THE MINERAL INDUSTRY OF

IRELAND

By Harold R. Newman [1]

Ireland remained as one of Europe's major producers of zinc and a significant producer of alumina, barite, lead, and peat in 1994. The country continued its significance in the European Union (EU) as a producer of mined lead and zinc. Although the range of minerals exploited in the country has been limited, exploration activity continued to increase, mainly emphasizing gold, lead, and zinc. The country's mineral processing industry was relatively small, as was the demand and consumption of mineral resources.

As a member of the EU, Ireland was a full participant in a program to implement the single European market, and the country was continuing those efforts.

The Government was expected to continue receiving EU funding support to assist in constructing and upgrading infrastructure projects, including roads, ports, telecommunications, and indigenous energy development.

The Industrial Development Authority (IDA), an agency that was established and fully financed by the Government, was to create wealth and provide employment by attracting domestic and foreign investment.

The Geologic Survey of Ireland and IDA were investigating the feasibility of the dimension stone industry in Ireland.

An EU Directive on Environmental Impact Assessment required that extractive industries, including mining of minerals and ores, be subjected to an Environmental Impact Assessment (EIA) before development is granted. The Government responded to this Directive by finalizing comprehensive environmental regulations in relation to mining development. Criteria to address the EIA will be incorporated into mining licenses prior to issuance. Also, prospectors are required to complete an environmental audit.

Legislation to set up an Environmental Protection Agency was enacted in 1992, and mineral extraction will be licensed by the agency limiting discharges to air and water, noise emissions, and waste. The Department of Energy will assess the adequacy of any EIA's submitted by the extractive industry.

The EIA is not confined to mineral operations. Some other operations affected were cement plants, ironworks, steelworks, and foundries with a batch capacity of 5 metric tons per day (mt/d) or more; integrated chemical works; glass works where capacity exceeds 5,000 metric tons per year (mt/a); and artificial mineral fiber factories.

Ireland's base-metals production, centered mainly on Tara Mines Ltd.'s zinc-lead mine near Navan, County Meath, remained strong. Industrial mineral production, including barite and gypsum, held steady throughout the country. Several metals and industrial minerals projects were awaiting the granting of planning permission and mining leases before moving into development and production. Natural gas production continued off the southern coast of Ireland, near Cork. Reserves were not disclosed, and production from the fields was being carefully managed to extend the life of the area. (*See table 1.*)

Ireland's trade sector continued to perform well in 1994. External trade was more diversified than in the past, thus reducing exposure to changing economic conditions in individual overseas markets.

Although Ireland supported the single European market effort and European economic integration, the country has special needs and problems that integration presents to peripheral and less developed regions. EU measures most likely to have an impact on Ireland's interests are fiscal harmonization and proposals for economic and monetary union. Ireland has been a full participant in the European Monetary System (EMS) since its inception in March 1979. This has provided a framework for improving the economy by stabilizing the Irish pound, containing wage increases, reducing inflation, and encouraging exports.

Ireland has traditionally been a rural-based economy, and farm products continued to contribute significantly to the total export value in 1994. However, Government economic strategy during the past several years has concentrated on building up indigenous industries, including mineral resource development. Under the various Minerals Development Acts passed between 1940-79, the Minister for Energy was empowered to grant licenses and mining rights for prospecting as well as subsequent development. Most mineral exploration and development is subject to state regulation. The Geologic Survey of Ireland is responsible for the development of mineral information and for technical management of the state mineral licensing and leasing system. The Survey also provides technical assistance to the exploration and mining industry.

Ireland has a proven geological potential for a variety of minerals. In 1994, the country was a significant producer of lead and zinc. Interest in gold exploration was ongoing, thus providing the impetus for the revitalization of the exploration sector within the past few years. Employment in mining and quarrying, including turf, was about 8,000 persons in 1994. *(See table 2.)*

Aughinish Alumina Ltd. (AAL) completed plans to expand to improve efficiency and increase the capacity of its plant

from an initial 800,000 mt/a of alumina to 1 million metric tons annually (Mmt/a). The refinery was designed so that production could be doubled or tripled if the world market for alumina improves sufficiently. AAL imports most of its bauxite requirements from the Republic of Guinea. A secondary source is Brazil.

The major market for AAL's alumina is primary aluminum smelters. British Alcan Aluminium PLC purchases 65% of the refinery's output for its smelter in the United Kingdom. The remaining 35% is purchased by Billiton Aluminium Ireland Ltd. for its smelter in Norway.

Most exploration activity appeared to be focused on four areas that are known to contain significant gold mineralization. These areas are Avoca and Clontibret in the eastern part of the Caledonies. The other two districts occur in the western and southern parts of the Caledonies.

