

# Turbulent times in Iberia

With Spain and Portugal's economies still mired in difficulties, a revival of the Iberian mining industry could be exactly what the region needs

## FAST FACTS: SPAIN/PORTUGAL

<b>Capital:</b>	Madrid/Lisbon
<b>Population:</b>	46.7 million/10.7 million
<b>Currency:</b>	Euro/euro
<b>Government type:</b>	Parliamentary monarchy/ Republic
<b>GDP real growth rate:</b>	-3.6% (2009)/-2.8% (2009)

**T**HE Iberian peninsular (Spain and Portugal) has long been a significant European mining centre, and was the world's first modern producer of iron, lead, zinc and copper (in the late 19th century).

However, in the past few decades, mine production has begun to decline, and the contribution of Spain's mining industry has halved from 0.6% of the country's GDP in the 1990s to just 0.3% in 2009.

The industry has been hampered by resource depletion, technological problems, low metal prices and environmental problems, among other factors.

More recently, the global recession has further thwarted mine development. Spain was the last, and the slowest, major European economy to exit the recession, recording growth in the March quarter this year for the first time in 18 months.

The government has introduced a €50 billion (US\$61 billion) austerity package to try and reduce the country's deficit, which stood at 11.2% last year (well above the European Union limit of 3%).

Portugal's financial sector, meanwhile, has been relatively insulated from the global financial crisis.

Nonetheless, the government faces tough choices in its attempts to stimulate the economy this year, after the country's deficit reached 6.8% of GDP in 2009.

While Greece is still the only European economy to have had its credit rating cut to 'junk' status, the world is closely watching developments in Iberia.

## MINING POTENTIAL

Both Spain and Portugal have a long history of mining, particularly from the Iberian Pyrite Belt (IPB), which is one of the largest massive-sulphide belts in the world and stretches across the peninsular.

Spain has a rich mining history, becoming the first world producer of many commodities, including iron, lead, zinc, copper, manganese and mercury.

Mineral resources are state-owned, although the direct participation of the state in the mining industry has fallen considerably in the past few years. Currently, the state holds mining rights in only some strategic sectors (including coal, uranium and hydrocarbons).

Portugal has also previously been the largest European producer of copper (1988) and tin (1990), as well as tungsten, although today mining is limited to a handful of operations, including Lundin Mining Corp's Neves Corvo copper-zinc mine, which has been in operation since 1989 and remains one of the largest producing copper mines in Europe.

## MINE PRODUCTION

While mining in Spain and Portugal has been declining in recent decades, the opening of four metal mines in Spain since 2005 has heralded a resurgence in the sector in this region.

The region has limited resources of energy minerals such as coal, oil and gas, and while these minerals accounted for 14% of Spain's total mineral production in 2009, both countries rely heavily on imports.

Spain has estimated coal reserves of 530Mt, according to the 2009 BP Statistical Review of World Energy. The country produced 5.5Mt of coal in 2008, down 9.1% from 2007 and accounting for just 1.2% of European production and 0.2% of world production. Portugal did not feature in the list of the top 15 European coal producers.

Spain's copper, nickel and tungsten production has been increasing, however, with total production in 2009 of 22,100t of copper, 7,800t of nickel and 270t of tungsten.

The country's metal production was valued at €290 million in 2009, and is forecast to reach €767 million this year.

Lundin's Aguablanca nickel-copper mine in Badajoz is the most established of Spain's new suite of metallic mines, having begun production in 2005. Last year the mine produced 8,029t of nickel and 6,989t of copper, a marginal decrease from 2008 as the company deliberately lowered mine production to reduce costs and blend in partially-oxidised surface-ore stockpiles.

The existing open pit at EMED's Rio Tinto project

The plant at Inmet's Las Cruces copper mine



The company says that ore stocks at the end of 2009 had been completely exhausted and that the mine will return to full production.

The mine was impacted by unusually heavy rain between December last year and March however, with the open pit being flooded on three separate occasions, reducing output as higher-grade ore could not be mined.

Lundin says it has subsequently caught up on nickel production but that copper output remains below plan.

There has also been a resurgence of mining in the IPB, where Inmet Mining Corp has restarted its Las

Cruces mine, and Iberian Minerals Corp opened the Aguas Tenidas mine.

Mining restarted at Las Cruces in April 2009 after a suspension that had been in effect since the previous year was lifted by regulatory authorities.

Inmet says the mine produced 5,600t of copper cathode in 2009, but did not reach commercial production, estimated at 60% of design capacity, as a number of equipment failures and operational issues delayed plant ramp up.

The company completed a scheduled maintenance shutdown at Las Cruces in March, and says the

processing plant has recommenced operations. It is now working towards achieving commercial production this month, and the design capacity of 72,000t/y in August.

