

Zinc

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1999 mine production: \$1.5 billion
 World rank: Second (metal production)
 Exports: \$1.6 billion

Canada	1999	2000 ^e	2001 ^f
	(000 tonnes)		
Mine production	1 009	970	935
Metal production	781	805	805
Consumption	169	200	205

^e Estimated; ^f Forecast.

Zinc is 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. 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. Secondary zinc has become an increasingly important source of the metal in recent years. Secondary 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 secondary zinc exclusively from secondary feeds in primary zinc smelters. However, refined zinc from the processing of electric arc furnace dusts or from the de-zincing of galvanized steel scrap may become important in the future.

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

1996	1997	1998	1999	2000 ^e
(US\$/t)				
1 025.0	1 313.3	1 023.3	1 077.3	1 160

^e Estimated.

CANADIAN OVERVIEW

- In July, Falconbridge Limited approved the development of Mine D (Deep) at the Kidd Creek mine at Timmins, Ontario. The project will extend the mine from 2100 m to 3100 m below the surface. The Mine D project will contribute 2 Mt/y of ore when full production levels are reached in 2004.
- In April, Noranda Inc. announced that it had resumed underground operations and milling at its Bell-Allard zinc mine near Matagami, Quebec. Operations were suspended in late February following an incident where the mine's underground shaft compartment sustained damage when the hoisting skip malfunctioned.
- Elsewhere in the Matagami region, Noranda continued to report good drilling results from an exploration program. The presence of a significant zinc and copper deposit consisting of three distinct ore zones, Equinox, Perseverance and Perseverance West, was discovered within the Matagami mining camp. Preliminary results for the Equinox zone indicate an inferred resource of 2.6 Mt grading 16.6% zinc, 1.1% copper, 34 g/t silver and 0.36 g/t gold. Work continues to define the zones.

- In May, Breakwater Resources Ltd. acquired the Bouchard-Hébert and Langlois zinc mines, located in northwestern Quebec, from Cambior Inc. Earlier in the year, Cambior announced mechanical problems with the SAG mill at the Bouchard-Hébert mine, which resulted in a temporary shutdown of the mill. The repaired SAG mill was back in production in October and is expected to reach full capacity of 2900 t/d by year-end.
- Late last year, rock stability problems at Cominco Ltd.'s Sullivan mine resulted in lower concentrate production. Subsequent improvements at the mine in the first quarter of 2000 had resulted in higher zinc and lead concentrate production. Results are being reviewed at Sullivan to ensure that the mine can be operated on an economic basis until the planned closure date, which is now expected to be December 2001.
- Evaluation continues on several advanced projects, including Expatriate Resources Ltd.'s Kudze Kayah property in the Yukon, Canadian Zinc Corporation's Prairie Creek project in the Northwest Territories, and Redfern Resources Ltd.'s Tulsequah Chief project in British Columbia.

WORLD OVERVIEW

- The Lisheen mine was officially opened in June. An equal joint-venture project between Ivernia West Plc and Anglo American plc, the Lisheen mine, located near Thurles, County Tipperary, Ireland, is the fifth largest zinc and lead mine in the world. The mine is expected to produce 4.83 Mt of zinc and lead concentrate during its 14-year lifespan.
- Boliden's Spanish subsidiary, Boliden Apirsa SL, filed for bankruptcy in October. The subsidiary, which operates the Los Frailes mine, will continue to operate until the end of October 2001.
- Vancouver-based EuroZinc Mining is in final discussions with European banks to secure financing for its US\$60 million Aljustrel zinc mine project in Portugal. Once secured, the project is expected to start in 2001 with an ore throughput rate of about 1.45 Mt/y.
- Finland's Outokumpu signed a letter of intent in October to acquire the 150 000-t/y Norzink zinc smelter in Norway from its joint owners, Rio Tinto plc and Boliden Limited, for US\$180 million.
- Pasminco Limited officially opened its new Century mine in Queensland, Australia, in early April.

The mine is expected reach its full annual production rate of 500 000 t of zinc contained in concentrate by the end of 2001. Half of the mine's zinc concentrate will supply Pasminco's Budel Zink smelter in the Netherlands.

