

## THE MINERAL INDUSTRY OF

# SLOVAKIA

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Slovakia continued to be a modest regional producer of a variety of minerals. (See table 1.) Aluminum and steel were the major components of the metals sector, whose raw materials inputs were based largely on imports. Slovakia also produced small quantities of copper, gold, lead, and zinc. Among industrial minerals, the country registered production of barite, cement, clays, magnesite, and salt. Slovakia's production of mineral fuels comprised brown coal, lignite, and small quantities of gas and petroleum.

Slovakia remained in transition to a full market economy system. In 1998, the country's gross domestic product increased by 4.4% (constant prices) compared with that of 1997.

Zavod Slovenskeho Narodneho Postavnia (ZSNP) at Ziar nad Hronom was Slovakia's sole producer of primary aluminum. Construction of the plant began in 1951, and production started in 1953. Slovalco became the new company name in 1993 following the restructuring of the enterprise's assets. Slovalco, initially wholly owned by ZSNP, began facility expansion that garnered investment capital from the European Bank for Reconstruction and Development and Hydro Aluminum A.S. of Norway. Completion of the modernization of the aluminum production process allowed the plant's environmental protection standards to be more compatible with those of the European Union (EU).

In 1998, Slovalco reported having produced 108,000 metric tons (t) of primary aluminum. Sales of finished aluminum during this period amounted to 123,500 t, of which 83.5% was exported. The major recipients of Slovalco's aluminum were Italy and Austria, accounting for 32.3% and 19.2%, respectively, of total sales. The marketed product mix was 73.3% billets, 18.5% primary foundry alloys, 6.6% wire rod, 0.7% liquid metal, and 0.5% ingots. In 1998, about 45% of total investment (\$5 million) went for environmental protection technologies and projects pertaining to health and safety; the balance was allocated toward capital improvements (Slovalco).

In Slovakia's gold sector, a new exploration license was granted in 1998 to the Argosy Mining Corp. of Canada for territory encompassing Argosy's previously licensed gold exploration area. The newly granted area is underlain by andesites and "extensively overlain by rhyolitic flows and sediments, forming rhyolitic to rhyodacitic domes" (Mining Journal, 1998, p. 102). Argosy considered the mineralization to be of similar age to that found at the area currently (1998) licensed to the company at Kremnica. In June, Argosy also completed 100% acquisition of the Kremnica gold property.

Drilling results at Lom (former producing gold-antimony deposit) proved positive for Golden Regent Resources of Canada and LBN Syndicate of Australia, its exploration partner. Drill core studies of the gold-bearing mineralization (first conducted by the Germans in 1944) showed results similar to data obtained

in historical documents but with increasing width of mineralization at depth. The Lom mineralization is hosted in "steeply dipping altered gneiss with two quartz vein systems" that also contain stibnite and pyrite (Northern Miner, 1998, p. 17). In 1998, Golden Regent controlled 75% interest in the property by means of controlling equity in First Canadian Slovak Mining Co., the property's owner. According to an agreement with Slovakia, First Canadian Mining could acquire up to a 60% interest in the property by investing \$610,000 for the drilling program and reopening the closed Lom mine workings (Northern Miner, 1998).

Slovakia's steel output for the 9-month period (January-October) in 1998 declined by about 7.5% to 2.77 million metric tons (Mt) compared with 2.98 Mt in the same period in 1997. Yearend results were put at 3.69 Mt (Steel Times, 1998). Major developments during the 1997-98 period centered on VSZ Holding a.s. (VSZ), the country's principal integrated steel producer (formerly Vychodoslvenske Zeleziarne sp). Production data for VSZ for 1998 registered declines for wet coke, 12%; crude and rolled steel, 11% each; and pig iron, 10%.

The most recent facility expansion and modernization at VSZ included the construction of an automatic 8,000-metric-ton-per-year (t/yr) casting unit (VSZ Holding a.s., 1997a). The casting unit was completed and put into service in November 1997. The unit was designed to produce special castings from steel or grey and graphitic cast iron for use in the machine building and automotive industries. Exports of castings from this unit were anticipated to go to France, Germany, Hungary and Poland (Billingham and Demko, 1997c). The overhaul of VSZ's blast furnace No. 2 and heater No. 31 was reportedly completed before July 1998; work on blast furnace No. 3 was started on July 1 and completed in December (Billingham and Demkova, 1997a; VSZ Holding, a.s. 1998).