Commercial production was declared at Iberian Minerals' Aguas Tenidas mine towards the end of 2009. The operation produced 4,800t of copper and 51,536oz of silver in the final quarter of the year. The company says it will continue to focus on optimising the mine and plans an expansion of capacity to 2.2Mt/y by the end of this year.

On the Portuguese IPB, Lundin's Neves-Corvo mine produced 86,462t of copper, 501t of zinc and 722,500oz of silver in 2009.

The company suspended the processing of zinc ore in November 2008, but resumed a €43 million expansion project to increase zinc production from existing orebodies to 50,000t/y in the September quarter last year.

Production is anticipated to ramp up from early 2011 to reach full production rates by the September-quarter.

Neves-Corvo was affected by some minor strike action earlier this year, resulting in lower than expected production in the March quarter. Employees are demanding salary increases in the order of 17% on base pay, which have been rejected by the company.

The Iberian peninsula also hosts two operating tungsten mines, Heemskirk Consolidated Ltd's Los Santos mine in Spain and the historical Panasqueira mine in Portugal.

The Los Santos mine is believed to be one of only three significant tungsten producers outside China. Heemskirk is undertaking a plant upgrade and exploration activities, which are expected to extend the



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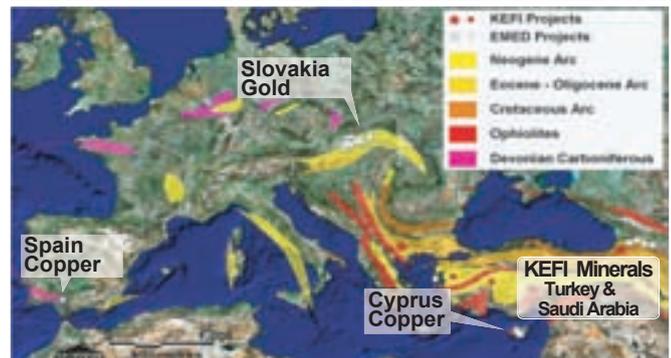
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mine-life beyond the current nine years and generate increase mine production to more than 10% of Western world tungsten.

Mining to the end of 2009 produced approximately 100,000t of material, which has been stockpiled ready for the plant recommissioning that is currently underway.

Heemskirk says in its March-quarter results that, despite a difficult winter period in Europe, the bulk of the construction work is on schedule. The company had processed 53,416t of stockpiled ore to produce 34t of tungsten concentrate in the quarter. Full commissioning of the new processing plant was scheduled to begin last month.

Exploration at the project has also identified a new zone of mineralisation adjacent to the current main pit, the company says.

### COPPER AND GOLD EXPLORATION

After several years of decline, Spain has witnessed a revival of exploration in the past ten years, mainly by Canadian and Australian companies.

Exploration efforts have been strongest in the IPB and the Ossa Morena range for massive sulphides, and the Centro-Iberian area of the Iberian Massif for uranium tungsten and tin. In the north of Spain, exploration has also focused on gold projects.

The IPB is still an unquestionable target for exploration activity due to its historical importance (both quantitatively and qualitatively) and because of recent mine developments.

For example, EMED Mining Public Ltd is continuing its efforts to develop the historical Rio Tinto copper mine. The site has been mined intermittently for at

The Ball Mill at Heemskirk's Los Santos mine

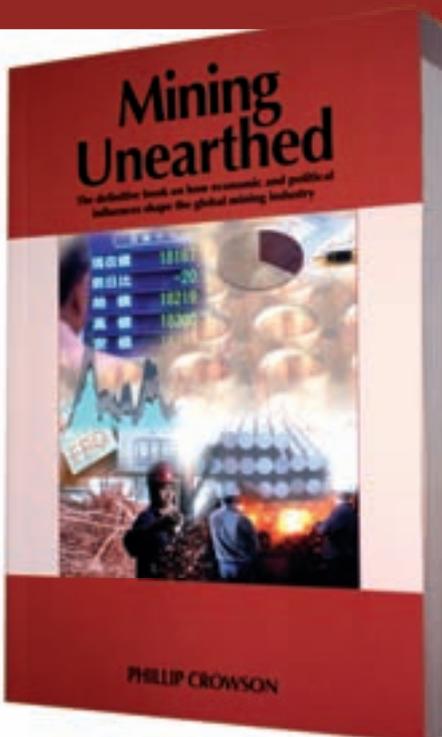


least 5,000 years but, most recently, has been placed on care and maintenance (in 2000) due to low copper prices at the time. EMED took ownership of the mine in 2007 and since then has been working to secure regulatory approvals to restart the mine.

