

# THE MINERAL INDUSTRY OF CROATIA

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Croatia continued to produce modest amounts of metals, industrial minerals, and mineral fuels. Petroleum production and refining, however, remained the dominant part of the minerals sector, owing, in part, to its greater export earnings potential. The country continued to face two issues—postwar reconstruction of industry and infrastructure and the implementation of policies designed to bring about a rapid transition to a full market economy system. In 1998, both unemployment and interest rates remained high. Early first-quarter reports showed the gross domestic product (in constant 1990 prices) increasing by about 3.5% compared with that of 1997. The total value of industrial production in 1998 increased by 3.7% compared with that of 1997. The total value of output of the mining and quarrying declined by 2.4% compared with that of 1997. The production value of base metals, industrial minerals, and coal and lignite rose by 16.9%, 14%, and 4.8%, respectively, compared with that of 1997. The aggregate values of output of natural gas and petroleum extraction and coke and those of petroleum products and nuclear fuel production fell by 6.8% and 1.4%, respectively (Croatian Bureau of Statistics, 1999).

Croatia's INA Naftaplin (INA) oil and gas company continued to be the country's largest state-owned operation. Croatia was the principal producer of petroleum and natural gas in the former Yugoslavia, typically accounting for about 70% of the petroleum and 75% of the natural gas production. The chief onshore deposits are in the Pannonian Basin. Part of this basin also was exploited by Slovenia; however Croatia's INA was the dominant producer of oil and gas in the region, operating 35 oilfields and 17 gasfields. Total reserves of natural gas and petroleum were assessed at 44 million cubic meters (Mm<sup>3</sup>) and 94 million metric tons (Mt), respectively (INA Naftaplin, 1997). Major issues in the sector during the year involved the gas industry with exploration being undertaken in the Dinaric Alps region (Dinarides) and in the north Adriatic gasfields. Both regions were expected to be Croatia's future source of supply of natural gas. The northern Adriatic fields were being explored by Inagip, a joint venture created in 1996 by INA and AGIP S.p.A. of Italy. Planned investment in the project would total \$320 million, with \$166 million to be contributed by AGIP and \$154 million by INA. Additionally, AGIP planned to build a gas pipeline from Italy to the Croatian coast to convey annually 2.25 Mm<sup>3</sup> of natural gas to Croatia, beginning in 2004. Croatia's current annual consumption of natural gas was composed of domestically produced gas (about 1,700 Mm<sup>3</sup>) and imports of natural gas from Russia, amounting to slightly more than 1 Mm<sup>3</sup> in 1998 (Petroleum Economist, 1998). Because of the

developments in the Adriatic region, previous projects, which included new pipeline construction from Russia via Hungary and the liquefied natural gas project (LNG) on Krk Island off the Croatian coast, could face cancellation.

INA's other foreign commercial activities in 1998 included exploration for natural gas in Albania and the purchase of White Knights Oil Company in Russia. White Knights owned a license to produce petroleum and natural gas at two oilfields in West Siberia, with petroleum reserves assessed at 10 Mt (about 70 million barrels). The total value of this transaction amounted to \$20 million (CEEBIC, 1998). Overall, INA reported a decline in profits in 1998 compared with those of 1997, because of the rise in the value of the U.S. dollar, the fall in prices for crude, and an inflation rate in Croatia of 5.7%. The total value of the oil and gas branch of the minerals sector reportedly declined by 6.8% in 1998 compared with that of 1997, in contrast with coal and lignite, which increased its value of output by 4.8% following a major decline in 1997 (Croatian Bureau of Statistics, 1999). In November 1998, an exchange of memoranda and notes, as well as meetings between Croatian and Slovenia delegations failed to resolve the final disposition of the Krsko nuclear powerplant; however, it was agreed to resolve outstanding issues on a co-ownership basis. The plant was built jointly by Slovenian and Croatian authorities prior to the dissolution of Yugoslavia. Negotiations with respect to its status were expected to continue into the following year (CEEBIC, 1998).

Croatia was a small producer of metals that included aluminum, ferroalloys, and iron and steel. In 1998, the aggregated value of base metals production rose by 16.9% compared with that of 1997, which followed a decline of 12.7% in 1997.

Croatia's two steel mills, Zeljezare Sisak dd. (Sisak), in Sisak, in the central part of the country, and Jadranska Zelejezara Split (Split), on the Dalmatian coast, were to begin undergoing modernization during the year. As part of the Government's privatization effort, the modernization scheme at the Sisak plant was to include a new production profile focusing on the output of seamless and welded pipes and tubes. According to Sisak spokespersons, only crude steel production and steel pipe manufacturing were to be retained. Sisak's other operations, which included a 100,000-metric-ton-per-year (t/yr) ferroalloy plant and a 700,000-t/yr coking plant, had been closed. The Sisak steelworks were operating a 30-metric-ton electric arc furnace and a 500,000-t/yr continuous casting unit. In 1998, production was well below rated capacity. The major portion of Sisak's stock was held by the Croatian State Agency for Bank

Rehabilitation and Deposit Insurance, pension funds, and the Croatian Privatization Fund (Metal Bulletin, 1998).

