; between 45% and 48% of nickel used to make stainless steels is in the form of stainless steel scrap.

CANADIAN OVERVIEW

Canadian production of nickel in 2007 is estimated at a record $10 billion, not including semi-manufactured items or electric accumulators. Imports of nickel materials are estimated at $0.7 billion (includes feed materials to Canadian metallurgical processing facilities, but does not include imports of nickel intermediates from the leaching operation at Moa Bay). The Canadian dollar averaged US$0.93 in 2007.

CVRD completed the US$17.7 billion purchase of Inco Limited in January 2007 and created CVRD Inco Limited, a subsidiary based in Toronto responsible for all of CVRD's nickel business. In November, CVRD Inco was renamed Vale Inco Limited. Glencore International assumed responsibility for marketing Xstrata's nickel and cobalt output from all Xstrata operations in all countries. Other purchases completed in 2007 affecting Canadian-listed nickel companies included: Sherritt International bought Dynatec and its 45% interest in the Ambatovy project in Madagascar; Norilsk Nickel bought LionOre Mining, with mining and technology assets located in Africa and Australia; Lundin Mining bought Rio Narcea Gold (nickel mine in Spain); and Belvedere purchased the Hitura mine in Finland from Outokumpu.

Vale Inco submitted an environmental impact statement to the Province of Newfoundland and Labrador for the Long Harbour nickel processing plant. The company planned to inform the Province by mid-2008 of its decision on whether to build a hydrometallurgical plant to process nickel-cobalt concentrates from the Voisey's Bay operation or a matte processing plant to refine matte. Voisey's Bay produced 38 400 t (22 100 t) of finished nickel in the first nine months of 2007, some of which was exported to Europe for smelting and refining, and 808 t (378 t) of cobalt.

Vale Inco reported production of finished nickel as 123 300 t (118 400 t) in the first nine months of 2007 from Canadian sources derived 51% from Ontario, 17% from Manitoba, and 31% from Voisey's Bay. Production in Ontario was lower than estimated due in part to plant problems in the United Kingdom, where some Ontario smelter output is processed. Vale Inco will develop the $400 million Totten mine in Sudbury that will start up in 2011 and produce an estimated 173 000 t of nickel plus by-product copper and platinum group metals over 20 years. The Copper Cliff Deep project was under study; if implemented, it

could be in operation by 2013 to service the Murray mine, the Copper Cliff North mine, the Copper Cliff south mine, and possible development of the Kelly Lake deposit.

Xstrata's production from Canadian operations in the first six months of 2007 was 30 500 t of nickel in concentrates (28 400 t) and Xstrata's Sudbury smelter produced 33 500 t (29 300 t) of nickel and 1125 t (1100 t) of cobalt in matte that was sent to the company's refinery in Norway for final processing. The Raglan expansion of operations from 1.1 to 1.3 Mt/y of ore will be completed in late 2008; a further expansion to 2 Mt/y of ore to produce nearly 50 000 t/y of nickel in concentrates could start in 2011 depending upon exploration results and expansion studies. For the 2007 calendar year, the custom feeds at Xstrata's Strathcona concentrator included 1500 t (1100 t) of payable nickel in 125 000 t of ore (136 000 t) from **First Nickel**'s Lockerby mine and 50 000 t of ore from URSA Major's future Shakespeare mine, containing 124 t of nickel in concentrates.

From January to September 2007, the **North American Palladium** concentrator handled 3.8 Mt (3.4 Mt) ore to produce about 1025 t (804 t) of nickel in concentrate. The company renegotiated the smelting and refining contract with Xstrata for its palladium concentrate, which contains by-product nickel, platinum, copper, gold, and cobalt; the contract expires in March 2010 but can be extended.

Liberty Mines commissioned a concentrator at its Redstone mine in July; ore was being processed at 420 t/d in November. Nickel-cobalt concentrate from Liberty was sold to **Jilin Jien** in China. The contract was renegotiated in November. With shipments to Jilin Jien capped at 20 t/d of concentrate until November 2010, Liberty sent the excess to Xstrata's Sudbury smelter, which paid for by-product copper, cobalt, and platinum group metals. Liberty got permission from the Ontario government to proceed with the McWatters mine; McWatters was scheduled to produce about 1250 t/d in the third quarter of 2008 and will send its ore to the Redstone mill.

FNX combined its Levack mine and McCreedy mine into one operation called the Levack Complex. In the first nine months of 2007, FNX sold 0.62 Mt (0.42 Mt) of ore containing 4050 t (2785 t) of payable nickel and 52 t (29 t) of payable cobalt, plus copper and precious metals. In the third quarter of 2007, FNX decided to proceed with commercial development of the 2000 deposit at the **Podolsky** site. Probable reserves were 0.35 Mt at 7.78% Cu, 0.67% Ni, and 5.1g/t total precious metals. Shipments of preproduction ore started in the third quarter of 2007 and commercial production will begin by mid-2008.

In June, **Sherritt International** completed a $1.6 billion agreement to purchase **Dynatec Corporation** for cash and shares, obtaining Dynatec's 45% share in the Ambatovy nickel project in Madagascar (see Africa section below). The Fort Saskatchewan refinery produced 24 200 t (22 700 t) of refined nickel and 2400 t (2600 t) of refined cobalt in the first nine months of 2007. The refinery was being expanded to process the increased output from the Moa Bay operation in Cuba. The Phase 1 expansion of 4000 t/y (nickel plus cobalt) was to begin in 2008 and Phase 2 (9000 t/y of nickel plus cobalt) was to begin in 2009. A Phase 3 expansion of between 6000 and 9000 t/y of nickel plus cobalt was being studied.

WORLD OVERVIEW

Oceania

Australian refined production in the first nine months of 2007 was 85 700 t (84 900 t) of nickel from the three nickel refineries: Murrin Murrin, Yabulu, and Kwinana. Cobalt production for the same period from Murrin Murrin and Yabulu totaled 3300 t (2300 t). **Minara**'s Murrin Murrin refinery accounted for 25% of Australian refined nickel production with the remainder from **BHP Billiton**'s Yabulu and Kwinana plants. In September, BHP Billiton reported that the Ravensthorpe mine/leach plant was built. It will produce about 50 000 t/y of nickel in mixed nickel-cobalt hydroxides to be sent to Yabulu. A 45 000-t/y nickel refinery expansion at Yabulu was completed and will ramp up in 2008 when Ravensthorpe feed arrives. In the first nine months of 2007, BHP Billiton's Nickel West operations produced 26 000 t (26 000 t) of nickel in matte that was sent to the **Jinchuan Group** in China for refining.

Allegiance started mining in advance of completion of its concentrator (scheduled for the first quarter of 2008) in Tasmania; Allegiance has a contract to sell 8500 t/y of nickel in concentrates to Jinchuan. **Jubilee Mines** produced 5000 t (8400 t) of nickel in concentrate in the first nine months of 2007. Jubilee will spend A$90 million to build the Sinclair mine; the pit and underground mine will yield about 6000 t/y of nickel in concentrate from the start-up in the third quarter of 2008. Reserves were 1.22 Mt at 2.77% Ni. Jubilee signed a new, year-long sales agreement for concentrate; starting in October 2007, concentrate went to BHP Billiton's Kalgoorlie smelter. Previously, Jubilee had sold its concentrate to CVRD Inco. Xstrata made an offer to purchase Jubilee shares for A$23/share, for a total of A$3100 million, contingent upon purchasing not less than 90% of the shares; the offer remained open at year-end.

LionOre was purchased by **Norilsk Nickel** in mid-year; Norilsk reported sales of nickel to third parties as 11 600 t for the first nine months of 2007; it reported production at Black Swan (nickel in concentrates) plus Cawse (nickel in intermediates) as totaling 20 300 t for the first nine months of 2007, including an unstated amount of purchased material. **Braemore** may purchase the nickel sulphide tailings at Leinster, Kambalda and Mt. Keith from BHP Billiton for 5% of the LME price, based upon recovered nickel. Braemore put total resources at 362 Mt at 0.3% Ni. **Gladstone Pacific**'s planned Phase 1 refinery (63 000 t/y of nickel and 6200 t/y of cobalt) will cost US$3.4 billion; it would be supplied by ore from the Marlborough deposit plus imported laterite ore from New Caledonia.