Two companies, Glencar Exploration PLC and Andaman Resources PLC, were proceeding with gold exploration projects in Mayo County. MIM Holdings of Australia and Navan Resources PLC of Ireland were continuing their joint venture exploration programs in the Central Irish Midlands and in the Scottish Highlands, United Kingdom. MIM and Navan have been exploring for base metals in the Central Irish Midlands since mid-1989.

A major upswing in activity in the lead and zinc sector was expected in Ireland. The country's output of zinc could double by the second half of the 1990's if the development of two new mines continues as planned. Several other potential projects also were under investigation at yearend.

Tara Mines Ltd. was moving ahead with its previously planned major plant renewal including technical upgrading of mining and processing operations. The Tara Mine, at Navan, is one of the largest lead-zinc producers in Europe.

Arcon International Resources PLC, formerly Conroy Petroleum and Natural Resources PLC, was proceeding with plans to develop its deposit in County Kilkenny after receiving planning permission from the Kilkenny County Council. The company submitted a planning application based on the construction of an underground mine, accessed from the surface by a 13% decline midway between the two CW and G ore bodies. The ore bodies were reported by Arcon to contain an estimated 6 Mmt of ore grading 11.3% zinc and 1.1% lead at a depth of 70 meters. Mine construction was expected to take 19 months to complete and would provide 200 jobs. The mine, during its estimated 10-year life, would be designed to produce 2,000 mt/a of lead and 60,000 mt/a of zinc in concentrates.[2]

The company's estimated cost of bringing the Galmoy Mine into production in 1995 was $80 million.[3]

A joint-venture project involving Ivernia West PLC and Minorco S.A. was continuing. Ivernia reported that drilling results on the Lisheen ore body in County Tipperary had increased estimated reserves and that the drilling program was expected to continue through 1994. The joint venture was proceeding with a full feasibility study and an Environmental Impact Statement. This would form the basis for a planning application for the Lisheen Mine development. Lisheen shares the same Rathdowney geologic trend as Arcon's Galmoy project, 8 kilometers (km) away in County Kilkinney.

Irish Steel Ltd. operated a scrap-based minimill near Cork and is the only steel producer in Ireland. Privatization of Irish Steel was still under consideration. The company was negotiating with its work force over a rationalization and investment program. The company went from four to three shifts in both its melting shop and rolling mill and was pursuing its program to improve operating efficiency.

Ireland produced significant quantities of synthetic diamonds. Output was not quantitatively reported, and information was not available to make reliable estimates of production.

The two companies that manufacture industrial diamonds and super abrasives are De Beers Industrial Diamonds Div. (Ireland), a subsidiary of De Beers Consolidated Mines (Pty.) Ltd. of South Africa, and GE Superabrasives Ireland, a subsidiary of General Electric Co. of the United States.

A range of abrasives was produced from synthetic diamond, cubic boron nitride, and polycrystalline diamond (PCD). Trade names for the PCD products are Syndie for wire drawing blanks, Syndrill for rock cutting blanks, and Syndite for cutting tools and wear-resistant parts. All sales were to the export market.

Gypsum Industries PLC continued with open pit mining of the Knocknacran gypsum deposit in County Monaghan. Estimated reserves reportedly would extend the mine life to 20 years, operating at a mine capacity of 300,000 mt/a.y[4] Reserves at Gypsum's two other mines had been exhausted and both were closed.

Ivernia West PLC submitted a planning application to the Government Planning Authority to develop its Westport talc-magnesite deposit in County Mayo. The application was in the appeal process after initial rejection by the Mayo County Council. If the appeal is successful, Ivernia was expected to proceed with development. The open pit operation was expected to have an initial production capacity of 40,000 mt/a.

Coal production was mainly semibituminous high-ash coal from the Connaught Field, and was used for electricity generation. Marathon Petroleum (Ireland) Ltd. progressed with the development of the Ballycotton natural gasfield off Ireland's coast in the Celtic Sea. The plan called for a single subsea well connected with the company's Kinsale Head Platform Bravo 14 km to the south.

The company reportedly agreed to sell production from the gasfield to the Irish Gas Board (IGB). Kinsale Head, which has the capacity to produce up to 220 million cubic feet per day, is Ireland's only source of natural gas. IGB was the largest single primary energy supplier to the industrial sector.

A licensing round requesting bids covering acreage in the Erri and Slyne Troughs off the northwest Irish coast was underway. New incentives included abolition of royalities, the tax on profits reduced to 25%, and a 25-year retroactive exploration incentive allowing all exploration costs incurred in Ireland during the last 25 years to be offset against future

production.

Ireland has a good network of roads supplemented by a Government-owned railroad. Two deepwater ports at Cork and Dublin are supplemented by 10 secondary ports. Most mine sites are easily accessible and no more than 600 km from either deepwater port.

Ireland has a proven geologic potential for a variety of minerals. The mineral industry is expected to utilize the opportunities created by the boom in gold and lead-zinc exploration and renewed interest from multinational companies to continue mineral developments.

