

Land of opportunity

Ireland has become a major zinc and lead mining centre in Europe, and exploration is increasing

BY ROBERT O'SHEA

FAST FACTS

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| Capital: | Dublin |
| Population: | 4.2 million |
| Currency: | Euro |
| Government type: | Republic, Parliamentary democracy |
| GDP growth rate: | -4.3% (2009 est) |
| Stock exchange: | Irish Stock Exchange |

IN THE last few decades Ireland has undergone significant economic change. From a GDP per capita of less than 60% of the European Union (EU) average in 1990, Ireland was forecast to have the third highest GDP per capita in 2008-2010 in the EU.

However, as a small, open, trade-dependent economy, in the recent economic downturn Ireland suffered one of the worst recessions of all economies. Many challenges remain, primarily addressing difficulties in the banking sector, controlling public spending and improving competitiveness.

The Irish mining industry has also changed significantly. Over the last 40 years a string of significant base-metal discoveries have made Ireland a major zinc-lead mining country. The large demand for road and building construction aggregates in Ireland had also helped support a thriving quarrying industry. Exploration activity has increased over the past few years, with encouraging results reported by a number of international companies.

The mining and exploration industry also faces challenges. Ireland must improve its cost competitiveness if it is to maintain existing activities and attract new investment. The country must also continue to improve the legislative and regulatory framework to more actively support its mining industry.

As the representative body of the mining and exploration industry in Ireland, the Irish Mining and Exploration Group (IMEG) is working with the relevant government agencies to ensure Irish mining will continue to be an important and growing part of the Irish economy.

MINING AND THE ECONOMY

The total value (both direct and indirect) added to the Irish economy by the geosciences sector in 2006 was €4.24 billion (US\$5.73 billion), representing 2.24% of GNP. In the same year the sector employed over 30,000 people, or 1.4% of total Irish employment.

The total gross value added for mining in Ireland was calculated at €235.6 million, based on an aggregate turnover of €316.5 million. The mining industry directly employs over 1,200 people and over 3,000 in support and downstream jobs.

The mining and exploration sector makes a very significant contribution to the Irish economy, particularly to local rural economies, where the mines are among the biggest employers in their regions.

Based on latest available data, exploration expenditure during 2008 totalled €20.2 million, a 40% increase on expenditures of €14.5 million in 2007. The majority of expenditure, €16.8 million, was on Prospecting Licence Areas ('greenfield' exploration),

Main: Underground at Boliden's Tara mine and (inset) the concentrator at the same site



with the remaining €3.37 million being spent on State Mining Facilities ('brownfield' exploration).

MINING POLICY

The Minister for Communications, Energy and Natural Resources has statutory responsibility for regulation of the exploration for and development of all minerals, other than stone, clay, sand and gravel.

The Exploration and Mining Division (EMD) is responsible for the administration of regulatory aspects of Ireland's minerals industry by means of a system of prospecting licences (which are issued for a period of six years and can be renewed) and mining leases (for state-owned minerals) and licences (privately-owned minerals). The EMD is also responsible for promoting inward investment in minerals exploration.

"The mining and exploration sector makes a significant contribution to the Irish economy"

The Irish Environment Protection Agency has responsibility in many areas, such as monitoring and enforcement of Integrated Pollution Prevention and Control (IPPC) licence conditions. As in many jurisdictions, environmental guidelines apply to exploration, and an Environmental Impact Statement is required for development.

In addition, local authorities play an important role in mining and exploration operations, not least under

their responsibilities in the area of planning and development. The local authorities have a far-reaching influence and right of determination in the decision-making process prior to the development of any new operation or installation on an active mine site.

Corporation tax is at 25% for mines, and 12.5% on income and chargeable gains from general trading. The industry has proposed that its corporate tax rate be brought into line with the vast majority of Irish business, where a 12.5% corporation tax rate applied.

Capital allowances of up to 120% include exploration and development expenditure and expenditure on plant, machinery and buildings. There is an immediate write-off of exploration and development expenditure, while the cost of rehabilitation after closure is tax-deductible. There is no state shareholding in mines in Ireland.

There is wide discretion as to the form of royalty or other payment which may be set, and individual agreement on royalty is currently required for each new lease.

MAJOR MINING ACTIVITY

Since 1960, Ireland has had a string of significant lead-zinc discoveries, placing it firmly on the world stage as a country with proved prime zinc-lead territory. The known deposits contain some 14Mt of zinc metal, approximately 1.5% of world zinc found to date.

Ranked first in the world in terms of zinc discovered per square km, and second in the world for lead

discovered per square km, Ireland's zinc-lead deposits in current production comprise Europe's largest at Navan (70Mt), the 18.9Mt Lisheen deposit and, until recently, Galmoy (6.2Mt).

Global demand for zinc is estimated to have fallen by approximately 8% in comparison with 2008 as a whole, and although the average price on the LME was down 11% in 2009 compared to 2008, the price has been on a rising trend since March last year.

In the European context, Ireland accounted for 36% of European zinc mine production and 15% of European lead production in 2009. In global terms, Ireland was the tenth-largest producer of zinc in concentrates and the 11th-largest producer of lead.

Boliden AB's Tara mine at Navan is the largest zinc mine in Europe and the fifth-largest in the world. The mine has average annual ore production of 2.7Mt, yielding up to 200,000t of zinc metal and 40,000t of lead metal contained in concentrates.

The operation mined 2.5Mt of ore in 2009, to produce 185,558t of zinc and 23,567t of lead, up 6% and 4% on 2008 figures respectively.