New Caledonia reported production of 51 900 t (57 800 t) of nickel in all forms for the first 11 months of 2007, of which 39 600 t (45 300 t) was nickel in ferronickel (Ni in FeNi) and 12 400 t (12 500 t) was nickel in matte, all produced at **Eramet**'s 56%-owned **SLN** smelter. **SMSP** (51%) and Xstrata (49%) approved the US$3.8 billion Koniambo project to begin production in 2011, ramping up to full production of 60 000 t/y of Ni in FeNi in 2013. SMSP also has 51% of a joint venture with Posco; SMSP will send 1.8 Mt/y of laterite ore and **Posco** will build a FeNi smelter (30 000 t/y Ni in FeNi) to be operated by the joint venture, **Nickel Mining Company**. Vale Inco will spend US$723 million in 2008 to complete the 60 000-t/y Goro project; total expenditures for **Goro Nickel** will then be US$3.2 billion.

In Indonesia, **Antam** produced 5.3 Mt (1.67 Mt) of wet laterite ore in the first nine months of 2007 and 12 258 t (9932 t) of Ni in FeNi. Antam and **Tsingshan Holding Group** will study the feasibility of a mine, power plant, FeNi plant, and stainless steel facility at Antam's Obi Island deposit. Antam and BHP Billiton established a strategic alliance to study pyrometallurgical and hydrometallurgical options to develop the Buli deposit on Halmahera Island. **PT Inco** (owned 61% by Vale Inco) received a forestry permit to build the Karebbe dam, delayed a year, which will allow the company to expand PT Inco's production to 90 700 t/y of nickel in matte. PT Inco produced 58 200 t (50 500 t) of nickel in matte in the first nine months of 2007. Sumitomo held a 21% interest in PT Inco and takes an equivalent share of nickel in matte.

Africa

Norilsk purchased LionOre in June, reporting the 2007 nine-month production of saleable nickel to third parties as 11 900 t (8800 t of payable nickel reported produced in the first nine months of 2006 by LionOre). Norilsk and ARM announced the Phase 2 expansion of Nkomati; production will increase from 5500 t/y of nickel in concentrate to 20 500 t/y by 2010 and the mine life will be extended to 2027. A bankable feasibility study of an Activox refinery for the Nkomati operation will be completed in 2008.

Sherritt purchased Dynatec and obtained a 45% share in the Ambatovy project in Madagascar. The US$3.2 billion project is to produce refined metals: 60 000 t/y of nickel plus 5600 t/y of cobalt, and 190 000 t/y of by-product ammonium sulphate. Reserves are 125 Mt at 1.04% Ni. Other owners were **Sumitomo Corporation** and **Korea Resources Corporation** (Kores). Commissioning was scheduled to begin in the first half of 2010.

Anglo Platinum produced 10 200 t (10 700 t) of nickel, including purchased material, at its South African operations. Xstrata decided to spend US$95 million for a prefeasibility study of the Kabanga project in Tanzania. Xstrata and **Barrick** have equal shares in the joint-venture project that could produce 25 000 t/y of nickel in concentrates starting in 2012.

Albidon's Munali mine will make initial concentrate shipments to the Jinchuan Group in mid-2008. The open-pit mine and concentrator in Zambia will produce 8500-9000 t/y of nickel in concentrates plus by-product copper, cobalt, and platinum group metals.

Eurasia

The **Jinchuan Group** produced an estimated 110 000 t of nickel (100 000 t) and 6000 t (6300 t) of cobalt for calendar year 2007. Jinchuan produced about 65 000 t of nickel from its own mines; imported nickel concentrates from Aguablanca in Spain, and from Fox and Sally Malay in Australia; and has a contract with Allegiance for future mine output. Jilin Jien continued to import nickel-cobalt concentrate from Liberty Mine's Redstone mine. Nickel pig iron production continued to increase in 2007. Various grades of nickel pig iron are produced, ranging from low-grade feeds to material suitable for producing austenitic stainless steels. Imports of over 13 Mt of limonitic laterite ores from the Philippines, Indonesia, and New Caledonia allowed Chinese nickel pig iron producers to recover at least 75 000 t of contained nickel in 2007.

Larco may start up a leaching operation as early as 2009 to produce about 10 000 t/y of nickel; the company has about 250 Mt of leachable laterites.

Three Japanese FeNi smelters produced 39 600 t (36 900 t) of Ni in FeNi in the first six months of 2007 from imported laterite ores. **Sumitomo** produced 14 900 t (15 500 t) of nickel metal in the first six months of 2007 and **Inco TNC** produced an estimated 30 000 t (28 700 t) of nickel in various forms. Sumitomo announced that the **Coral Bay** leach operation in the Philippines will be doubled to produce 20 000 t/y of nickel in mixed nickel-cobalt sulphides. Sumitomo previously announced plans to produce 100 000 t/y of refined nickel by 2013.

Norilsk Nickel completed the purchase of **OMG**'s nickel refinery at Harjavalta in Finland in March. The refinery was supplied with feed from Boliden's nickel smelter at the same site, supplemented by feed from other sources such as **Votorantim**'s Fortaleza smelter in Brazil. Norilsk reported production of 31 500 t of nickel from March 1. **Belvedere Resources** bought the Hitura nickel mine from Outokumpu in June.

Xstrata's Nikkelverk refinery in Norway produced 42 900 t of refined nickel in the first six months of 2007 (41 100 t) and 1919 t (2531 t) of refined cobalt. The refinery also processed matte from BCL and other sources. In April, Glencore International began marketing nickel and cobalt from all Xstrata operations.

Norilsk reported the 2007 January-September production as 175 000 t (182 000 t) from its Polar and Kola divisions in Russia. Norilsk continued its investment program of US$900 million annually. **Mechel** reported production in the first nine months of 2007 as 12 200 t (10 600 t) of Ni in FeNi.

The Aguablanca mine, purchased when **Lundin Mining** bought Rio Narcea, produced abut 4950 t (4750 t) of nickel in concentrates in the first nine months of 2007; mill capacity was increased to 1.8 Mt/y of ore and will increase in 2008 to 2.1 Mt/y.

The delay of **European Nickel**'s US$300 million mine and heap leach operation due to lack of a forestry permit continued. BHP Billiton exercised its option to purchase the entire output of 20 000 t/y of nickel in intermediate leach products. The mine exported some ore to Larco.

Americas

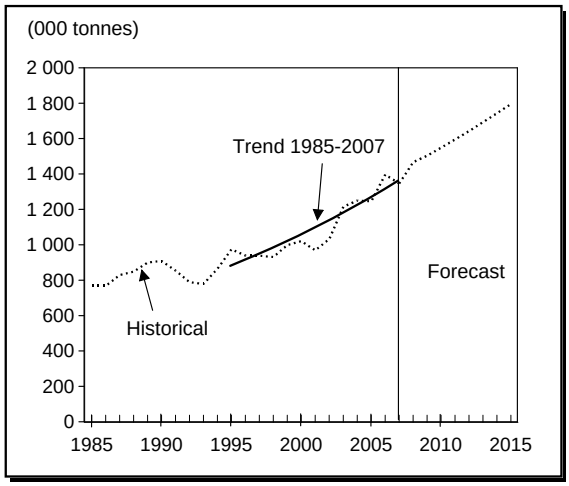
Ni in FeNi production in the Americas was: Colombia, **Cerro Matoso**, 37 600 t (38 400 t) in January-September 2007; Dominican Republic, **Falcondo**, 14 800 t (14 400 t); Venezuela, **Loma de Niquel**, 8200 t (8800 t) in the first six months of 2007; and Brazil, **Codemin**, 4700 t (4900 t) in the first six months of 2007. Planned future production increases (tonnes of Ni in FeNi) include: Vale Inco's US$1.4 billion Onça-Puma project (58 000 t/y) to start up in 2009, **Votorantim**'s FeNi smelter (10 600 t/y) to start up in 2009, Anglo's US$1.2 billion **Barro Alto** project (36 000 t/y) to reach capacity in 2011, and potentially an expansion at Cerro Matoso.

In Brazil, Vale's US$1.9 billion **Vermelho** mine and hydrometallurgical operation (46 000 t/y of nickel metal and 2800 t/y of cobalt metal) will start production in 2012. Votorantim also operated a laterite mine and Caron processing plant supplying its **San Miguel** refinery, which produced about 22 000 t/y of nickel metal and 900 t/y of cobalt metal; in addition, Votorantim operated the **Fortaleza** smelter, which produces about 6000 t/y of nickel in matte, depending on feed. **Mirabela**'s Santa Rita property had in-pit primary sulphide resources estimated at 90 Mt at 0.6% Ni, and the company expected to produce about 18 500 t/y of nickel in concentrates starting in mid-2009 and to examine a potential 35% increase thereafter.