- Cominco announced that its U.S. subsidiary, Cominco American Inc., will re-open the Pend Oreille zinc-lead mine near Metaline Falls, Washington. Work on the US\$70 million project began in October and it is expected to start production in the third quarter of 2002. The lead and zinc concentrate will be shipped to Cominco's nearby Trail smelter in British Columbia.

LEADING WORLD ZINC PRODUCERS

<u>Producers</u> Zinc in Concentrate		<u>Producers</u> Zinc Metal	
	2000 ^e		2000 ^e
	(000 tonnes)		(000 tonnes)
China	1 500	China	1 800
Australia	1 397	Canada	805
Canada	970	Japan	652
Peru	890	Australia	513
United States	860	South Korea	470

Source: International Lead and Zinc Study Group.

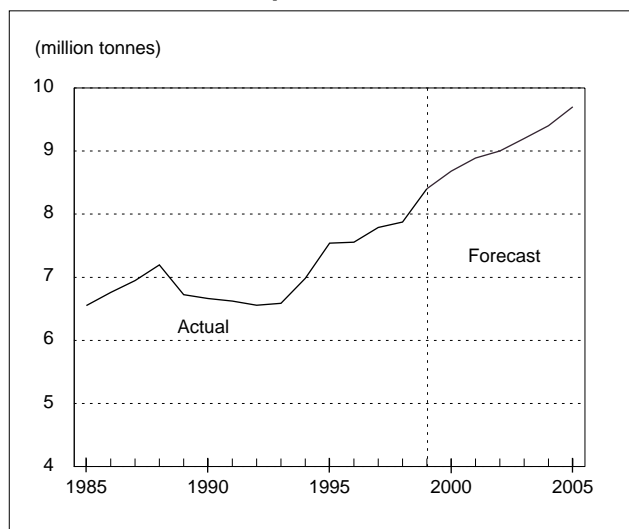
^e Estimated.

CONSUMPTION OUTLOOK

An increase of 2.4% in world zinc consumption to 8.90 Mt is forecast in 2001, following an estimated 3.3% increase in 2000. Continued economic growth in North America should result in increased zinc demand of over 2.6% in 2000, with Europe expected to show more modest growth at about 1.6%. Following two successive years of decline, growth in Japanese demand is expected to reach 5.2% in 2000. In 2001, European demand is expected to rise by 2.3% and to remain at 2000 levels for North America while levelling off at about just under 1% in Japan.

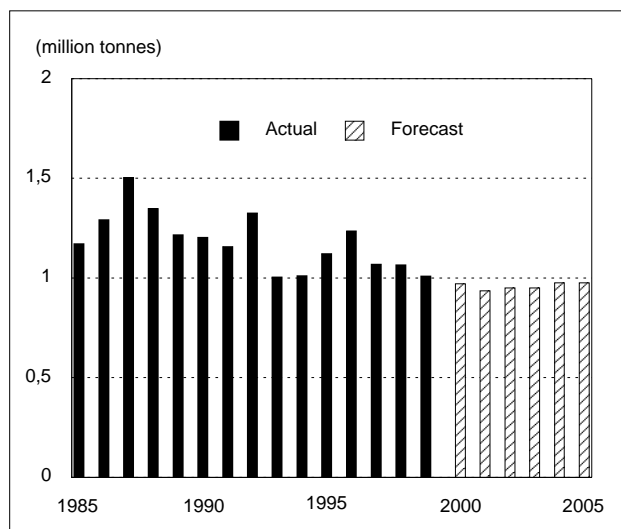
Beyond 2001, world zinc consumption is forecast to grow by an average 2.8%/y to 2005. Galvanizing will remain the dominant end use of zinc and exhibit the largest increase in consumption during the forecast period, followed by brass and die-cast alloys.

Figure 1
World Zinc Consumption, 1985-2005



Source: Natural Resources Canada.

Figure 2
Canadian Mine Production of Zinc, 1985-2005



Source: Natural Resources Canada.

