

THE MINERAL INDUSTRY OF

IRELAND

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Ireland remained a major European Union (EU) producer of zinc and an important producer of alumina, lead, and peat in 2001. Although the range of minerals exploited in the country has been limited, exploration activity for additional new mineral resources, mainly emphasizing gold, lead, and zinc, continued to increase. The country's mineral-processing industry was small as was the demand for and consumption of mineral products (table 1).

Interest in gold, lead, and zinc exploration has provided the impetus for the revitalization of the exploration sector within the past few years. The upswing in activity in the lead and zinc sector has resulted in the development of new mines and the investigation of several other potential projects. See table 2 for the structure of the mineral industry in 2001.

In 2001, the Irish economy continued to grow strongly, albeit at a slower rate than previous years. Ireland had 10 years of economic growth with gross domestic product growth that averaged more than 8%. The unemployment rate was reduced from about 14% to less than 4%. On January 1, 1999, the Irish pound (£) ceased to exist as Ireland's national currency, and the new EU euro (€) became the official unit of exchange; Irish currency will, however, continue to circulate until the introduction of € notes and coins in January 2002 (U.S. Bureau of Economic and Business Affairs, 2002).

In midyear 2001, Irish Ispat Ltd. (a subsidiary of Ispat International N.V.) announced the closing of its steel plant at Haulbowline, County Cork, after failing to find a buyer. Ispat acquired the plant (formerly known as Irish Steel) from the Irish Government in 1996. During this period, Irish Ispat had to operate under difficult steel market conditions, a competitive EU market for its products, rising energy costs, and a 40% average rise in the plant's wage bill. The company reported losses of more than \$600,000 per month. Irish Ispat produced medium steel sections, mostly for export to the United Kingdom and continental Europe (Metal Bulletin, 2001a).

Strongbow Resources Inc. completed a drilling program at the Avoca project in County Wicklow. The project, which is located 60 kilometers (km) south of Dublin, consisted of a number of zinc-lead-silver-rich volcanogenic massive sulfide (VMS) targets within volcanic rocks of Ordovician age. Seven holes, which totaled 1,195 meters (m), were drilled, and the company reported significant results in four of the holes. Strongbow had licences that covered 73 square kilometers (km²) and considered the area to have great potential as a VMS system (Strongbow Resources Inc., June 2001§¹).

Ireland was a major EU zinc producer with production centered on Anglo American plc's and Ivernia West plc's joint

venture Lisheen zinc-lead mine, Arcon International Resources plc's Galmoy zinc-lead mine, and Outokumpu Oyj's Tara zinc-lead mine (table 2). These were three of Europe's most modern mines.

Outokumpu announced that it was closing the Tara Mine at Navan and would quit base-metal mining and focus on metal production, fabrication, and technology. The Tara Mine would be put on care and maintenance, although production could be resumed if zinc prices improve. Tara, which was the largest zinc mine in Europe, has been producing about 200,000 metric tons per year (t/yr) of zinc-in-concentrate and has been supplying from 10% to 15% of the raw material for Outokumpu's Kokkola and Odda zinc plants. Outokumpu was the third largest zinc metal producer in Europe with a 15% share of the European market and a 5% share of the world zinc production. The company has been significantly affected by the decline in zinc prices (Metal Bulletin, 2001b).

The Galmoy Mine, which is located 110 km southwest of Dublin, was producing 650,000 t/yr of ore at target grades of 11.3% zinc and 1% lead. Most of the current (2001) reserves were contained in three major ore bodies; the 4-million-metric-ton (Mt) CW ore body was being mined. The ore body was mined underground by using the room-and-pillar method. All the ore was crushed underground and transported to the surface by means of a conveyor belt. Total estimated reserves and resources were more than 10 Mt at a grade of 11.4% zinc and 1.1% lead. Other ore bodies are to the west of CW, and the development of a decline to the G, K, and associated ore bodies was begun. The deepest ore is 100 m below the surface (Chadwick, 2001).