Demand Outlook

The International Nickel Study Group forecast primary nickel demand of 1.47 Mt in 2008, up from 1.35 Mt in 2007, supported by increasing use in China. Future demand will depend upon world economic conditions, with nickel and stainless steel demand a function of industrial production. World primary nickel demand is projected to increase at an average rate of 3% as shown in Figure 1. Underlying nickel's past growth rate has been the increase in stainless steel production, shown in Figure 2, which depicts the growing importance of Asian stainless steel production. Higher prices have had an impact on some lower-value uses, such as electroplating of low-value items, and have prompted substitution. At present, more low-nickel and no-nickel stainless steels are being produced. The effects of high energy costs, regulatory changes, and volatile world economic conditions have the potential to change nickel use suddenly.

Figure 1
World Primary Nickel Use, 1985-2015



Source: Natural Resources Canada.
Note: This is an average forecast; yearly actuals will differ from the trend.

CANADIAN PRODUCTION OUTLOOK

Record high nickel prices encouraged nickel exploration and enhanced the forecast feasibility of potential projects and expansions in Canada. High prices more than offset increased costs due to currency appreciation. The longer the high prices persist, the greater the potential new output from Canadian sources. A period of low prices may restrict new capital expenditures, but at those operations where investments have been made, production should continue in the short term as long as operating costs are met. Looking forward to 2020, Canadian production of recoverable nickel in concentrate could be maintained well above 300 000 t/y, depending on the success of translating resources to reserves, the likelihood of an agreement between Xstrata and Vale Inco to obtain synergies in the Sudbury Basin, and successes at finding new orebodies.

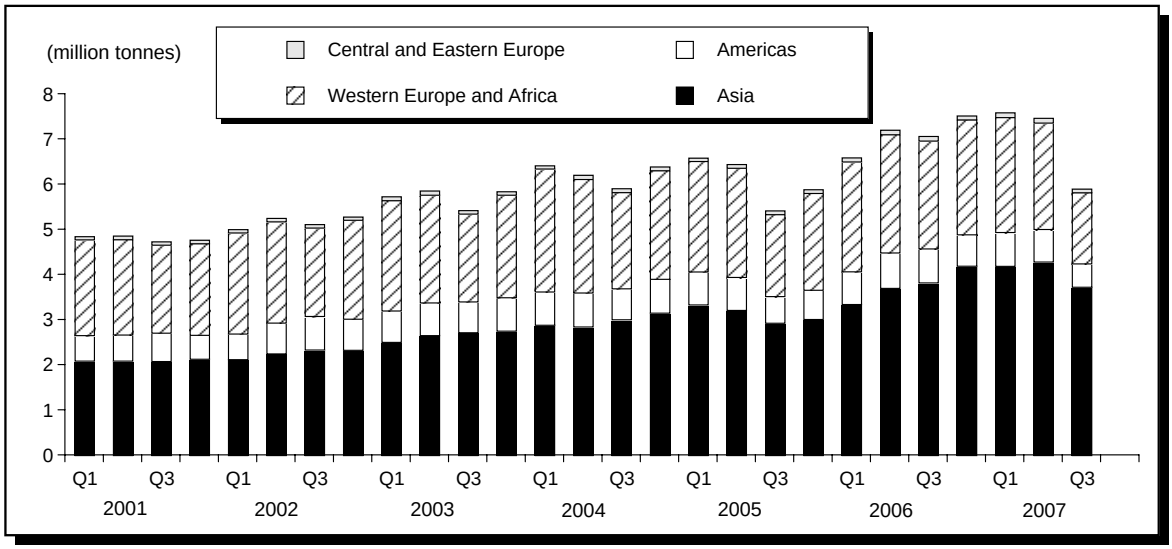
Newfoundland and Labrador

Vale Inco estimated the cost of its metallurgical plant at Long Harbour at US$2.2 billion. The company expected to make a decision about which technology to use in 2008, start construction in 2009, and begin commissioning and ramp-up in 2011.

Quebec

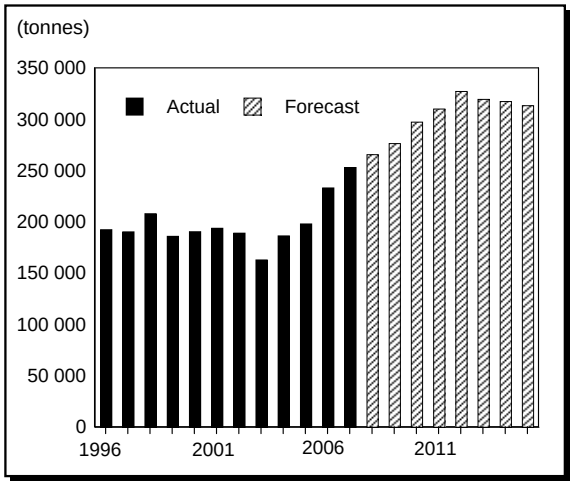
As noted above, **Xstata** will expand production at the Raglan mine. **Canadian Royalties** signed a contract to sell concentrates to Norilsk Nickel from its Nunavik project in northern Quebec with probable reserves of 10.7 Mt at 0.97% Ni, 1.13% Cu, 0.05% Co, 1.86 g/t Pd, 0.45 g/t Pt, and 0.10 g/t Au. Estimated capital costs were $466 million. Construction will start in the first quarter of 2008; Nunavik

Figure 2
Stainless Steel Production by Quarter, 2001-07



Source: Natural Resources Canada.

Figure 3
Canadian Mine Production of Nickel, 1996-2015



Source: Natural Resources Canada.

will produce 8400 t/y of nickel in concentrates with by-product copper, palladium, platinum, and gold. Nuinsco Resources spun off its nickel assets into **Victory Nickel Inc**. Victory began a baseline environmental study at its Lac Rocher property in Quebec. Metallurgical testing by Xstrata on Lac Rocher samples showed nickel recovery of 85% in a bulk nickel-copper concentrate. A drill program and ramp development were started in 2007. Victory planned to start construction in the second quarter of 2008 and to begin mining the same year. Phase I will involve mining 50 000 t at 4.06% Ni. Phase II will mine 400 000 t at 1.57% Ni.

Ontario

URSA Major Minerals got permits from the Province to proceed with its $188 million Shakespeare project near Sudbury. Diluted probable reserves were 11.3 Mt at 0.33% Ni, 0.35% Cu, 0.02% Co, and 0.9 g/t precious metals; this will yield 3700 t/y of nickel in concentrates plus by-products. A bulk sample was extracted and sent to Xstrata's Strathcona mill for processing. Xstrata and URSA concluded a concentrate sales agreement for the output. URSA will send at least 185 000 t of ore to Xstrata for processing in 2008. **Noront Resources** announced drill results at its Double Eagle property in the James Bay lowlands of northern Ontario. The company began drilling in August and since then announced results showing significant levels of nickel, copper, cobalt, platinum group metals, gold, and silver over tens of metres. In mid-January 2008, **Canadian Arrow** reported its preliminary study of Kenbridge for a 2800-t/d concentrator producing 3300 t/y of nickel and 2100 t/y of copper in concentrate over an 11-year life. The company intends to complete a bankable feasibility study in 2008.

Manitoba

Crowflight Minerals began construction at the Bucko property in November and let a contract for underground mining. Mine plans call for seven years of production at an average of 5700 t/y of nickel in concentrate that will be sold to Xstrata. Probable reserves were 2.5 Mt at 2.01% Ni using a 1.4% Ni cut-off. Capital costs were estimated at US$54 million. Production was scheduled to begin in the second quarter of 2008. **Independent Nickel Corp.**'s prefeasibility study looked at a 3000-t/d operation at Lynn Lake producing 6000 t/y of nickel, 3400 t/y of copper, and

150 t/y of cobalt in bulk concentrates from probable reserves of 10.7 Mt at 0.65% Ni and 0.36% Cu. Bioleaching of the concentrate to produce metal was also being examined; the initial capital costs for the mine, mill, and SX/EW plant were put at $289 million. **Mustang Minerals** completed a preliminary economic assessment of a $65 million open pit and a conventional flotation mill at its Maskwa property, based on 8.6 Mt at 0.62% Ni, producing 5000 t/y of nickel in concentrates. In March, the company began a pre-feasibility study; the scope was expanded to consider potential underground operations as well. **Victory Nickel**'s technical report of the Mel deposit put indicated resources at 4.28 Mt at 0.875% Ni plus inferred resources of 1 Mt at 0.84% Ni. Previous testing by Inco indicated nickel recovery rates of between 72% and 75% to produce concentrates grading in the range of 10-12% Ni. Victory's definitive feasibility study of the Minago deposit was expected to be completed in October 2008. An earlier scoping study looked at mining 10 000 t/d of ore from a pit containing 35.7 Mt at 0.52% Ni and underground mining of 9 Mt at 0.85% Ni.