In 1998, domestic sales of VSZ's rolled steel accounted for 20.8% of total sales. Of the exports, the EU and the European Free Trade Area, the Czech Republic, and the rest of the Central European Free Trade Area accounted for 29.3%, 17.6%, and 15.4%, respectively, of total sales. A number of important foreign commercial agreements also were transacted during the 1997-98 period. In October 1997, VSZ and Rautaruukki of Finland signed an agreement to form a joint venture, RANNILA KOŠICE, s.r.o., to produce rolled profile sheets in Košice. Initial stock held by Rautaruukki amounted to 51%; the balance was held by VZS. The chief objective of the joint venture was to supply roofing sections to the growing construction market in Slovakia, as well as the growing markets in the Balkans (Billingham and Demkova, 1997b). In mid-1998, six additional production lines were installed to process zinc and plastic covered materials at the VSZ cold-rolled strip mill. Also, in 1998, RANNILA KOŠICE, s.r.o., was to produce 15,000 t of

galvanized and 5,000 t of plastic-coated sheet (VSZ Holding a.s., 1997b).

In early 1998, VSZ announced the purchase of a 68.15% stake in DAM Diosgyor steel mill in Hungary. According to the agreement, VSZ was to increase the assets of Diosgyor by 3 billion forint in 1998 and an additional 1 billion forint in 1999. Management hoped that the purchase would improve VSZ's position in the regional steel market (Marko, 1997). In other regional commercial transactions, following an agreement reached in early 1998, VSZ sold its shares, amounting to about 20% of the Czech Republic's Trinecke Zelezarney stock, to Moravia Steel, a holding company in the Czech Republic (Billingham and Demkova, 1998a).

In February 1998, VSZ and USX Corp. of the United States formed a joint venture, VSZ U.S. Steel s.r.o., to produce and market tin plate; each partner controlled a 50% stake. VSZ contributed its existing 140,000-t/yr tin-plating production facilities (continuous annealing line, electrolytic tinning line, temper mill, etc.); USX's contribution to the joint venture was sufficient capital to increase production by 200,000 t/yr (adding new continuous annealing, electrolytic tinning lines, etc). Production was scheduled to begin in December 1999 (Marko, 1998).

In June 1998, VSZ signed an equipment purchase contract with Voest Alpine Industrieanlagenbau GmbH of Austria. The equipment was scheduled for the VSZ's cold-rolled strip mill, the construction of a continuous-rolling tandem stand no. 4, and the reconstruction and modernization of pickling lines nos. 1 and 3. The capital construction project, scheduled for completion in March 2000, would increase the cold rolling production capacity from 1.2 to 1.9 million metric tons per year (Mt/yr); pickling capacity would increase from 1.8 to 2.3 Mt/yr (VSZ Holding a.s., 1997c; Metal Bulletin, 1998).

Other issues for the 1997-98 period included the decision by VSZ's management to accept the joint stock company, Kovouprava, to be the steel mill's sole supplier of scrap (Billingham and Demkova, 1998b).

Trends in Slovakia's cement consumption from 1996 to 1999 showed steady growth from 1.25 Mt in 1996 to 1.54 Mt in 1997 to 1.65 Mt in 1998 to 1.7 Mt projected for 1999, giving corresponding growth rates of 23.2%, 7.1%, and 3% (International Cement Review, 1998). Residential and nonresidential construction volume grew by 5% in 1997 in comparison with that of 1996. In 1998, Holderbank of Germany was a major investor in Slovakia's cement sector, controlling 79.9% of the shares in Hirocem and 86.4% in Stredoslovenska Cementaren Banska Bystrica. Holderbank also acquired controlling interest in Cementaren Lietavska Lucka apparently to secure this enterprise's customer base, after which it was closed down (International Cement Review). The addition of a new

cement production line at Cementaren Horne Srnie, a firm currently controlled by Austrian and German interests, was a major capital project in the cement industry in 1998. The equipment, supplied by PSP Engineering, a subsidiary of Prerovske Strojirny, would be installed by March 2000. The value of the contract amounted to about \$32.8 million (International Cement Review, 1998).