EMED says it plans for a start-up of the operation at a rate of 9Mt/y within six months of a development decision being made. This would produce 37,000t/y of copper in concentrate over a 14-year mine life.

The company said recently that it has received strong

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The tailings facility at EMED's Rio Tinto project

support from the regulatory authorities, and aims to have the necessary regulatory approvals by the end of this year.

Ormonde Mining plc announced in October last year that it has signed a joint-venture agreement with Antofagasta Minerals SA for the La Zarza copper project in the IPB.

Under the agreement, Antofagasta has the right to earn a 51% interest in La Zarza over a three-year period by spending US\$7 million on expanding the exploration programme and subsequent evaluation activities, with a minimum commitment to spend US\$1 million in the first year. It will have the option to increase its interest to 75% by completing a feasibility study.

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A feasibility study completed at the project in 2008 outlined a 600,000t/y underground mining operation, recovering copper, gold, silver, zinc and lead in four concentrates.

The study outlined higher than expected costs, however, of €86 million plus a €12 million contingent provision for dewatering, causing the company to consider a staged development of the operation.

Last month, Ormonde also announced that it had signed an option agreement to acquire the Tharsis project, also in the IPB, from private Spanish company Nueva Tharsis SL.

Ormonde has the right to acquire a 100% interest in the project by investing €1.86 million over a period of three years.

Also in the IPB, Cadillac Ventures Inc is conducting exploration on several properties. The company recently announced drilling results for the Chapirita, Angelita and Majada copper projects, including an intersection of 18.10m at 1.5% Cu and 2.57%.

Elsewhere, Orvana Minerals Corp acquired the El Valle-Boinás/Carlés gold-copper project in northern Spain in September 2009 through the purchase of Kinbauri Gold Corp.

The El Valle-Boinás/Carlés area produced about 950,000oz of gold and nearly 14,000t of copper between 1997 and 2006, about 90% by open-pit methods, and has extensive existing infrastructure, including a 750,000t/y mill, Orvana says.

In March, Orvana updated the resource estimate for the project, increasing contained gold by 24% in the measured and indicated category to 1.2Moz. The company reports estimated measured resources of 2.1Mt at an average grade of 4.1g/t Au and 0.8% Cu, indicated resources of 5.2Mt at 5.5g/t Au and 0.6% Cu and inferred resources of 9.5Mt at 4.85g/t Au and 0.4% Cu

**OTHER EXPLORATION**

Beyond the existing Los Santos and Panasqueira mines already in production, there are several prospective tungsten and tin deposits at various stages of exploration.

Ormonde, for example, is developing the Barruecopardo tungsten project in western Spain.

The company has forecast an initial production rate of 400,000t/y at the project, to produce 1,300t/y of tungsten trioxide (WO<sub>3</sub>), commencing in 2011. Ormonde says that over the next fifteen months, it plans to complete a feasibility study at Barruecopardo and seek all necessary permits for mine production.

The company is also pursuing funding options for both this feasibility study stage and the capital development stage with various tungsten-industry sources and equity/debt investors.

Several companies are negotiating with the state administration to develop the El Moto tungsten project in the Nueva Almadén State Reserve, after a resource (estimated at 50Mt grading at 0.2% WO<sub>3</sub>) was discovered in the area.

Eurotin Inc is exploring the Oropesa-La Grana tin project in Cordoba, which was initially discovered by the Geological Survey of Spain in the 1980s.

The deposit contains fine grained cassiterite as well as some gold, and Eurotin has undertaken some drilling at the project since it acquired the property in 2007. The objective for 2010 is to verify the depth of the orebody, improve the resource estimate and begin metallurgical studies at the project.

In January, Goldquest Mining Corp announced the completion of the acquisition of the Toral lead-zinc-silver project in northern Spain from Lundin.

Historical drilling at the project identified a resource estimated at 5.4Mt at an average grade of 9% Zn, 6% Pb and 45g/t Ag. The company is working

“Spain was the world’s first modern producer of iron, lead, zinc and copper”

towards updating the historical resource estimate to a NI 43-101-compliant estimate.

The Toral project also benefits from excellent infrastructure, Goldquest said, including access to a major regional highway, a nearby high-voltage power line and a rail line that links to the Asturias zinc-lead smelter via the city of León.

## STRATEGIC MINERALS

Iberia is also host to some strategic mineral deposits, including uranium, rare-earth elements and lithium. The most extensive of these have been identified in the Salamanca and Extremadura provinces in western Spain, extending across the boarder to Portugal.

Berkeley Resources Ltd has extensive land holdings in Spain, with advanced uranium exploration projects in the Salamanca, Caceres, Guadalajara, Toledo, Barcelona and Lleida (Lerida) provinces.

In May last year, the company commenced a feasibility study at its flagship Salamanca project, which is expected to be completed by the end of this year.

