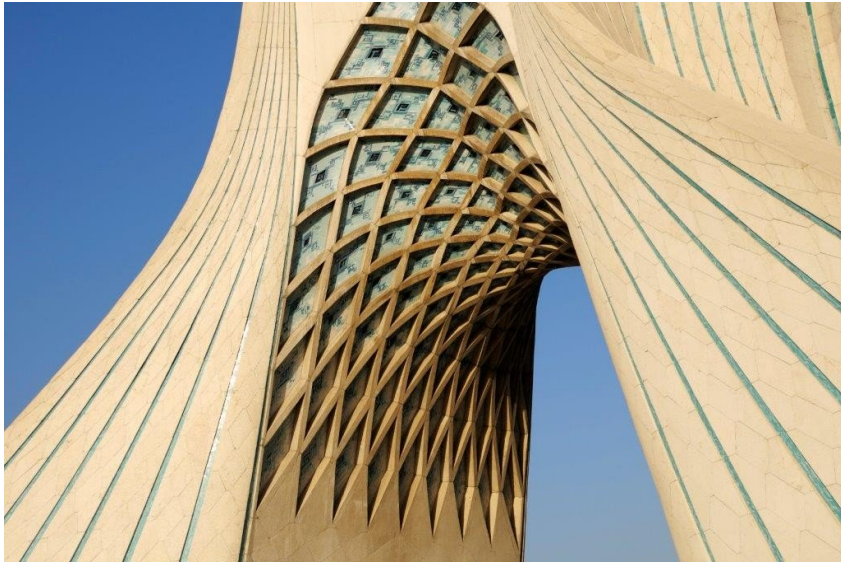


Ecclestone on the Iranian Mining Market: Potential “Huge”



As emerging markets go the last great unopened can of beans is Iran. With the removal of international sanctions on trade and investment the rush will be on to get positioned in Iran's mining scene.

Sure small emerging markets appear from time to time but Iran is a very large economy with enormous export revenues from oil, a highly prospective geological profile and a large and rather well-educated population.

In this piece I shall give a review of the mining activity at the current time and its potential to grow.

Mineral Treasure Chest

Despite being “beyond the pale” the USGS nevertheless continued to produce reports on the Iranian mineralogical scene. In its latest report (2012) it stated that more than 40 mineral commodities were mined and about 20 metals or mineral-related commodities were refined or manufactured in Iran. The country was estimated to account for about 9% of the world's output of gypsum and pumice; more than 2% of the world's output of barite, feldspar, and sulphur; and more than 1% of the world's output of cement, industrial (or glass) sand, molybdenum, and nitrogen.

Mines are not many and most are state-owned. Briefly last decade an opening of the economy had some foreign miners (the now defunct Union Resources from Australia and Zarcán from Canada) doing work in the country but then international politics intervened and those ground to a halt. Union though were rather advanced with a very sizeable Lead-Zinc deposit, of which more anon.

Recently at an LME Week event in London I came across a New York investment banker that had thrown it all in and relocated to Teheran to launch a Magnesite mining and processing operation.

A key body in mining is Iranian Mines & Mining Industries Development & Renovation, known as IMIDRO, is a major state-owned holding company active in the mining sector in Iran.

The state-owned enterprise that is central to the country's base mining endeavours is National Iranian Copper Industries Co. (NICICO) which was based upon the nationalized assets of Anaconda Copper after the Revolution. The company's remit includes extraction and development of copper mines, production of copper concentrates and manufacturing copper products such as cathodes, slabs, billets and 8 mm wire rods. The most significant copper mines in the country, Sarcheshmeh and Meduk mines in Kerman province and Sunegoon mine in eastern Azerbaijan province, are under its control.

At the Heart of the Tethyan Belt

The geology and especially the tectonic style of Iran is highly influenced by the development and history of the Tethyan region. The tectonic events, which occurred around the Iranian Plate margins, are related to rifting processes of Gondwana and subsequent collision with the Arabian plate from the WSW.



Copper and Molybdenum

In October of 2012 the Iranian government banned the export of molybdenum concentrate (and 50 other products). In prior years, NICICO had exported about 50% of produced molybdenum concentrate.

NICICO in recent years has embarked upon an expansion of the Khatonabad copper smelter, an expansion of the Meduk copper concentrator, and an expansion of the Sarcheshmeh copper concentrator. There were also plans for the development of a new copper and molybdenum concentrator at the planned Now Chun Mine in Kerman Province.

Iron Ore

Another state enterprise, National Iranian Steel Co. (NISCO) is dominant in this space. The USGS reported that in 2012, it inaugurated the Zarand iron ore concentrator with a capacity of two million metric tonnes per annum. This was built by China Nonferrous Metal Industry's Foreign Engineering and Construction Company, Ltd. Also in 2012, a 300,000-t/yr-capacity iron ore concentrator was commissioned in Yazd Province and Outotec was awarded a contract to design a 5 million tonnes per annum iron ore pelletizing plant in Kerman Province.

Zinc

Zinc has the potential to be big with the Mehdiabad project being of a size which would have a Vancouver promoted chirping out the tired phrase "world-class". In our language, big should suffice.

