

FINLAND

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Economic growth in Finland slowed perceptibly in autumn 2002, having outpaced the rest of the EU for many years previously. In 2003, private consumption increased by 3.6%, but the volume of exports rose by only 1.3%. The change in the consumer price index was just 0.9%, down from 1.6% in 2002. The national debt: GDP ratio increased to 44.5% from 42.4% in 2002. The unemployment rate for 2003 remained at 9.0% and has remained practically unchanged for the past three years. Unemployment is a major problem in Finland in addition to an aging population, and is expected to remain roughly unchanged in 2004.

There is substantial potential to discover a variety of commodities in the Fennoscandian Shield and this continued to attract international exploration companies to Finland. Starting in 2003, and accelerating in 2004, renewed interest in diamonds and nickel was apparent. By the end of 2003, several advanced mineral projects had progressed towards the mine decision stage. The most important mine projects are in the north and east.

The biggest transactions, acquisitions and corporate changes ever seen in the extractive industry in Finland took place in 2003. The Outokumpu Group and Boliden of Sweden completed a transaction whereby Boliden acquired Outokumpu's mining and smelting operations concerning zinc and copper, and sold its fabrication and technology sales operations to Outokumpu. Following the subscription, Outokumpu owns 49% of all the shares and votes in 'new Boliden'. Outokumpu sold its share in the large Arctic Platinum Project (APP) to Gold Fields Ltd, the latter now being the sole owner. Further, in line with its strategic focus on downstream businesses and technology rather than mining, Outokumpu sold its precious metals business to Dragon Mining NL of Australia. The transaction included the Orivesi gold mine, the Vammala concentrator, a large number of precious metals exploration assets, and some advanced projects. Dragon in Finland operates through its wholly owned subsidiary Polar Mining Oy. International companies now account for most of the exploration, mining and smelting in Finland.

Exploration

Partly as a result of the corporate ownership changes, which have had a temporary influence on investments in exploration, expenditure on exploration in Finland dipped by 6.7% in 2003 to €38.7 million, although this figure represented 54% of the total spending in the Nordic countries last year of €72 million.

Whilst the number of new exploration licences granted in Finland decreased in 2003, the number of valid claims increased, and there has been a continuous

increase since 1999. Total diamond drilling, of about 167,000 m, decreased slightly compared with 2002. However, figures for drilling during the preceding three years include detailed drilling on some advanced projects.

Some new mining companies, including some major international companies, commenced exploration in Finland in 2003. In the course of the year, new updated resource figures for Gold Fields' Arctic Platinum Project (APP) in the Suhanko area in southern Lapland were announced: a total of 157 Mt at an average grade of 2.4 g/t PGM+Au (12.2 Moz contained). At the Suurikuusikko gold project in northern Finland, Riddarhyttan Resources announced new resource figures: 12.6 Mt at 5.4 g/t Au (2.2 Moz contained).

(In mid-2004, AIM-listed Tertiary Minerals plc today announces the discovery of two separate kimberlite bodies at Kalettomanpuro in the Karelian Craton, and a third kimberlite, some 20km away at Kattaisenvaara. This was encountered by drilling beneath almost 24m of glacial till. Laboratory testing of the samples from the Kalettomanpuro kimberlites has been conducted for microdiamonds and indicator minerals. No microdiamonds were found but a large suite of diamond indicator minerals, including visually distinctive G9 and/or G10 garnets, was recovered.)

Elsewhere, European Diamonds plc has recently recovered diamonds from drill core at its Lahtojoki prospect. Conroy Diamonds and Gold plc has a number of diamond exploration properties in Finland.

The Geological Survey of Finland reported only one new deposit to the Ministry of Trade and Industry for international tender. Four deposits were offered for sale: two limestone deposits, a nickel prospect and a polymetallic prospect. A new owner was found for the Rytky nickel deposit.

Production

In 2003, some changes were made in the official classification and statistics on mining in Finland. The new classes are: metal mines, mines mining carbonate rock, and mines mining other industrial minerals and soapstone. Altogether 40 (37) mines/quarries, covered by the Finnish Mining Act, were in production in 2003, and the mines produced a total of 18.9 (17.8) Mt of ore. By volume, mining has continuously increased since 1995.