The most recent zinc mine, the Lisheen Mine, is located within a few kilometers of the Galmoy Mine, on the Rathdowney Trend mineralized belt. The first ore was mined in 1999. Officially, Lisheen began commercial production on January 1, 2001. The two ore bodies—Main Zone and Derryville—were initially planned to produce 160,000 t/yr of zinc in concentrate but should be increased to 330,000 t/yr of zinc and 40,000 t/yr of lead in concentrates at full production. The deposit is about 30 m thick with depths up to 300 m. Estimated proven and probable reserves were 15.4 Mt at a grade of 11.76% zinc and 2.05% lead (Robertson, 2001).

Industrial mineral production remained relatively constant. Several industrial minerals projects were awaiting to be granted planning permissions and mining leases before moving into development and production.

Cambridge Mineral Resources plc was continuing with diamond and sapphire exploration work. Operations on the gemstone prospect in Inishow, County Donegal, have included stream sediment sampling, ground magnetic surveys, and airborne magnetics over Cambridge's six prospecting licenses,

¹References that include a section twist (§) are found in the Internet References Cited section.

which cover an area of about 250 km². Numerous diamond indicator minerals, which include peridotitic and eclogitic garnets and clinopyroxenes, were identified. Ruby and sapphire were also recovered in significant quantities from certain locations, thus widening the project focus (Cambridge Mineral Resources plc, 2001§).

Natural gas production continued off the southern coast of Ireland near Cork. Reserves were not disclosed, and the production from the fields was being carefully managed to extend the life of the fields.

Enterprise Oil plc announced it had approved the \$580 million development of the Corrib natural gas field, which is located 80 km west of Erris Head, County Mayo. This would be the first offshore development in Ireland in two decades. The decision was welcome news for Ireland, which is facing a shortfall of natural gas in the next few years as demand rises and the existing offshore field, Kinsale, nears the end of its productive life. The first gas would flow by 2003 and be carried onshore through a subsea pipeline and then processed at a terminal in Mayo (Alexander's Gas and Oil Connections, 2001§).

The Geological Survey of Ireland (GSI) was responsible for the development of minerals information and for the technical management of the state mineral licensing and leasing system. Ireland's geology includes several lithological units and tectonic features that are favorable for the occurrence of several types of mineral resources from base metals to industrial minerals. The GSI provided technical assistance to the exploration and mining industry in defining these occurrences.

References Cited

- Chadwick, John, 2001, Irish zinc—Galmoy trend: *Metal Bulletin*, v. 185, no. 2, August, p. 57.
- Metal Bulletin, 2001a, Ispat International closes Irish plant: *Metal Bulletin*, no. 8585, June 21, p. 3.
- Metal Bulletin, 2001b, Outokumpu closes Tara as it quits mining: *Metal Bulletin*, no. 8622, November 5, p. 4.
- Robertson, Rob, 2001, Lisheen zinc mine approaching design levels: *Northern Miner*, v. 187, no. 15, June 4, p. 1.
- U.S. Bureau of Economic and Business Affairs, 2002, Ireland, *in* Country reports on economic policy and trade practices: U.S. Department of State, February, p. 3.

Internet References Cited

- Alexander's Gas and Oil Connections, February 23, 2001, Enterprise Oil approves development of Corrib gas field, accessed March 26, 2001, at URL <http://www.gasandoil.com/goc/company/cne11218.htm>.
- Cambridge Mineral Resources plc, February 1, 2001, Press Release, accessed March 19, 2001, at URL <http://www.cambmin.co.uk/media.html>.
- Strongbow Resources Inc., June 2001, Avoca project, accessed February 13, 2002, at URL <http://www.strongbowresources.com/strongbow.html>.