The Geological Survey of Ireland has an active data collection program through mapping and resource-related studies and offers technical assistance. This should continue to be a significant benefit and encouragement to companies engaged in mineral resource activities.

[1] Text prepared Apr. 1994

[2] Engineering & Mining Journal, July 1994, p. 14 WW.

[3] Where necessary, values have been converted from Irish pounds (I£) to U.S. dollars at the rate of I£1=US$1.54, the average rate for 1994.

[4] Mining Annual Review, Mining Journal, June 1994, p. 190.

Major Sources of Information

Central Statistics Office
Ardee Road
Rathmines
Dublin 6, Ireland
Central Bank of Ireland
Dame Street
Dublin 2, Ireland
Geologic Survey of Ireland
Beggars Bush
Haddington Road
Dublin 4, Ireland

Major Publications

Central Statistics Office, Dublin:
Statistics Bulletin.
Central Bank of Ireland, Dublin:
Quarterly Bulletin.
Mineral Industry of Ireland

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

(Thousand metric tons unless otherwise specified)

Commodity		1990	1991	1992	1993	1994 e/	Annual capacity (Jan. 1, 1995)
METALS							
Alumina	thousand tons	885 e/	981	973	1,100	1,000	1,000
Iron and steel: Steel, crude	do.	326	307	257	326	325	350
Lead:							
Mine output, Pb content		35,300	39,900	42,900	48,400	45,000	50,000
Metal, refined, secondary		15,000 e/	11,600	12,000	12,000	10,000	15,000
Silver, mine output, Ag content	kilograms	8,000 e/	10,500	13,100	13,000	12,000	15,000
Zinc, mine output, Zn content		167,000	188,000	195,000	194,000	195,000	225,000
INDUSTRIAL MINERALS 3/							
Barite	thousand tons	101	94	70	53	60	100
Cement, hydraulic e/	do.	1,630	1,600	1,600	1,600	1,550	2,000
Gypsum	do.	394	342 e/	343 e/	318	325	500
Lime e/	do.	112,000	110,000	110,000	100,000	100,000	150,000
Nitrogen: N content of ammonia	thousand tons	395 e/	429	384 e/	367	380	450
Sand and gravel e/ 4/	do.	7,500	7,000	7,000	7,500	7,800	10,000
Stone and other quarry products: e/							
Limestone	do.	9,000	8,500	9,000	8,500	9,000	10,000
Other 6/	do.	2,000	2,000	2,000	2,000	2,000	5,000
MINERAL FUELS AND RELATED MATERIALS							
Coal, anthracite and bituminous	thousand tons	45	6	2 r/	1 r/	1	25
Gas, natural: Marketed	million cubic meters	57	56	56 e/	58	55	75
Peat:							
For horticultural use	thousand tons	229	249	300 e/	300	250	500
For fuel use: e/							
Sod peat 7/	do.	1,410	1,000	1,200	1,000	1,200	1,500
Milled peat 8/	do.	5,020	3,770	5,000	5,500	5,000	7,500
Total	do.	6,430	4,770	6,200	6,500	6,450	9,000
Peat briquets e/	do.	400	400	400	400	400	400
Petroleum refinery products: 9/							
Liquefied petroleum gas	thousand 42-gallon barrels	294	350	417	325	360	500
Naphtha.	do	497	400	349	350	350	500
Gasoline, motor	do.	3,020	3,000	3,070	3,120	3,000	3,000
Distillate fuel oil	do.	4,600	4,500	5,000 e/	5,000	5,000	5,000
Residual fuel oil	do.	4,050	4,000	4,580 e/	4,540	5,470	6,000
Refinery fuel and losses	do.	425	400	375 e/	400	400	500
Total e/	do.	12,900	12,700	13,800 e/	13,700	14,600	15,500

e/ Estimated. r/ Revised.

1/ Table includes data available through Dec. 1994.

2/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

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

4/ Excludes output by local authorities and road contractors.

5/ Reported figure.

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.

8/ Includes milled peat used for briquet production.

9/ From imported crude oil.

TABLE 2

IRELAND: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of facility	Annual capacity
Alumina	Aughinish Alumina Ltd.	Aughinish Island, County Limerick	800
Barite	Magobar Ireland Ltd.	Silvermines, County Tipperary	240
Cement	Irish Cement Ltd.	Plants in Limerick and Platin	2,000
Lead-Zinc	Outokumpu Oy	Tara Mine, Navan, County Meath	215
Natural gas, million cubic feet	Marathon Oil Co.	Kinsale Head Field, Celtic Sea	75,000
Peat	Bord Na Mona (Government Peat Board)	Production mainly in midlands	4,200
Petroleum, refined barrels per day	Irish Refining Co.	Whitegate, near Cork	56,000
Steel	Irish Steel Ltd.	Haulbowline, near Cork	350