In March, the company announced a resource estimate for the project comprising 5.6Mt at 403ppm  $U_3O_8$  in the measured category, 18.9Mt at 491ppm  $U_3O_8$  in the indicated category and 56.6Mt at 441ppm  $U_3O_8$  in the inferred category.

A scoping study for the Salamanca I project, in 2008, identified the project had potential to produce 12.1Mlb of  $U_3O_8$  over a ten-year mine life, at average operating costs of US\$25/lb

Meanwhile, The Geological Survey of Spain is preparing a systematic research strategy to explore strategic minerals (including rare earth-elements and lithium) in adequate geological settings employing the existing knowledge, occurrences and geochemical anomalies databases, and following the trends established in the EU Raw Materials Initiative.

## FUTURE PLANS

Spanish mining is still important at a European, if not a world, level. Yet, in spite of this, it is not able to supply the domestic market with a number of resources including energy minerals, metallic ores and a number of industrial minerals.

Yet Spain is anticipated to continue to have one of the most important and diversified mining sectors in Europe, particularly in industrial minerals, and to once again become a substantial European centre for copper production.

Furthermore, rising metal prices and strong demand from emerging countries (especially China and India) has encouraged investment and exploration in to new mining projects across Iberia, which in the short term could become an important producer of base metals, gold, tungsten, tin and uranium.

In addition to greenfield exploration, Iberia hosts a range of disused mines that were closed not as a result of resource depletion, but owing to falling metal prices. The development of new technology in the mining industry could yet make these disused mines economically feasible.

In this regard, the Spanish Geological Survey is working to develop a database of modern and detailed geological, geophysical and metallurgical information, to provide consulting and technical services for the exploration sector.

Above all, a liberal mining legislation, a good climate and excellent communications and the availability of experienced, trained and qualified staff, makes Spain and Portugal countries with strong investment potential in the mining sector.

*This report is based on a contribution from the Geological Survey of Spain*

Heemskirk Los Santos tungsten mine

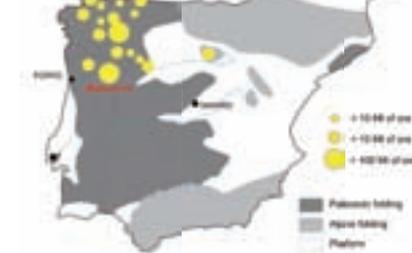


## IRON IN PORTUGAL

**Portugal-based MTI – Ferro de Moncorvo SA** owns the iron-ore deposit at Moncorvo in the north of the country

The Moncorvo deposit is a huge proved-probable reserve, with a total of 563Mt of ore averaging 37% Fe for open-pit exploitation, and inferred resources of 2,000Mt. Work at the mine was suspended in the 1970s because of political uncertainty following the Portuguese revolution of 1974, the low iron-ore price, lack of investment in technology research in Europe for this kind of ore, and other problems of that time.

Iron province of NW Iberian Peninsula

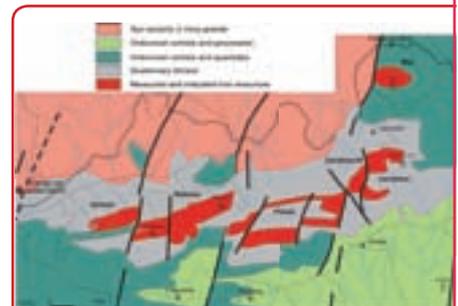


The deposit occupies an area of 46km<sup>2</sup> in public land dedicated to mining activity. Agreement for iron-ore prospecting and research was signed by the Portuguese State in February 2008, valid to February 26, 2013.

The same agreement declares that within the five-year period, MTI – Ferro de Moncorvo can seek a 30-year definitive concession to exploit the deposit (through two 15-year extensions). **The company will this year ask the Portuguese State for the exploitation concession.**

The site incorporates, within 10km, two hydroelectric dams, the Douro river (which can take ships of up to 2,500 tons) and a railway. It has electric power and gas inside the concession, and water supplies just 2km away.

Under the leadership of the prestigious geologist, Acúrcio Parra, MTI – Ferro de Moncorvo's technical team has concluded the prefeasibility study successfully.



Geology with measured and indicated iron resources

Geological interpretation of magnetic and gravimetric data and inferred iron resources



Production from the Moncorvo open pit will be a fine pellet feed with 67.8% Fe, less than 2%  $SiO_2 + Al_2O_3$ , and 0.03% to 0.08% P. The concentrates will have 15% to 20% of magnetite and 0.66% of ignition losses. The metallurgical testes were made by CETEC (Brazil) and Coloraine Minerals Research Laboratory (US).

[www.mti-geo.com](http://www.mti-geo.com)