Major Sources of Information

- Department of Transport, Energy and Communications
Beggars Bush, Paddington Rd.
Dublin 4, Ireland
- Geological Survey of Ireland
Beggars Bush, Paddington Rd.
Dublin 4, Ireland

TABLE 1
IRELAND: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	1997	1998	1999	2000	2001 e/	
METALS						
Alumina e/	1,273 3/	1,200	1,200	1,200	1,200	
Iron and steel, steel, crude	337	358	335	360	150	
Lead:						
Mine output, Pb content	tons	45,149	36,528	43,831	57,825 r/	44,500 3/
Metal, refined, secondary e/	do.	12,000	12,000	12,996 3/	9,000 3/	13,000 3/
Silver, mine output, Ag content	kilograms	13,284	10,800	15,300	25,100 r/	22,600 3/
Zinc, mine output, Zn content	tons	194,796	180,951 r/	226,100	262,877 r/	225,135 3/
INDUSTRIAL MINERALS 4/						
Cement, hydraulic		2,100 e/	2,256 r/	2,466 r/	2,620 r/	2,500
Gypsum e/		477 3/	450	450	450	500
Lime e/		100,000	100,000	100,000	100,000	100,000
Nitrogen, N content of ammonia		465	458	401	410	443 3/
Sand and gravel e/ 5/		12,000	12,000	12,000	12,000	12,000
Stone and other quarry products: e/						
Limestone	million tons	1	1	1	1	1
Other 6/	tons	35,000	36,000	35,000	35,000	36,000
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural, marketed	million cubic meters	2,417	2,400	2,500 e/	2,500 e/	2,500
Peat:						
For horticultural use e/		400	400	350	400	400
For fuel use: e/						
Sod peat 7/		1,000	1,000	1,600	1,600	1,600
Milled peat 8/		2,851 3/	3,000	4,000	3,500	3,500
Total		3,900 r/	4,000	5,600	5,100	5,100
Peat briquets e/		253	300	300	300	300
Petroleum refinery products: 9/						
Liquefied petroleum gas	thousand 42-gallon barrels	350 e/	498	464 r/	545 r/	500
Naphtha	do.	350 e/	799	1,046 r/	884 r/	900
Gasoline, motor	do.	3,000 e/	3,868	3,893 r/	4,556 r/	4,500
Distillate fuel oil	do.	5,000 e/	7,443	7,333 r/	8,415 r/	8,000
Residual fuel oil	do.	5,000 e/	6,693	7,000 r/	7,639 r/	7,000
Refinery fuel and losses	do.	400 e/	147	70 r/	77 r/	75
Total	do.	14,100 e/	19,448	19,806 r/	22,116 r/	21,000

e/ Estimated. r/ Revised.

1/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

2/ Table includes data available through March 2002.

3/ Reported figure.

4/ Ireland also produces significant quantities of synthetic diamond and is the major supplier to the United States. Output, however, is not quantitatively reported, and general information is inadequate to make reliable estimates of output levels.

5/ Excludes output by local authorities and road contractors.

6/ Includes clays for cement production, fire clay, granite, marble, rock sand, silica rock, and slate.

7/ Includes production by farmers and by Bord Na Mona (Government Peat Board).

8/ Includes milled peat used for briquet production.

9/ From imported crude oil.

TABLE 2
IRELAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facility	Annual capacity
Alumina	Glencore International AG	Aughinish Island, County Limerick	1,000
Barite	Magobar Ireland Ltd.	Silvermines, County Tipperary	240
Cement	Irish Cement Ltd.	Plants in Limerick and Platin	2,000
Lead-zinc, concentrate	Anglo American plc, 50%, Ivernia West plc, 50%	Lisheen Mine, County Kilkenny	160
Do.	Arcon International Resources plc	Galmoy Mine, County Kilkenny	135
Do.	Outokumpu Oyj	Tara Mine, Navan, County Meath	215
Natural gas million cubic feet	Marathon Oil Co.	Kinsale Head Field, Celtic Sea	75,000
Nitrogen, N content of ammonia	Irish Fertilizer Industries	Plant at Marino Point	450
Peat	Bord Na Mona (Government Peat Board)	Production mainly in midlands	4,200
Petroleum, refined barrels per day	Irish National Petroleum Corp. Ltd. (Tosco Corp., 100%)	Whitegate, near Cork	75,000
Steel	Irish Ispat Ltd. (Ispat International N.V.)	Haulbowline, near Cork (closed)	500