Five metal mines were in production in 2003, processing a total of 3,243,608 t (+58 458 t) of ore. Production at the Orivesi gold mine was discontinued because of depleted reserves. In its last production year the mine processed 172,570 t of ore averaging 8.4 g/t Au. During the whole production period, from 1994 to 2003, the mine produced 1.69 Mt averaging 9.3 g/t Au. The processing plant in Vammala will be kept intact and exploration is continuing. The Pahtavaara gold mine in Lapland, now operated by Scanmining Oy, was reopened in late 2003.

The Pyhäsalmi Cu-Zn-pyrite mine, the deepest mine in Europe, reached full production in 2003: 1.33 Mt at 1.17% Cu, 3.10% Zn and 41.13% S. At the end

of 2003, reserves at Pyhäsalmi amounted to 15.7 Mt at 1.2% Cu, 2.7% Zn and 40% S.

The Hitura nickel mine, the sole nickel mine in Finland, produced 648,742 t of ore averaging 0.63% Ni and 0.22% Cu. The recovered amount of nickel metal was 2,687 t in concentrates. Reserves at Hitura amounted to 1.2 Mt at 0.69% Ni at the end of 2003.

The total ore mined at the Kemi chromium mine was 1.1 Mt averaging 24.9% Cr₂O₃. Of this, 88,524 t came from the new underground mine, officially opened in September 2003. Reserves at Kemi comprise 2.4 Mt in the open pits, and 50 Mt for the underground mine, for a total of 52.4 Mt at 24.6% Cr₂O₃.

The total mining of carbonate rock rose, owing to strong demand for white limestone products. The number of quarries and mines extracting carbonate rock was 16 (17) and the volume of rock mined increased by 0.27 Mt to 4.01 Mt. Nordkalk's mined a total of 3.8 Mt, production coming from ten mines. Outside Finland Nordkalk mined 3.6 Mt in Sweden, 1.0 Mt in Estonia and 2.7 Mt of carbonate rock in Poland. The number of mines and quarries mining other industrial minerals and soapstone was 19 (16), and the total volume extracted was 11.7 Mt, an increase of 0.8 Mt compared with 2002.

In most cases, the total production of concentrates, metals, and minerals in 2003 increased compared with the previous year (See Table). The main reason for the increase in the production of concentrates was that the Pyhäsalmi mine reached full production. Outokumpu's stainless steel production grew substantially, as a result of ramping up to capacity at the Tornio works.

Table following page.

Concentrates, metals and minerals produced in Finland in 2003					
('000 t except where stated)					
Concentrates	1999	2000	2001	2002	2003
Pyrite concentrate	840	824	583	570	674
Chromite concentrate and lumpy ore	597	628	575	566	549
Nickel concentrate	8	25	33	37	41
Zinc concentrate	38	31	37	63	71
Copper concentrate	38	42	40	50	51
Metals and Metallurgical Products					
Steel	3,956	4,096	3,938	4,002	4,765
Pig iron	2,954	2,982	2,851	2,828	3,092
Stainless steel	598	636	561	627	1,077
Ferrochrome	256	261	236	248	250
Zinc	225	223	249	235	266
Copper	115	114	123	126	136
Nickel products	57	58	63	59	52
Cobalt products	6	8	8	8	8
Cadmium (t)	700	680	600	4	0
Mercury (t)	55	76	71	51	25
Silver (t)	31	24	23	30	34
Selenium (t)	37	37	42	37	52
Gold (t)	7.0	5.0	5.6	4.7	5.6
Minerals					
Apatite	734	751	767	800	799
Talc	508	502	477	477	502
Quartz	203	174	163	188	219
Feldspar	44	39	36	40	59
Wollastonite			18	17	17
Mica		10	10	7	9
Other					
Soapstone (fireplaces etc.)	37	38	42	40	42
Products made of limestone	3,935	3,029	3,276	3,080	3,684
Cement	1,299	1,423	1,324	1,195	1,186