

## FINLAND

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For many years, economic growth in Finland has been faster than in the rest of the EU. The growth continued until autumn 2002 and then slowed down perceptibly for international reasons. Despite the slowdown in economic growth, the annual volume of Finnish exports increased by 5.6% during 2002. The change in the consumer price index was only 1.6%, down from 2.6% in 2001. The unemployment rate, 9.1%, was the same as the year before. The unemployment rate, one of the main problems in Finland in addition to an aging population, is expected to rise to 9.4% in 2003. The national debt continued to decrease, for the fifth year in a row, and the debt-to-GDP ratio decreased from 45.5% to 42.4%.

The Fennoscandian Shield offers good opportunities for new gold discoveries. In Finland, there is a suite of layered intrusions with good potential for platinum group metals (PGM), as well as for nickel, copper, chromium and gold ores. Also, there is good potential for diamonds, and diamond exploration continued and increased during 2002, and significant new discoveries were made in eastern and northern Finland. So far, although kimberlites have been discovered, none has been reported to be significantly diamondiferous. In 2002, the first small test mine for diamonds was started in central Finland.

Expenditures on exploration totalled €41 million, a 4.4% decrease on 2001, but a smaller decrease than in most other countries. In the Nordic countries, a total of €70 million was spent on exploration in 2002. Of this sum, the contribution by Finland was as high as 59%. The amount of new reservations for claims increased substantially in 2002, being the highest since 1994. The number of valid claims still continued to rise, as has been the case since 1999. Diamond drilling totalled approximately 179,000 m a new annual record.

There were some new entrants to the exploration scene, including some large international mining companies.

Finland's largest metals producer, the Outokumpu Group withdrew from base metals exploration in line with its strategic focus on downstream businesses and technology rather than mining, and its Pyhäsalmi zinc-copper-pyrite mine was sold to Inmet Mining Corp. of Canada. The new Pyhäsalmi deep mine, the deepest in Europe, reached almost full production in 2002 processing 1.24 Mt of ore at average grades of 1.22% Cu, 3.00% Zn, and 41% S. Ore reserves have increased to 17.2 Mt averaging 1.19% Cu, 2.59% Zn and 41.7% S.

Outokumpu Mining Oy maintains an interest in precious metals in the Baltic Shield. The company is working to expand resources at and around its existing Orivesi mine, as well as in the vicinity of the Vammala concentrator in southwest Finland and at various sites in eastern Finland. The more notable

advanced projects are in Ilomantsi and Kuusamo. Outokumpu Mining Oy has a 49% stake in the Arctic Platinum Partnership (APP), the balance of 51% being held by Gold Fields Ltd. In the course of the year, APP announced resources of 219 Mt at an average grade of 2 g/t PGM +Au (14.4 Moz), much of the resource (184 Mt, containing 9.1 Moz) being confined to the marginal series of the Portimo layered intrusion. (The Suhanko project is currently under feasibility study.) At Riddarhyttan Resources AB's Suurikuusikko gold project in northern Finland the mineral resource was increased to 11.5 Mt averaging 5.4 g/t Au. In 2002, Riddarhyttan received an environmental permit for mining and processing at Suurikuusikko. At the moment, the company is assessing various financing alternatives for the construction of a new mine.

Four metal mines were operating in Finland in 2002, the same number as in 2001. The total mined ore tonnage of these mines was 3.2 Mt, slightly more than the previous year. The Outokumpu Group gained full ownership of the steel producer Avestapolarit Co., including the Kemi chromium mine, by acquiring the minority shares held by the Corus Group. The Kemi mine continued the construction work for underground mining; today most of the ore production still comes from an open pit. The total ore mined at Kemi was 1.2 Mt, the feed grade being 23.7% Cr<sub>2</sub>O<sub>3</sub>. Reserves amount to 51.2 Mt averaging 24.6% Cr<sub>2</sub>O<sub>3</sub>. The Hitura nickel mine produced 0.6 Mt ore averaging 0.63% Ni. Reserves are 1.4 Mt at 0.68% Ni. The Orivesi gold mine produced 180,000 t of ore averaging 8.9 g/t Au. Remaining reserves amount to 150,000 t at 7.8 g/t Au.

The number of limestone quarries and mines increased to 17 (16), but output decreased slightly from 4.0 Mt to 3.7 Mt. The number of mines and quarries mining industrial minerals and soapstone was 14, the same number as the previous year, and output was practically unchanged. Kone Oyj acquired Oy Partek AB, the owner of the division Oy Nordkalk AB, which holds most of the limestone quarries in Finland. Altogether 37 mines and quarries, covered by the Finnish Mining Act, were in production in 2002, which is unchanged from last year. These figures do not include those quarries mining granites and other dimensional stones, or quarries for roadstone, because the Finnish Mining Act does not cover these. A working group, appointed by the Ministry of Trade and Industry in 1999, and commissioned to review the Mining Act from 1965, finalised its proposal at the end of the year.

The Geological Survey of Finland reported four mineral deposits to the Ministry of Trade and Industry for international tenders. Of these, the Hyypiänmäki limestone deposit was sold to Omya Oy, and the Iso-Sorro limestone deposit to Oy Nordkalk AB.

In 2002, the total production of concentrates, metals, and minerals was close to the production figures for 2001 (Table 1 next page). The production of zinc and copper in concentrates rose as a result of production from the new Pyhäsalmi deep mine.

<b>Metals and Minerals ('000 t except where stated)</b>				
Concentrates	1999	2000	2001	2002
Pyrite concentrate	840	824	583	570
Chromite concentrate and lumpy ore	597	628	575	566
Iron ore pyrite residues	276	256	261	275
Nickel concentrate	8	25	33	37
Zinc concentrate	38	31	37	63
Copper concentrate	38	42	40	50
<b>Metals and Metallurgical Products</b>				
Steel (Mt)	3.96	4.12	3.94	4.00
Pig iron (Mt)	2.95	2.98	2.85	2.83
Stainless steel	598	636	561	627
Ferrochrome	256	261	236	248
Zinc	225	223	249	235
Copper	115	114	116	115
Nickel (cathode)	19	22	18	19
Cadmium (t)	700	680	600	n/a
Mercury (t)	55	76	71	51
Silver (t)	31	24	23	30
Selenium (t)	37	37	42	37
Gold (t)	7.0	5.0	5.6	4.7
<b>Minerals</b>				
Apatite	734	751	767	800
Talc	508	502	477	477
Quartz	203	174	163	188
Feldspar	44	39	36	40
Wollastonite			18	17
Mica		10	10	7
<b>Other</b>				
Soapstone (fireplaces etc.)	37	38	42	40
Products made of limestone (Mt)	3.94	3.03	3.28	3.08
Cement (Mt)	1.30	1.42	1.32	1.20

n/a: not available.