PRICE OUTLOOK

Nickel prices rose to record levels before a change in LME rules resulted in a decline. Records were established for daily, monthly, and yearly cash settlement prices. Inventories rose sharply from a range of 3000-5000 t until mid-May, reached 20 000 t in August, and finished the year at nearly 48 000 t.

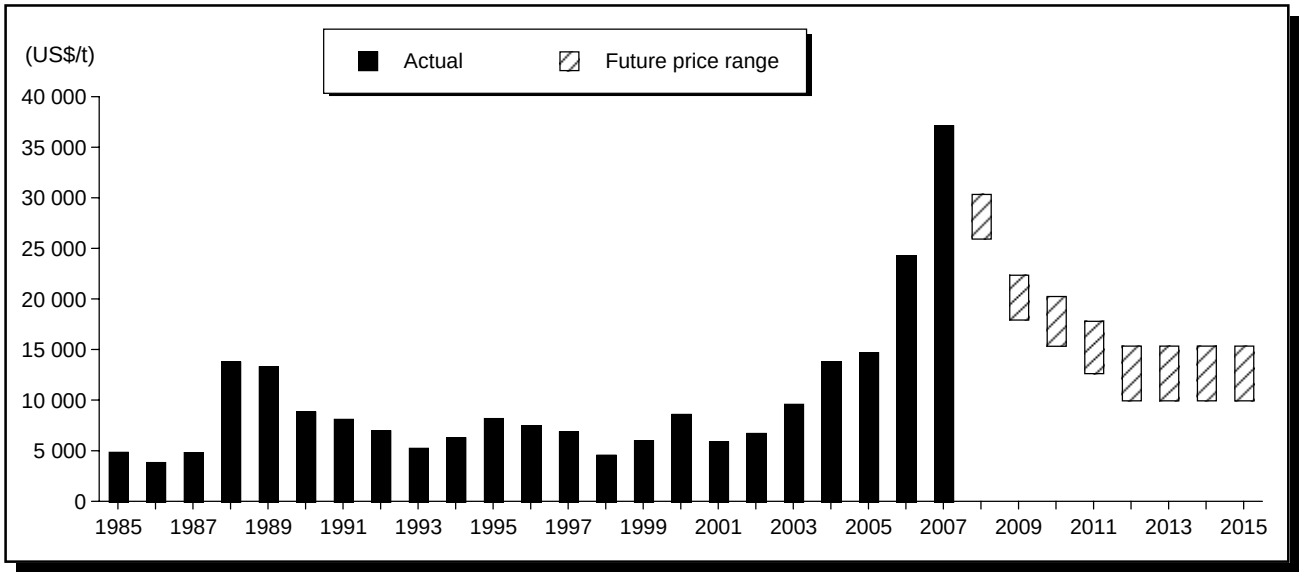
The author projects that prices in 2008 will average between US$26 000/t and US$30 000/t (Figure 4). While high prices should translate into reduced demand, the increase in stainless steel production capacity is expected to continue in the short term. Even with increased production of low-nickel and no-nickel stainless steels, primary nickel demand and stainless steel demand are a function of world economic growth. Increased nickel production is projected in 2008 as new projects begin, starting with Ravensthorpe-Yabulu early in the year and Onça-Puma and Goro in late 2008. Sustained very high prices have created very large incentives for existing producers to expand and for new producers to enter the market.

Some stainless steel producers in Europe changed their method of calculating alloy surcharges, reducing the reference period to 30 days from 2-3 months. Because of the lag, when nickel prices began to fall in 2007, stainless steel consumers were paying more for stainless steel while the price of nickel was falling. It was felt that this would reduce nickel and stainless steel price volatility.

Information in this article was current as of January 20, 2008.

NOTE TO READERS

Figure 4
Nickel Prices, 1985-2007, and Projection to 2015



Source: Natural Resources Canada.

TABLE 1. COMPANY WEB SITES FOR FURTHER INFORMATION

Company	Web Site Address
Albidon	www.albidon.com
Allegiance	www.allegiance-mining.com.au
Anglo American	www.angloplatinum.com
Anglo Platinum	www.angloamerican.co.uk
Antam	www.antam.com
Barrick Gold	www.barrick.com
Belvedere Resources	www.belvedere-resources.com
BHP Billiton	www.bhpbilliton.com
Braemore Resources	www.braemoreresources.com
Canadian Royalties	www.canadianroyalties.com
Crowflight Minerals	www.crowflight.com
Dynatec	see Sherritt International
Eramet	www.eramet.fr
European Nickel	www.ennickel.co.uk
First Nickel	www.firstnickel.com
FNX Mining	www.fnxmining.com
Fox Resources	www.foxresources.com
Gladstone Pacific	www.gladstonepacific.com.au
Glencore International	www.glencore.com
Goro Nickel	www.goronickel.nc
Independent Nickel	www.independentnickel.com
Jilin Jien	www.jlnickel.com.cn
Jinchuan Group	www.jnmc.com
Jubilee Mines	www.jubileemines.com.au
Koniambo Nickel	www.koniambo-nickel.com
Korea Resources	http://eng.kores.or.kr
Larco	www.larco.gr
Liberty Mines	www.libertymines.com
LionOre Mining	see Norilsk
Lundin Mining	www.lundinmining.com
Mechel	www.mechel.com
Minara	www.minara.com.au
Mirabela	www.mirabelanickel.com.au
Mustang Minerals	www.mustangminerals.com
Norilsk Nickel	www.nornik.ru/en
Noront Resources	www.norontresources.com
North American Palladium	www.napalladium.com
Posco	www.posco.co.kr/homepage/docs/en/s91a0010001i.jsp
PT Inco	www.pt-inco.co.id/new/english/index.php
Rio Narcea	see Lundin Mining
Sally Malay	www.sallymalay.com.au
Sherritt International	www.sherritt.com
SLN	see Eramet
SMSP	www.smsp.nc
Sumitomo	www.smm.co.jp/E/index.html
Tsingshan Holding Group	www.tshint.com/en/about.htm
URSA Major Minerals	www.ursamajorminerals.com
Vale Inco	www.inco.com
Victory Nickel	www.victorynickel.com
Votorantim	www.vmetais.com.br
Xstrata	www.xstrata.com

Zinc

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2006 mine production: $2.1 billion
World rank: Second (metal production)
2006 exports: $2.31 billion

Canada	2005	2006	2007 (e)
		(000 tonnes)	
Mine output	667	634	697
Refined metal production	724	824	815
Usage	149	180	176

(e) Estimated.

ANNUAL AVERAGE SETTLEMENT PRICES, LONDON METAL EXCHANGE FOR SPECIAL HIGH GRADE ZINC

2005	2006	2007	2008 (f)
		(US$/t)	
1 381.55	3 268.81	3 241.00	2 500

(f) Forecast.

Zinc is primarily used in the automotive and construction industries for the galvanization of steel and manufacture of die-cast alloys, in the production of brass, in semi-manufactures such as rolled zinc, and in chemical applications. Continuous galvanizing processes often combine zinc with other metals such as iron and aluminum to produce specialty zinc-alloy coatings. Promising new applications for zinc are in the manufacture of zinc-air batteries and in galvanized steel studs as an alternative to wood in residential construction. Industrial zinc-silver and zinc-nickel batteries perform critical functions in aeronautic and military applications. Zinc is also an essential trace element for humans, animals and plants. Recycled zinc has become an increasingly important source of the metal in recent years. Recycled zinc includes high-purity refined zinc, remelted zinc of a purity less than 98.5% zinc, and zinc scrap used in the production of zinc alloys. Canada currently produces only a minor amount of recycled zinc exclusively from recycled feeds in primary zinc smelters. Electric arc furnace dusts containing z inc are processed into zinc oxide and then re-enter the primary zinc metal production stream.

CANADIAN OVERVIEW

Acadian Mining Corporation commenced commercial production at its Scotia open-pit lead-zinc mine near Gays River, Nova Scotia, in the second quarter of 2007. The mine was purchased by ScoZinc Limited, a subsidiary of Acadian, from **HudBay Minerals**. The Scotia mine was expected to produce 9070 t of zinc in concentrate and 2720 t of lead in concentrate in 2007 at an average milling rate of 2000 t/d. Current proven and probable reserves stand at 4.59 Mt grading 3.6% Zn and 1.7% Pb.