A modernization program was instituted at the Split steelworks, which operated two electric arc furnaces and continuous casting units providing a 120,000-t/yr capacity to produce billets, wire rod, and reinforcing steel. The major portion of Split's stock was held by public utilities and state funds, while private shareholders held 22%.

Foreign commercial activities in Croatia's metals branch included negotiations between Government representatives and foreign interests concerning a 5-year lease proposal of the Dugi Rat ferrochromium plant (Metal Bulletin, 1998).

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TABLE 1  
CROATIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1994	1995	1996	1997	1998 e/
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite e/	1,400	1,500	--	--	--
Metal, ingot, primary and secondary	25,993	30,944	32,959	17,800	17,500
<b>Iron and steel, metal:</b>					
<b>Ferroalloys:</b>					
Ferrochromium	31,704	26,081	10,559	24,231	11,770 3/
Ferromanganese	562	--	--	--	--
Ferrosilicomanganese	22,071	--	--	--	--
Steel, crude, from electric furnaces	63,357	45,373	45,752	68,733	70,000
Silver kilograms	637	75	--	--	--
<b>INDUSTRIAL MINERALS</b>					
Cement thousand tons	2,055	1,708	1,842 r/	2,134 r/	2,000
<b>Clays:</b>					
Bentonite	10,391	7,327	9,728	7,331	7,500
Ceramic clay e/	10,000	10,000	10,000	10,000	10,000
Fire clay, crude	4,143	2,475	5,000 e/	5,000 e/	5,000
<b>Gypsum:</b>					
Crude	--	--	86,060	102,470	100,000
Calcined	--	--	--	1,260	1,000
Lime thousand tons	169	81	192	208	200
Nitrogen, N content of ammonia do.	311	310	307	331	300
Pumice and related materials, volcanic tuff do.	53	39	64	63	50
Quartz, quartzite, glass sand	31,031	31,765	43,508	97,563	50,000
Salt, all sources	21,655	21,784	18,820	16,620	17,000
Sand and gravel, excluding glass sand thousand cubic meters	1,845	1,925	1,401	3,853	4,000
<b>Stone, excluding quartz and quartzite, dimension stone, crude:</b>					
Ornamental square meters	1,111,271	1,108,655	1,029,437	1,130,728	1,100,000
Crushed and brown, n.e.s. thousand cubic meters	4,955	5,492	9,099	10,520	10,000
Other e/ cubic meters	20,000	20,000	20,000	20,000	20,000
Sulfur, byproduct of petroleum e/	15,000 r/	15,000 r/	15,000 r/	15,000 r/	15,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Carbon black	21,468	27,187	26,735	24,214	25,000
Coal, bituminous thousand tons	96	75	64	49	50
Coke do.	219	--	--	--	--
Natural gas, gross production million cubic meters	1,792	1,966	1,786	1,717	1,700
<b>Petroleum, crude:</b>					
As reported thousand tons	1,576	1,500	1,469	1,496 r/	1,200 3/
Converted e/ thousand 42-gallon barrels	12,000	12,000	11,000	12,000	12,000
Refinery products	7,000,000 e/	5,000,000 e/	4,731,974	5,056,289	5,000,000

e/ Estimated. r/ Revised.

1/ Table includes data available through September 1999.

2/ In addition to commodities listed, common clay also was produced, but available information was inadequate to make reliable estimates of output levels.

3/ Reported figure.

TABLE 2  
CROATIA: STRUCTURE OF THE MINERALS INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Alumina		Jadral, Jadranski Aluminijum	Jadral Alumina Plant	150
Aluminum		Boris Kidric Tvornica Lskih Metala	Smelter at Sibenik	75
Do.		Top-Tvornica Olovni i Aluminjskih	Semimanufactures producer at Savska	NA
Bauxite		Jadral, Jadranski Aluminijum	Mines in at Obrovac, Drnis, and other locations	450
Coal, bituminous		Istarski Ugljenokopi Rasa	Mines at Labin and Potpican	500
Cement		Dalmacija Cement	Sv. Juraj plant at Kastel Sucurac	1,300
Do.		do.	Sv. Kajo plant at Solin	750
Do.		do.	Majdan plant at Solin Majdan	780
Do.		Istra Cement International D.D.	Plant at Pula	70
Do.		Tvornica Cementa Koromacno	Plant at Koromacno	420
Do.		Tvornica Cementa Umag D.D.	Cemant plant at Umag	480
Do.		Nasicecement D.D.	Nacise plant at Tajnovac	840
Natural gas	million cubic feet	do.	Main natural gasfields at Bogsic Lug, and Molve	70,000
Petroleum, crude	thousand barrels per day	Industrija Nafte (INA)	Oilfields in Croatia and Slovenia: Benicanci, Zutica, Struzec, Ivanic, Grad, Lendava, and other locations	70
Do.	do.	do.	Refineries at Urinj and Rijeka	160
Do.	do.	do.	Refinery at Sisak	150
Pig iron		Metalurski Kombinat Zeljezara Sisak	2 blast furnaces at Sisak	235
Salt	cubic meters	Solana Pag, Solana Ante Festin	Marine salt: Pag Island	13
Steel, crude		SP MK Zeljezare Sisak d.d.	Plant at Sisak	401
Do.		Jadranska Zelezara Split	Plant at Split	120