In June, Slovakia completed the construction and initiated the startup of the Machovce nuclear powerplant. This event, however, was regarded unenthusiastically by neighboring Austria (Frey, 1998). Strong reservations expressed by the Austrian public stemmed from doubts expressed by Austrian nuclear experts about the safety of the reactor, specifically about its lack of an overall containment system to prevent the leakage of radioactivity that would follow a severe accident. The Machovce reactor was originally of Soviet design, which was completed with French and German technology and certified by experts from the International Atomic Energy Commission.

## References Cited

- Billingham, Andy, and Demkova, Kamila, 1997a, Ocel vychodu—5.11—Highlights: VSZ Holding a.s. press release, November 11, 2 p.  
———1997b, Ocel vychodu—10.12, Highlights: VSZ Holding a.s. press release, December 10, 2 p.  
———1997c, Ocel vychodu—12.11—Highlights: VSZ Holding a.s. press release, November 12, 2 p.  
———1998a, Ocel vychodu—7.1—Highlights: VSZ Holding a.s. press release, January 7, 2 p.  
———1998b, Ocel vychodu—8.4—Highlights: VSZ Holding a.s. press release, April 8, 2 p.  
Frey, Eric, 1998, Protests as Slovak reactor starts up: [London] Financial Times, June 9, p. 2.  
Global Cement Report, 1998, Slovakia: International Cement Review, August, p. 256.  
International Cement Review, 1998, New Slovak line: International Cement Review, October, p. 10.  
Marko, Jozef, 1997, [Untitled]: VSZ Holding a.s. press release, November 11, 2 p.  
———1998, [Untitled]: VSZ Holding a.s. press release, January 8, 1 p.  
Metal Bulletin, 1998, VSZ upgrades pickling lines and CR mill: Metal Bulletin, no. 8293, July 9, p. 17.  
Mining Journal, 1998, Argosy's Slovak progress: Mining Journal, v. 331, no. 8492, August 7, p. 102.  
Northern Miner, 1998, Golden regent, LBN cut gold in Slovakia: Northern Miner, v. 84, no. 33, October 12-18, p. 17.  
Slovalco, 1999, Annual report—1998: Slovalco, 28 p.  
Steel Times, 1998, Slovakia—Powering up: 1998 Annual Technical Review of European Steelmaking, 1 p.  
VSZ Holding, a.s., 1997a, Ocel vychodu—23.4—Highlights: VSZ Holding a.s. press release, April 23, 1 p.  
———1997b, Rautaruukki Oy and VSZ Holding a.s. together set up the joint venture RANNILA KOSICE, s.r.o.: VSZ Holding a.s. press release, April 2, 1 p.  
———1997c, [Untitled]: VSZ Holding a.s. press release, April 2, 1 p.  
———1998, General overhaul and modernization of blast furnace no. 3: VSZ Holding a.s. press release, July 1, 1 p.