Teck Cominco Limited announced the completion of its purchase of **Aur Resources Inc.** The Duck Pond copper-zinc mine in Newfoundland and Labrador officially reached commercial production in early 2007. During the period 2007-11, the mine is expected to produce 18 600 t/y of copper, 35 000 t/y of zinc, and 12.2 t/y of silver. The concentrates are purchased by Xstrata under life-of-mine contracts.

Blue Note Mining Inc. commenced commercial production at its Caribou underground and Restigouche open-pit lead-zinc mines located near Bathurst, New Brunswick. The mines, formerly owned by **Breakwater Resources**, had been on care and maintenance since 1998. There is a 3000-t/y concentrator and tailings facility at the Caribou site. The first shipment of 5600 t of zinc concentrate was shipped in October for delivery to Nyrstar in Belgium. Total reserves at the two mines are 4.92 Mt at 6.6% Zn and 3.45% Pb.

The Langlois mine of **Breakwater Resources Ltd.**, located northeast of Val-d'Or, Quebec, achieved full commercial production in mid-2007. The mine expects to produce 28 200 t of zinc in concentrate from a 2500-t/d concentrator located on the property. The mine has reserves of 3.6 Mt at 10.1% Zn, 0.8% Cu, 49 g/t Ag, and 0.1 g/t Au.

Hudbay Minerals Inc. announced the discovery of a significant new zinc deposit at Lalor Lake, near the company's Snow Lake, Manitoba, concentrator. The deposit, still subject to exploration drilling, is estimated to contain 18-20 Mt of resources grading 7.7-8.8% Zn and 0.7-0.8% Cu.

Redcorp Ventures Ltd. continues with efforts to bring the Tulsequah Chief zinc-copper-lead-gold-silver deposit into production. The property is situated in northwestern British Columbia, about 65 km northeast of Juneau, Alaska. The project centres on re-opening an underground mine that last operated in 1957 at a nominal mining rate of 2000 t/d. Probable reserves stand at 5.38 Mt grading 6.33% Zn, 1.2% Pb, and 1.4% Cu.

Xstrata Plc continued development of the Perseverance zinc mine, located near Matagami, Quebec, with start-up expected in the third quarter of 2008 and a mine life of five years. Ore from the deposit will be processed at the Lac Matagami mill. Annual production of 228 000 t of zinc concentrate will be shipped and processed at the **CEZ** refinery in Valleyfield, Quebec. The mine will also produce about 35 000 t of copper concentrate.

Yukon Zinc Corporation is proceeding with development of its Wolverine deposit, located in the Finlayson District in southeastern Yukon. The company raised US$140 million towards the total cost of US$250 million needed to bring the mine into production, expected in 2009. The company also announced that it has selected Glencore and MRI Trading AG as buyers for its initial shipments of concentrates from the mine to the end of 2013. Proven and probable ore reserves as of October 2007 total 5.15 Mt grading 9.66% Zn, 0.91% Cu, 1.26% Pb, 281.8 g/t Ag, and 1.36 g/t Au. The mine could produce at a rate of 1850 t/d for an expected life of 9.5 years, based on current reserves. Annual production for the first three years is estimated at 53 400 t of zinc, 4670 t of copper, and 5850 t of lead.

Zinifex Limited has completed the acquisition of Canadian junior miner **Wolfden Resources**. Wolfden owned the Izok Lake VMS deposit, which contains indicated resources of 14.4 Mt grading 12.94% Zn and 2.52% Cu, as well as other sulphide deposits, including High Lake and Hood River.

WORLD OVERVIEW

Apex Silver Mines Limited has commenced production at the large San Cristóbal silver-zinc-lead mine in Bolivia. The mine is located in the Potosi district of southwestern Bolivia. The deposit has proven and probable reserves to the end of 2006 of 250 Mt at 1.54% Zn, 0.53% Pb, and 55.3 g/t Ag. This equates to 3.87 Mt of contained zinc metal and 1.32 Mt of contained lead metal. Annual metal production from the mine is estimated at 185 000 t of zinc in concentrate and 85 000 t of lead in concentrate.

Breakwater Resources recently announced an increase of 50% in reserves at its El Toqui, Chile, mine. Proven and probable reserves now stand at 4.3 Mt grading 7.3% Zn and measured and indicated resources are 4.9 Mt at 8.0% Zn.

The Cerro Lindo zinc mine in Peru was brought into commercial production in July 2007. The mine is owned by **Compañía Minera Milpo S.A.A.** and is designed to produce 146 000 t/y of zinc concentrates.

Strategic Resource Acquisition Corp. is re-opening past producing zinc mines in the Gordonsville, Tennessee area, including the Elmwood, Gordonsville, and Cumberland mines. These mines were formerly owned by Pasminco Limited. The company is expecting full production in 2008 at a rate of 56 600 t of zinc in concentrate. The company also expects to receive credits from germanium and gallium contained in the concentrates.

Production to the end of the third quarter of 2007 at **Teck Cominco**'s Red Dog mine in Alaska was 441 000 t of zinc in concentrate, compared to 424 000 t for the same period in 2006. The company also commenced commercial production at the re-opened Lennard Shelf mine in the Kimberley region of Western Australia. The mined is owned 50:50 by Teck Cominco and Xstrata plc, and is expected to produce 45 000 t of zinc in concentrate in 2007.

Votorantim Metals has announced the expenditure of US$500 million to expand the capacity of its Cajamarquilla zinc refinery in Peru from 135 000 t/y to 320 000 t/y.

ZincOx Resources plc has received a mining licence from the Yemeni government for the development of its Jabali mine in Yemen. The mine should start to produce 70 000 t/y of zinc oxide containing 80% zinc in the third quarter of 2008 and have a life of 12 years.

The zinc smelting and alloying operations of Australia's **Zinifex Limited** and Belgium's **n.v. Umicore s.a** have been combined and a new company, **Nyrstar**, has been created. It is now the largest zinc refiner in the world with a capacity of 1.1 Mt/y of zinc metal and operations in six countries.

LEADING WORLD ZINC PRODUCERS

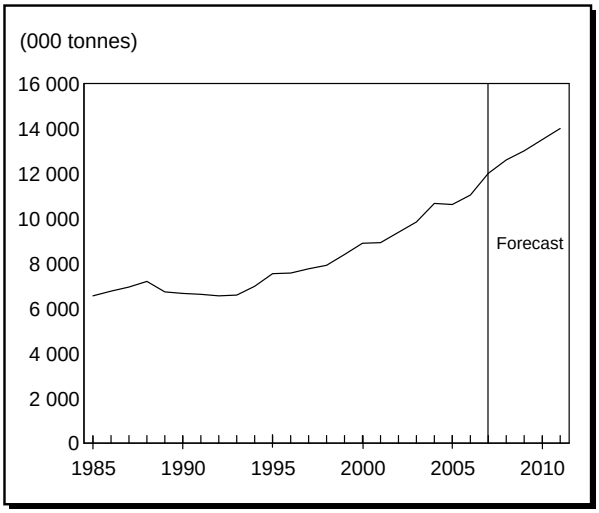
Producers Zinc in Concentrate	2006	Producers Zinc in Metal	2006
	(000 t)		(000 t)
China	2 837	China	3 207
Australia	1 338	Canada	824
Peru	1 202	South Korea	667
United States	727	Japan	614
Canada	638	Spain	507

Source: International Lead and Zinc Study Group.

DEMAND OUTLOOK

According to the International Lead and Zinc Study Group (ILZSG), global demand for refined zinc metal is expected to rise by 5.1% to 11.96 Mt in 2008. Much of the increase in demand is tied to continued strong industrial growth in

Figure 1
World Zinc Use, 1985-2011



Sources: Natural Resources Canada; International Lead and Zinc Study Group.

China. China's GDP is forecast to grow at a rate of 11.0% in 2007, compared to North America at 2.2% and a world average of 5.4%. Continuous galvanizing is seeing greater use throughout the world, especially in China, where the automobile industry is experiencing growth rates in the 20-25% range. Galvanizing, as a primary use for refined zinc, is expected to consume 59% of all zinc metal by 2010. Growth in zinc demand is also forecast in the construction sector where new galvanized sheeting applications are being developed. Heavy construction applications such as culverts, bridges, and steel reinforcing bars will also use more zinc.