CANADIAN PRODUCTION OUTLOOK

Zinc mine production in Canada is expected to be 3.9% lower in 2000 compared to 1999, primarily as a result of temporary technical problems at Noranda's Brunswick and Bell Allard facilities. The new circuit at Agnico Eagle's LaRonde mine continues to ramp up production. As older mines such as Cominco's Sullivan mine near closure, Canadian zinc mine production overall is expected to decrease by a further 3.5% in 2001. In the longer term, mine production should stabilize by 2004 as Hudson Bay Mining and Smelting Co. Limited's 777 project increases to full production and Falconbridge's Mine D project comes on stream.

With the shift from domestic sources of concentrate to more imports, zinc metal production in Canada will increase about 10% in 2000 to 805 000 t, primarily as a result of increased production at Cominco's Trail operations in British Columbia and at Noranda's Valleyfield zinc refinery in Quebec. In 2001, Canada is expected to again produce 805 000 t of zinc metal. Production capacity in Canada is set to further increase by 15 000 t/y by the end of 2001 as a result of the modernization and expansion project currently under way at Hudson Bay Mining and Smelting Co. Limited's Flin Flon operations.

PRICE OUTLOOK

The LME Cash Settlement prices for zinc followed a downward trend in the first quarter of 2000. Cash prices started the year at US\$1200/t and fell to \$1065/t by the end of February, only to rally to reach a peak of \$1277/t in mid-September. As stock levels began to rise towards the end of September (up 7700 t from the start of the month), prices began to fall and the gains made through the first three quarters dropped to a new low for the year, with the cash price at US\$1061/t towards the end of October.

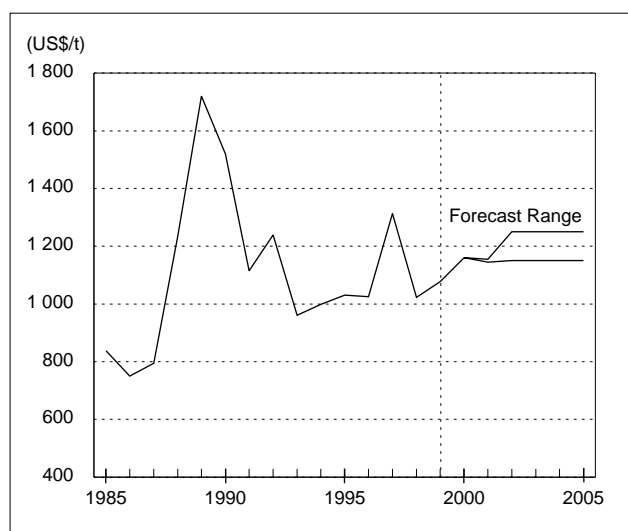
Stocks on the LME declined steadily through the first three quarters of the year. Stock levels fell from 278 850 t in January to 201 925 t in mid-August, rising to 224 000 t at the end of October. Together with other consumer stocks, total reported stock levels are still low, representing just over five weeks of Western World supply. After taking into consideration the net exports from the former Eastern countries and releases from the U.S. Defense National Stockpile, according to the ILZSG, the close supply and demand balance seen during the first half of 2000 is expected to develop into a modest surplus for the year as a whole if current production schedules are met.

For 2001, the zinc market, according to information gathered by the member countries of the ILZSG, is

expected to result in a substantial Western World market surplus if ambitious production targets are achieved. While market demand is expected to remain strong overall, zinc metal output in 2001 is expected to increase 3.7%. Prices will likely reflect this potential oversupply and average about US\$1150/t (52¢/lb) for the year.

Beyond 2001, investments made in the zinc industry in recent years have resulted in large increases in mine and smelter capacity. Continued growth in galvanizing markets, combined with good growth overall for principal zinc markets, is expected in the remainder of the forecast period with zinc prices ranging from US\$1150 to \$1250/t through to 2005.

Figure 3
Zinc Prices, 1985-2005
Annual LME Settlement



Source: Natural Resources Canada.

Note: Information in this article was current as of November 10, 2000.

NOTE TO READERS

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