TABLE 1  
SLOVAKIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1994	1995	1996	1997	1998
<b>METALS</b>						
Aluminum:						
Alumina		75,000	100,000	100,000	100,000	100,000 e/
Aluminum ingot, primary		33,000	38,139	121,825	127,182	108,000
Copper:						
Mine output:						
Ore, Cu content		--	--	89	314	676
Concentrate, gross weight		--	--	386	314	670
Metal, refined, primary and secondary		20,000	29,000	25,000	25,000	25,000 e/
Gallium, metal e/	kilograms	600	600	600	600	600
Gold, metal	do.	372	518	492	458 r/	340
Iron and steel:						
Iron ore:						
Gross weight	thousand tons	870	820	960 r/	970 r/	899
Fe content	do.	230	225 e/	240	250	250 e/
Concentrate, Fe content	do.	450 e/	446	436	453	479
Metal:						
Pig iron for steelmaking	do.	3,330	3,207	2,928 r/	3,072 r/	3,100
Ferroalloys:						
Total electric furnace 2/	do.	124	140 e/	93	95	95 e/
Ferromanganese		48,555	65,260	19,900	11,394	11,000 e/
Ferrosilicon		30,000	30,000	30,000	30,000	30,000 e/
Steel, crude	thousand tons	3,948	3,958 r/	3,458 r/	3,484 r/	3,700 e/
Semimanufactures	do.	3,662	3,686	3,500	3,600	3,500 e/
<b>INDUSTRIAL MINERALS</b>						
Barite		45,700	41,600	44,930	62,102	14,880
Cement, hydraulic	thousand tons	2,700 r/	2,981 r/	2,841 r/	3,136 r/	3,000 e/
Clays:						
Bentonite		60,310	74,960	74,820	79,760	81,010
Kaolin		24,100	13,300	23,240	22,720	14,500
Diamond, synthetic e/	carats	5,000	5,000	5,000	5,000	5,000
Dolomite	thousand tons	1,700	1,800 e/	2,069 r/	1,989 r/	1,796
Gypsum and anhydrite, crude		122,000	131,000	121,000 r/	116,000 r/	128,000
Lime, hydrated and quicklime	thousand tons	900 r/ e/	803 r/	764 r/	685 r/	700 e/
Magnesite, crude		616,900	814,500	824,800	863,600	877,840
Nitrogen, N content of ammonia e/		250,000	250,000	250,000	250,000	250,000
Perlite		28,270	21,850	25,160	25,000	24,000
Salt		99,600	99,750	106,800	100,500	100,470
Sand and gravel	thousand cubic meters	1,500 e/	1,500 e/	1,432	1,872	1,906
Stone:						
Limestone and other calcareous stones for cement e/	thousand tons	7,000 r/	7,000 r/	7,000 r/	7,800 r/ 3/	7,200 3/
Crushed stone	thousand cubic meters	5,000	5,000	3,739	3,510	4,318
Talc		4,800	5,000	9,000 r/	7,000 r/	4,000
Zeolite		12,670	9,720	10,000 r/	14,000 r/	10,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Coal, brown and lignite	thousand tons	4,078	4,140	3,829	3,942	3,966
Coke:						
Metallurgical	do.	1,900 e/	1,900 e/	1,854 r/	1,708 r/	1,730
Unspecified e/	do.	200	200	200	200	200
Gas, manufactured, coke oven	million cubic meters	291	345	307	309 r/	311
Petroleum:						
Crude:						
As reported	thousand tons	68	74	68 r/	63	61
Converted	thousand 42-gallon barrels	460	500	480	426	400 e/
Refinery products e/	do.	40,500	40,500	40,500	40,000	40,000

e/ Estimated. r/ Revised.

1/ Table includes available through December 1999. In addition to commodities listed, arsenic, diatomite, feldspar, fertilizer, illite, lead, sodium compounds, sulfur, sulfuric acid, tin-tungsten, and zinc are produced, but available information is inadequate to make reliable estimates of output levels.

2/ May include some FeCrSi and FeMn.

3/ Reported figure.

TABLE 2  
SLOVAKIA: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand of metric tons unless otherwise specified)

Commodity		Major operating companies 1/	Location of main facilities 2/	Annual capacity
Aluminum		ZSNP Aluminum Works (Slovalco)	Ziar and Hronom, central Slovakia	60
Cement		Lietavska Lucka, Stupava, and Turna	Slovakia	5,400
Coal, brown		ULB administration	Prievidza, central Slovakia	6,800
Copper:				
Ore		Slovinky, Hodrusa-Hamre, and Rudnany	Central Slovakia	500
Refinery		Kropachy	do.	27
Gallium	kilograms	ZSNP Aluminum Works	Ziar and Hronom, central Slovakia	4,000
Iron:				
Ore		Nizana Slana and Rudnany	Central Slovakia	1,600
Concentrate		do.	do.	1,300
Lead-zinc, ore		Banska Stiavnica	do.	200
Magnesite		SMZ administration	Eastern Slovakia	550
Mercury	metric tons	Dubnik, Malachov, and Rudnany	Central Slovakia	150
Petroleum		NAFTA a.s.	Gbely	65
Steel, crude		VSZ Holding, a.s. 3/	Slovakia, Kosice	4,000
Do.		Svermove zeleziarne	Slovakia, Podbrezova	600

1/ All mining companies are Government owned.

2/ Names and locations of mines and crude oil refineries are identical.

3/ Vychodoslvenske Zeleziarne sp (East Slovak Iron and Steel Works) was renamed VSZ Holding in 1997.