ILZSG reports that global zinc mine output will be 11.18 Mt in 2007 and that it will increase 9.5% to 12.24 Mt in 2008. Increases in zinc mine output are due largely to the start-up of mines such as San Cristóbal in Bolivia, Lennard Shelf in Australia, Cerro Lindo in Peru, and several re-openings in Canada. Increased production is also expected from China, India, Kazakhstan, Portugal, and the United States. Global production of refined zinc metal is forecast to increase by 7.8% to 12.2 Mt in 2008. Increases in smelter capacity are expected in India, China, Spain, Belgium, and Poland.

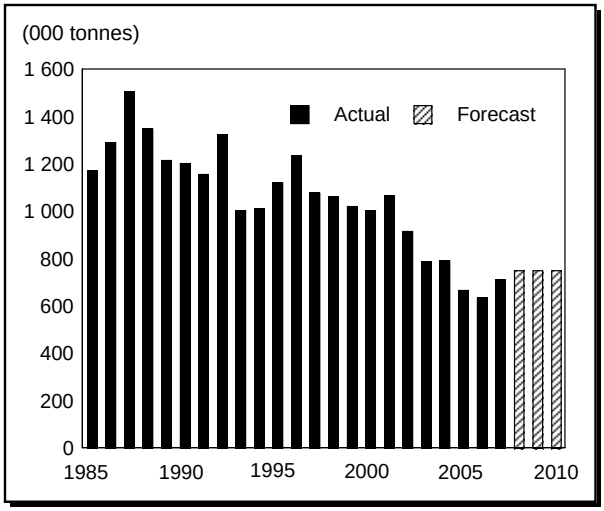
The ILZSG reported that, as of October 2007, the global zinc market was in a deficit of 37 700 t. It is anticipated that the market will remain in deficit for 2007, but that it will move into a surplus of 250 000 t for 2008.

CANADIAN PRODUCTION OUTLOOK

There were several zinc mine openings in Canada in 2007, namely Duck Pond in Newfoundland and Labrador and the re-opening of the Scotia mine in Nova Scotia, the Caribou and Restigouche mines in New Brunswick, and the Langlois mine in Quebec. Together these mines represent significant new production for Canada. In 2008, the Perseverance mine in Matagami, Quebec, owned by Xstrata plc, is expected to reach commercial production. The deposit has proven and probable reserves of 4.2 Mt at 13.7% Zn, 1.1% Cu, and 26 g/t Ag, and measured and indicated resources of 4.4 Mt at 16.2% Zn, 1.3% Cu, and 30 g/t Ag, sufficient for five years of production.

Production is expected to be maintained at current levels at other established zinc mines in Canada. The production of refined zinc at the four zinc plants is expected to continue at current levels.

Figure 2
Canadian Mine Production of Zinc, 1985-2010



Source: Natural Resources Canada.

PRICE OUTLOOK

It is expected that world mine zinc output will continue to increase for 2008 and 2009. The increase in supply of zinc concentrates, along with expansions of smelter capacity, may result in continued price declines over the short term. The Chinese government is considering whether to remove a 5% export rebate on special high grade (SHG) zinc beginning in January 2008 and potentially replace it with a 5-10% export tax. This measure would be put in place to encourage domestic producers to change from being metal exporters to manufacturers of value-added zinc products. Over the longer term, decreased metal exports from China would put upward pressure on prices.

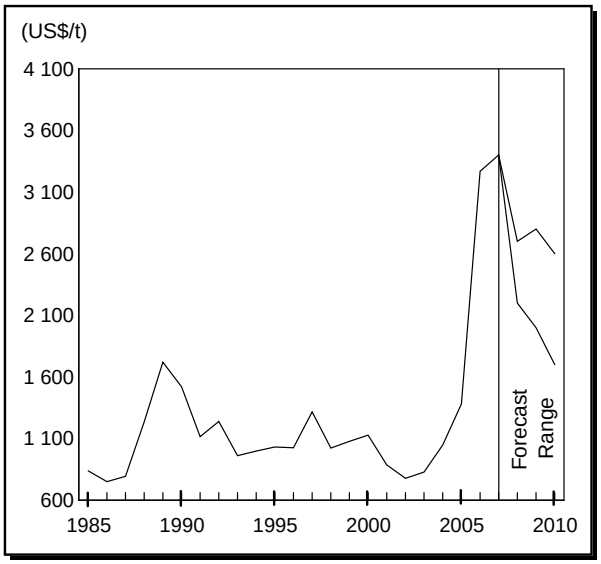
According to ILZSG, at the end of 2006, total zinc stocks stood at 548 000 t. As of October 2007, total zinc stocks were 550 000 t, an increase of 2000 t. LME zinc stocks ended 2006 at 90 000 t and stood at 77 000 t as of October 2007.

In December 2006, the monthly average zinc price reached an all-time high of US$4415/t (daily high of US$4619/t). During 2007, prices generally followed a downward trend with some short-term recoveries in June, August, and October. The price at mid-December 2007 was US$2340/t, representing a 49% decrease from the all-time high.

If zinc prices continue to slide, marginal mines will be forced to shut down. There will be some short-term downward pressure on prices as zinc concentrate surpluses work their way through the system during 2008. If Chinese export taxes on refined metal are put in place, this should decrease available world supplies of metal and drive prices higher. Given the factors outlined above, the zinc price for 2008 is expected to range between US$2200 and US$2700/t.

Note: Most information in this article was current as of December 31, 2007.

Figure 3
Zinc Prices, 1985-2010
Annual Average LME Cash Settlement



Sources: Natural Resources Canada; International Lead and Zinc Study Group.

NOTE TO READERS

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TABLE 1. COMPANY WEB SITES FOR FURTHER INFORMATION

Company	Web Site Address
Acadian Mining Corporation	www.acadiangold.ca
Agnico Eagle Mines Limited	www.agnico-eagle.com
American Galvanizers Association	www.galvanizeit.org
American Zinc Association	www.zinc.org
Apex Silver Mines Limited	www.apexsilver.com
Blue Note Mining Inc.	www.bluenotemetals.ca
Breakwater Resources Ltd.	www.breakwater.ca
Canadian Zinc Corporation	www.canadianzinc.com
Considar Metal Marketing	www.considarmm.com
HudBay Minerals Inc.	www.hudbayminerals.com
International Lead and Zinc Study Group	www.ilzsg.org
International Zinc Association	www.iza.com
London Metal Exchange	www.lme.co.uk
Lundin Mining Corporation	www.lundinmining.com
Noranda Income Fund	www.norandaincomefund.com
Nyrstar	www.nyrstar.org
Redcorp Ventures Inc.	www.redcorp-ventures.com
Selwyn Resources Ltd.	www.selwynresources.com
Strategic Resource Acquisition Corp.	www.sra-corporation.com
Teck Cominco Limited	www.teckcominco.com
Votorantim Metals	www.votorantim.com.br
Xstrata Plc	www.xstrata.com
Yukon Gold Corporation	www.yukongoldcorp.com
Yukon Zinc Corporation	www.yukonzinc.com
ZincOx Resources plc	www.zincox.com
Zinifex	www.zinifex.com
Zochem	www.zochem.com

Economic Situation and Outlook

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Minerals and Mining Statistics Division
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E-mail: greig.birchfield@nrcan.gc.ca

In the third quarter of 2007, the Canadian economy (real Gross Domestic Product [GDP]) grew by an annualized 2.9%, following increases of 3.8% in the second quarter and 3.5% in the first quarter. Fourth-quarter growth was expected to decline to only about 1%. The third-quarter increase brought Canada's real GDP (annual rate in chained 2002 dollars) to $1 321 433 million ($1 537 472 million nominal dollars), compared to an average of $1 247 780 million in 2006 ($1 375 080 million nominal). The slower growth over the last half of 2007 was primarily attributable to a slowdown in export growth as a result of reduced U.S. demand coupled with the strong Canadian dollar. Overall, real growth in 2007 should come in at about 2.6%. The continued relative weakness of the export sector, a slower pace of inventory build-up, and generally unstable global financial markets are likely to contribute to a further moderation of real growth over the first half of 2008. Strong domestic demand, supported by the Canadian dollar (making imported commodities less expensive) and moderate fiscal stimulus from federal tax measures, should support the Canadian economy as 2008 progresses, resulting in an annual growth rate of about 1.8%.

Some factors influencing the Canadian economy in 2007 included high commodity prices (record highs for several mineral commodities); oil prices that reached nearly US$100/barrel, ending the year at over US$90/barrel; stable interest rates (the target overnight rate beginning and ending the year at 4.25%); inflation within the Bank of Canada's target range; a strong Canadian dollar that traded as high as US$1.10 before settling back to the high US$0.90s range at year-end; overall strong employment growth (2.2%), tempered by a loss of employment in the manufacturing sector; and another near-record low unemployment rate.