Boliden said in February that the new grinding mill was commissioned at Tara during the December quarter, but the positive effects of lower grinding costs and improved zinc yield did not achieve their full impact during the quarter.

The Tara mine gained new ore reserves at approximately the same rate as existing ones were extracted in 2009, thanks to positive exploration results, and, to some extent, improved metal prices, Boliden says. The ore reserve of 17Mt gives the mine a lifespan of seven years at planned production levels.

Anglo American plc's Lisheen zinc-lead mine is also one of the largest producers of zinc concentrates in Europe.

Anglo announced in its annual results in February that Lisheen's zinc production increased by 3% to 171,800t in 2009, owing to higher grades and tonnage mined, while lead output increased by 21% to 19,200t owing to higher grades, improved recoveries and tonnes mined. Asset-optimisation initiatives in the mine and mill resulted in a record production year.

In January 2009, Lundin Mining Corp announced that the Galmoy mine, originally scheduled to produce until 2011, would permanently cease operation in May 2009. In its 2010 guidance, Lundin says it expects the mine's remnant production to be 14,000t of zinc and 4,000t of lead in 2010, and that sales of remnant high-grade ore are expected to be made to an adjacent mine for processing.

The company's subsidiary, Galmoy Mines Ltd, is currently working towards this closure with the local county council, the Environmental Protection Agency and the EMD.

EXPLORATION

As of February this year, there were 508 prospecting licences in Ireland, an increase of 7.5% on 2009 figures, and the highest number since 1994.

Lead and zinc are the principal commodities being explored, but other minerals being sought include gold, silver, platinum group metals (PGM), copper, molybdenum, lithium, tungsten, caesium, rare earths, gem minerals, barite, calcite, fluorite, dolomitic limestone, coal and fireclay.

Boliden is the largest prospecting licence holder in Ireland with 113 licences, distributed across ten counties. Exploration drilling in 2009 by Boliden focused on defining additional resources in the vicinity of the Tara mine. Away from the mine, Boliden is utilising its airborne gravity data (flown in 2008) to generate new exploration

Drilling at Minco's Pallas Green project in County Limerick



targets for its Midlands licences.

Xstrata plc's zinc unit and joint venture partner Minco plc continue to announce high-grade drilling intersections for their Pallas Green exploration project in northeast County Limerick. Four distinct lenses of massive zinc-lead sulphide mineralisation have been identified (Castlegarde, Srahane West, Caherconlish South and Tobermalug). The 2010 programme was planned to include about 70,000m of diamond drilling in about 150 holes.

Less than five kilometres west-southwest of Tobermalug, Teck Ireland Ltd (a subsidiary of Teck Resources Ltd) and its joint venture partner Connemara Mining Company plc have also continued to intersect high-grade zinc-lead mineralisation on the Stonepark Project. A further 10,000m of diamond drilling is planned for 2010. A number of geophysical surveys are also ongoing on the property with the aim of defining additional drilling targets outside the Stonepark and Stonepark North zones.

Conroy Diamonds and Gold plc holds 19 prospecting licences along a 50km gold trend in the Longford-Down Massif in Counties Cavan and Monaghan, as well as adjoining ground in Northern Ireland. In July 2008, the company announced a JORC-compliant gold resource of 11Mt grading 1.24g/t Au for 440,000oz of contained gold (indicated) and 14Mt at a grade of 1.32g/t for 590,000oz gold (inferred) on only 20% of its Clontibret target. Wardrop Engineering has recently been appointed to carry out a scoping study on the prospect.

Bayswater Uranium Corp conducted some drilling at its Avoca polymetallic project in 2009, despite saying that although this property has considerable merit, it is available for farm-out as it is not the core business of the company.

The Avoca deposit is considered to be a typical volcanogenic massive sulphide deposit. It contains a copper-rich core and marginal zinc and lead-rich zones with significant gold and silver credits. Also, the property was once a significant copper producer with historical

production estimated at 12Mt of ore averaging 0.75% Cu. At West Avoca, a historical resource estimate of 6Mt averaging 5.3% Zn and 1.9% Pb had been recorded.

GROWTH POTENTIAL

Despite its size, Ireland has a notably diverse geology. The Lower Carboniferous carbonate rocks of the Irish Midlands are host to one of the great base-metal orefields of the world. Since 1960, 14 significant zinc-lead deposits (resource greater than 1Mt) have been discovered, including the world-class orebody at Tara. Irish-type zinc-lead deposits are of high grade, shallow occurrence and clean metallurgy.

Large tracts of Ireland are underlain by metasediments and metavolcanics of Proterozoic and Lower Palaeozoic age. These lithologies are known to contain significant volcanic massive sulphide mineralisation and auriferous mesothermal quartz veins. The latter style of mineralisation has recently been the focus of extensive exploration efforts.

In the last few years, exploration has been undertaken for the following commodities:

- PGM mineralization associated with mafic intrusive complexes in northeast Ireland;
- Rare-earth elements and speciality metals (Li, Ta, W, Sn) associated with pegmatites that cross-cut the Caledonian Leinster granite batholith in southeast Ireland;
- Nickel and chromite associated with ultramafic intrusions in the west of Ireland; and
- Diamonds and other gemstones associated with Pre-Cambrian rocks in Donegal, in the northern most part of Ireland.

Ireland also has significant potential for industrial minerals. Gypsum, dolomite, brick shale, fireclay and dimension stone (marble, granite and limestone) are all currently exploited in Ireland and significant deposits of barite, coal, mineral sands and talc have also been delineated.