What follows are some key economic indicators for 2007 with comparisons to 2006.

	2006	2007
Consumer Price Index (all items) 2002=100 (annual % change)	2.0	2.2
Average employment level (000)	16 484.3	16 866.4
Change in average annual employment level (000)	314.6	382.1
Average unemployment rate (%)	6.2	6.0
Average Bank of Canada interest rate (%)	4.26	4.60
Average prime business rate (%)	5.77	6.10
Average Canada-U.S. exchange rate (US$ per C$)	0.88176	0.93042
Exports (11 months) ($ millions)	415 186	428 403
Imports (11 months) ($ millions)	369 164	380 390
Balance of trade (11 months) ($ millions)	46 022	48 013
Real Gross Domestic Product growth (%)	2.8	2.6

n.a. Not applicable.
Note: 2007 figure for GDP is an estimate.

With the Canadian economy expected to perform below its potential over the next several quarters and with inflationary pressures subsiding due to the effects of Canada's strong dollar relative to its U.S. counterpart, the Bank of Canada reduced its target overnight interest rate by 0.25% in January 2008 to 4.0%. A further reduction (or reductions) is expected depending on the degree of the U.S. slowdown. The Bank expects both the core and total Consumer Price Index (CPI) to fall below 1.5% by mid-year, before rising slightly to about 2% in 2009.

The Canadian dollar rose dramatically against the U.S. dollar in 2007 from US$0.8584 at the beginning of the year to US$1.012 at the close. In early November 2007, it briefly surpassed the US$1.10 mark. Continuing strong commodity prices, fiscal surpluses, and prudent Canadian monetary policies underpin the Canadian dollar's strength. In addition, the credit crisis in the United States, its large balance of payments deficit, and recent interest rate cuts have undermined the U.S. dollar. In early 2008, the Canadian dollar dipped slightly, but was still trading above US$0.97. (The above are noon rates.) The same factors listed above should continue to support the Canadian dollar above US$0.95 through 2008.

Strong domestic demand is expected to continue, supported by low unemployment levels and accommodating fiscal policies. Canadian export growth is, however, likely to remain weak in the near term in response to reduced demand from the United States and slightly slower global growth rates. The Canadian trade position is expected to remain in a surplus position, although narrowing somewhat

compared to previous years. The level of imported goods has increased markedly, and this trend is likely to continue as the strong Canadian dollar has made imported goods less expensive. The dollar's strength, along with continued domestic demand, largely accounts for the rising level of imports.

Business investment, especially in machinery and equipment, is expected to rise by about 7% in 2008 as industry continues to take advantage of the high Canadian dollar. Corporate pre-tax profits rose by about 6% in 2007 and are expected to rise again in 2008, albeit at a slower pace.

The year 2008 began with some analysts saying the U.S. economy was on the brink of, or was already in, a recession. Others believed that things were not that bad but, in any case, the U.S. economy is in a downturn. While growth in the U.S. economy was quite robust earlier in 2007, with annualized third-quarter growth pegged at 4.9% and second-quarter growth at 3.8%, fourth-quarter growth declined significantly to only 0.6%. The sub-prime mortgage crisis has severely affected the U.S. housing market and financial institutions, and has had a spillover effect on consumer spending, which is usually the lynchpin of the U.S. economy. For 2007, real growth was 2.2%, below the 2.9% of 2006 and 3.1% of 2005. For 2008 as a whole, growth is forecast to decline further to about 1.8%, but with growth accelerating slowly through the year.

In mid-January 2008, in a move to avert a possible U.S. recession, President Bush announced a large fiscal stimulus package that would include, among other measures, income tax rebates to U.S. citizens. To be effective, the measures would need to be implemented quickly. Also in January, the U.S. Federal Reserve Board announced a substantial 75-point (0.75%) drop in its key Federal Fund interest rate. This was followed one week later by a further 0.5% reduction, bringing the rate to 3.0%.

One bright spot for the U.S. economy continues to be the export sector. American exporters have benefitted from the falling U.S. dollar and, at least through 2007, from strong global growth. Although global growth is likely set to slow, U.S. export growth is still expected to expand by about 7% in 2008 while imports to the United States are expected to increase by about 3%. The merchandise trade balance should decline slightly in 2008, falling from a little over US$800 billion in 2007 to a little less than US$800 billion.

Globally, real output in 2008 should rise by about 4%, more than a full percent lower than the estimated 2007 figure of 5.2%. Much of this decrease is attributable to slower growth in the developed nations.

The Japanese economy is influenced strongly by economic conditions in the United States and, to a lesser extent, Europe, so a slowdown in those regions is likely to have a negative effect on Japanese growth. Also affecting the Japanese economy is a sharp downturn in housing starts as a result of changes to the permitting process. For 2007, growth averaged only about 1.6% and is expected to decline further in 2008.

China's growth is expected to reach about 10% in 2008, slightly below the nearly 11.5% growth recorded in 2007, again led by investment spending and exports. Led by food prices, inflation hovers around 7%, cutting into consumer spending power, but domestic demand should remain relatively robust. The Chinese government is, however, taking steps to curb inflationary pressures.

The Indian economy expanded by about 9% in 2007. This pace is likely to moderate in 2008, but still register an impressive growth rate of around 8%. Overall, prospects of growth in Asia have moderated somewhat, affected by the expected U.S. downturn. However, the region will still outperform the developed nations, probably expanding by the mid-6% range.

The Mexican economy is expected to buck the downward growth trend likely to be experienced by its neighbours to the north. Rising employment has increased consumer spending while business investment and infrastructure investment are rising. Mexico, however, remains vulnerable to the U.S. downturn as much of its non-petroleum exports go to the United States.

The economic outlook for the rest of Latin America remains positive. Many South American countries are embarking on extensive building and infrastructure programs. These should provide the stimulus necessary to withstand the generally slowing global economy.

A decline in the growth rate of the euro-zone economies is likely in 2008, with growth unlikely to exceed 2%. Currency appreciation, rising interest rates, and a more restrictive fiscal stance are contributors to this expected deceleration. Although the U.S. slowdown has some negative impact on exports, the impact is tempered by the fact that only about 3% of euro-zone GDP derives from exports to the United States.

Sources: Bank of Canada; Scotiabank Group; Statistics Canada; TD Economics; U.S. Bureau of Economic Analysis.

Note: Information in this article was current as of January 2008.

Note to Readers

December 2007

Import and Export Tables

TABLE 1. CANADA, VALUE OF MINERALS AND MINERAL PRODUCTS (STAGES 1 TO 4), IMPORTS BY COMMODITY, 2005-07

	2005 12 Months	2006 12 Months	2007 11 Months
		($000)	
METALS			
Aluminum	5 415 166	6 200 758	5 560 654
Antimony	11 689	13 327	11 649
Barium	6 719	6 754	9 601
Beryllium	546	825	641
Bismuth	1 634	1 754	2 310
Cadmium	1 735	1 727	708
Calcium metals	51 988	51 750	39 858
Chromium	63 732	52 871	53 881
Cobalt	54 186	42 205	67 987
Copper	2 808 035	4 042 109	3 445 728
Gallium	69	100	72
Germanium	5 269	7 379	10 013
Gold	2 800 531	3 844 944	3 978 531
Hafnium	244	503	14
Indium	3 802	5 016	3 862
Iron and steel	20 542 073	21 536 228	19 236 685
Iron ore	660 627	669 439	558 324
Lead	405 530	411 200	490 796
Lithium	71 597	74 125	66 942
Magnesium and magnesium compounds	183 848	163 289	167 277
Manganese	324 581	293 565	341 119
Mercury	2 253	2 153	697
Molybdenum	279 399	224 205	243 955
Nickel	695 270	568 309	949 079
Niobium	18 332	22 733	28 358
Platinum group metals	322 730	376 645	392 404
Rare earth metals	3 836	3 925	2 770
Rhenium	32	38	18
Selenium	2 553	4 202	8 890
Silicon	79 292	73 548	86 059
Silver	276 713	430 732	470 908
Strontium	748	688	696
Tantalum	831	1 299	1 027
Tellurium	3 278	4 084	7 265
Thallium	–	–	–
Tin	58 936	64 721	76 952
Titanium metal	133 772	154 643	141 664
Tungsten	15 775	18 620	18 962
Uranium and thorium	409 942	454 481	523 204
Vanadium	61 958	38 299	26 781
Zinc	308 235	773 864	917 651
Zirconium	46 975	61 665	56 467
Other	11 044 290	11 453 091	10 796 933
Total metals	47 178 751	52 151 813	48 797 392
NONMETALS			
Abrasives	376 067	371 148	372 877
Arsenic	654	244	156
Barite and witherite	14 241	18 785	10 718
Boron	31 140	31 845	23 567
Bromine	3 943	4 419	4 365
Calcium (Industrial minerals)	8 573	8 311	7 687
Cement	279 968	281 293	320 606
Chlorine and chlorine compounds	62 451	61 377	62 439
Chrysotile (asbestos)	111 666	111 413	106 186

TABLE 1 (cont'd)

	2005 12 Months	2006 12 Months	2007 11 Months
		($000)	
NONMETALS (cont'd)			
Clay and clay products	1 143 860	1 138 970	1 092 261
Diamonds	480 684	664 029	602 875
Dolomite	8 203	8 664	9 886
Feldspar	5 168	354	325
Fluorspar	49 834	45 126	94 280
Glass and glassware products	2 187 285	2 276 965	2 146 183
Granite	111 953	130 594	135 968
Graphite	348 056	400 898	378 217
Gypsum	90 100	94 342	109 518
Iodine	15 659	18 753	17 125
Lime	11 406	10 849	9 137
Limestone flux and other limestone	26 286	27 389	19 677
Marble, travertine and other calcareous stones	89 201	102 993	119 669
Mica	11 551	9 489	9 038
Mineral pigments	177 466	168 396	149 040
Nepheline syenite	26	41	137
Nitrogen	246 798	223 040	337 640
Olivine	788	719	632
Pearls	24 147	30 460	30 070
Peat	3 970	4 715	4 355
Perlite	17 318	16 541	13 909
Phosphate and phosphate compounds	387 850	360 692	366 067
Potash and potassium compounds	45 271	44 462	53 405
Salt and sodium compounds	336 130	366 557	400 178
Sand and gravel	16 152	16 780	16 480
Sandstone	4 527	3 923	4 982
Silica and silica compounds	150 374	154 216	133 623
Slate	16 649	19 172	15 407
Sulphur and sulphur compounds	23 953	20 865	21 944
Talc, soapstone and pyrophyllite	17 932	17 447	16 057
Titanium oxides	267 800	247 843	186 966
Vermiculite	7 966	7 630	8 620
Other nonmetals	693 463	705 534	648 935
Other structurals	93 191	101 788	99 337
Total nonmetals	7 999 720	8 329 071	8 160 544
FUELS			
Coal	1 385 822	1 411 827	1 121 987
Coke	149 997	111 878	126 398
Natural gas	3 583 043	2 354 729	2 696 576
Natural gas by-products	119 890	170 596	195 662
Petroleum	29 929 636	32 658 022	30 677 000
Other fuels	577 401	587 360	534 029
Total fuels	35 745 789	37 294 412	35 351 652
Total mining imports (including fuels)	90 924 260	97 775 296	92 309 588
Total non-fuel mining imports	55 178 471	60 480 884	56 957 936
Total mining imports (including coal)	56 714 289	62 004 588	58 206 321
Total economy imports	380 809 644	396 631 957	375 872 408

Sources: Natural Resources Canada; Statistics Canada.
– Nil.
Note: Numbers may not add to totals due to rounding.

TABLE 2. CANADA, VALUE OF MINERALS AND MINERAL PRODUCTS (STAGES 1 TO 4), EXPORTS BY COMMODITY, 2005-07

	2005 12 Months	2006 12 Months	2007 11 Months
		($000)	
METALS			
Aluminum	9 742 954	12 392 614	11 514 335
Antimony	1 671	1 962	639
Barium	238	193	48
Beryllium	85	155	106
Bismuth	1 910	954	5 014
Cadmium	7 139	8 612	11 877
Calcium metals	5 519	3 342	3 495
Chromium	20 635	17 463	12 922
Cobalt	316 982	282 939	505 024
Copper	3 929 664	6 334 886	6 092 836
Gallium	–	–	–
Germanium	951	4 521	–
Gold	4 343 850	5 600 273	5 667 355
Hafnium	–	–	–
Indium	–	–	–
Iron and steel	13 889 199	14 451 335	13 058 558
Iron ore	1 616 622	1 906 089	1 717 494
Lead	307 426	396 788	544 111
Lithium	2 250	3 536	6 740
Magnesium and magnesium compounds	187 296	146 532	98 371
Manganese	36 358	41 446	36 510
Mercury	235	152	106
Molybdenum	670 294	478 723	468 009
Nickel	4 125 653	5 848 978	10 045 893
Niobium	54 086	63 545	98 268
Platinum group metals	90 573	202 256	126 524
Rare earth metals	280	305	346
Rhenium	–	–	–
Selenium	21 044	16 547	20 659
Silicon	119 159	125 323	130 472
Silver	506 036	755 783	720 641
Strontium	–	–	–
Tantalum	705	449	116
Tellurium	4 231	4 380	4 038
Thallium	–	–	–
Tin	18 015	24 213	26 570
Titanium metal	50 847	69 368	55 248
Tungsten	20 109	63 903	63 363
Uranium and thorium	1 775 164	2 200 739	3 956 238
Vanadium	110 385	105 883	85 005
Zinc	1 252 356	2 325 289	2 534 319
Zirconium	16 893	21 304	18 841
Other	5 466 261	5 786 592	5 160 674
Total metals	48 713 075	59 687 372	62 790 765
NONMETALS			
Abrasives	257 225	279 773	257 544
Arsenic	–	–	–
Barite and witherite	4 077	1 893	288
Boron	2 118	2 071	2 362
Bromine	454	134	193
Calcium (Industrial minerals)	1	–	–
Cement	781 577	747 572	732 549
Chlorine and chlorine compounds	175 014	165 722	147 793
Chrysotile (asbestos)	127 465	114 159	92 640
Clay and clay products	108 127	110 907	93 163
Diamonds	1 853 809	1 793 745	1 620 314
Dolomite	34 043	41 693	28 880
Feldspar	364	2	279

TABLE 2 (cont'd)

	2005 12 Months	2006 12 Months	2007 11 Months
		($000)	
NONMETALS (cont'd)			
Fluorspar	59 866	63 098	66 172
Glass and glassware products	1 101 684	1 134 036	934 108
Granite	77 638	70 470	52 689
Graphite	113 410	125 101	150 983
Gypsum	229 189	258 864	178 530
Iodine	9 457	13 332	8 818
Lime	26 912	28 562	38 666
Limestone flux and other limestone	21 441	17 690	17 849
Marble, travertine and other calcareous stones	26 872	33 638	39 470
Mica	11 921	11 250	10 551
Mineral pigments	157 549	170 703	167 629
Nepheline syenite	65 793	63 310	66 165
Nitrogen	1 457 130	1 366 993	1 375 976
Olivine	–	–	–
Pearls	3 876	3 919	4 154
Peat	285 631	297 982	284 749
Perlite	–	–	–
Phosphate and phosphate compounds	46 765	26 648	20 546
Potash and potassium compounds	2 768 665	2 436 015	2 786 055
Salt and sodium compounds	552 224	525 510	429 137
Sand and gravel	55 150	62 173	58 470
Sandstone	348	283	338
Silica and silica compounds	51 874	56 811	55 719
Slate	43 142	21 374	29 000
Sulphur and sulphur compounds	684 623	571 497	554 307
Talc, soapstone and pyrophyllite	22 371	22 957	23 079
Titanium oxides	215 557	207 116	185 196
Vermiculite	–	–	–
Other nonmetals	456 606	521 738	448 021
Other structurals	171 677	179 771	182 617
Total nonmetals	12 061 645	11 548 512	11 144 999
FUELS			
Coal	3 374 533	3 411 870	2 882 915
Coke	107 979	25 330	43 709
Natural gas	35 912 018	27 803 197	24 591 386
Natural gas by-products	2 377 834	2 307 792	2 034 640
Petroleum	45 287 938	54 540 440	54 467 522
Other fuels	454 792	484 988	475 891
Total fuels	87 515 094	88 573 617	84 496 063
Total mining exports (including fuels)	148 289 816	159 809 503	158 431 826
Total non-fuel mining exports	60 774 721	71 235 886	73 935 764
Total mining exports (including coal)	64 257 233	74 673 086	76 862 388
Total economy exports	436 225 869	440 135 367	415 015 667

Sources: Natural Resources Canada; Statistics Canada.
– Nil.
Note: Numbers may not add to totals due to rounding.