Iran - USGS Estimates		2008	2009	2010	2011	2012
Bauxite	Tonnes	715,339	4,522,018	4,681,235	4,818,224	4,820,000
Chromite, mine output, concentrate	Cr ₂ O ₃ Tonnes	130,000	110,000	22,000	200,000	190,000
Copper	Tonnes	240,000	250,000	255,000	255,000	260,000
Gold	Kilos	1,000	2,000	2,000	2,000	2,500
Iron Ore	Tonnes	35,000,000	34,034,000	35,000,000	44,355,000	45,000,000
Lead Concentrate:	Tonnes	26,095	20,000	25,000	40,000	40,000
Manganese, mine output (30% to 35% Mn)	Tonnes	3,700	2,500	3,900	3,400	3,900
Molybdenum, mine output, concentrate	Tonnes	3,700	2,500	3,900	3,400	3,900
Zinc:	Tonnes	69,267	72,048	80,000	105,000	105,000
Barite	Tonnes	226,590	361,217	326,275	271,454	270,000
Magnesite	Tonnes	115,987	130,575	126,702	172,697	170,000

Mehdiabad

In September of 2012, Mehdiabad Zinc Co., entered into an agreement with IMIDRO that would allow Mehdiabad Zinc to develop the Mehdiabad project.

The proposed mining project was expected to operate for 25 years, with a negotiated maximum mine production capacity of 100,000 tpa of zinc concentrate. Mehdiabad Zinc also was authorized to build an associated zinc smelter with a capacity to produce 100,000 tpa of zinc ingot. The project had been on

care-and-maintenance status since 2006 owing to a dispute between IMIDRO and Mehdiabad Zinc.

At the time USGS reported that the Mehdiabad Zinc Co. was owned by:

- Karoun Dez Dasht (45.6% equity interest)
- Itok GmbH of Austria (24.5% interest)
- UCL Resources Ltd. of Australia (the former Union Resources with a 24.5% interest)
- Minority shareholders (5.4% interest)

However UCL appears now to be involved in phosphate exploration in Namibia, so may very well be out of the picture here.

Angouran

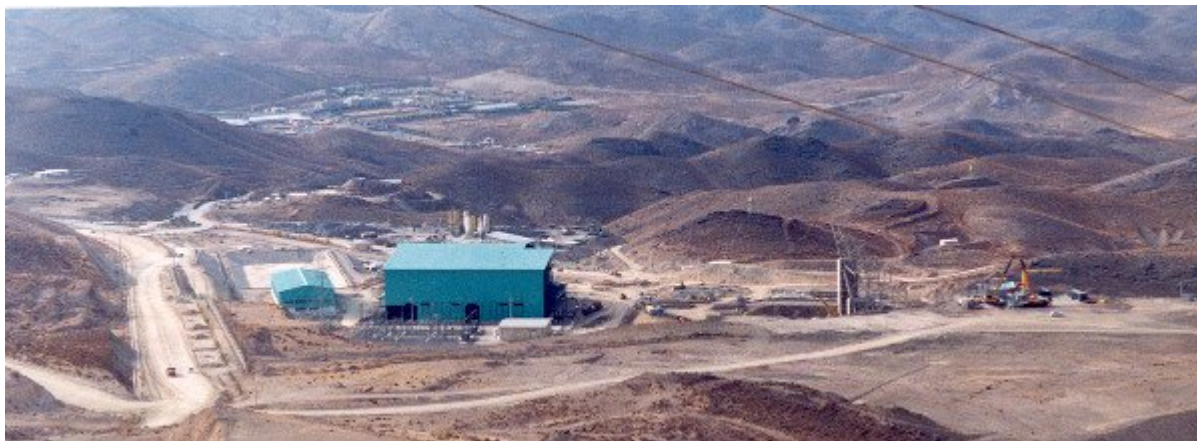
The Angouran nonsulfide Zn–Pb VMS type deposit is located about 300 km NW of Teheran, and 120 km W of Zenjan. The deposit is worked from an open pit (the largest one in Iran). It is one of the major zinc producers in Iran. The main ore is smithsonite with a fine-grained sulfide ore that is massive, replacive and often brecciated.

The deposit has resources estimated at about 18 million tonnes at 28% Zn, mainly in the form of the Zn carbonate smithsonite. We had to do a double-take on the truly stunning Zinc grade so tracked down an academic study that referred to the unusually high-grade hypogene zinc ore at Angouran as grading 40.4% Zn, 1.9% Pb in the sulfide ore and 28.1% Zn, 4.4% Pb in the carbonate ore with 110 g/t Ag. The study posited that this deposit was formed from initially highly saline, reduced, relatively acid hydrothermal brine at two successive sulfide and carbonate ore stages.

Meduk

The Meduk porphyry copper deposit is located 45 km northeast

of Shahr-e-Babak city. The deposit is hosted by Eocene andesitic and basaltic rocks, changing sequentially to conformable south dipping Eocene red tuffs and tuffaceous sediments, trachyandesite and trachybasalts, trachyandesitic and trachybasaltic lava flows and porphyrites to the southwest. The Cu-mineralization and associated hydrothermal alteration zones are focused on the Miocene dioritic Meiduk porphyry and Eocene andesitic rocks.



Sungun

This is a Copper/Moly mine. And contains a resource of 860 million tonnes @ 0.6% Cu. In 2012, NICICO opened a molybdenum concentrator at the Sungun copper complex, which was located in East Azerbaijan Province. The plant was designed to produce 3,000 metric tpa of molybdenum concentrate.



Agh-Darreh

The Agh Darreh Gold Project is a 40 square kilometre

concession near the village of Agh Darreh about 40 km from the city of Takab, West Azerbaijan Province in north-west Iran. The mining license for the concession at last we could determine was held by Pouya Zarcan Agh Darreh Company', a joint venture company under Iranian commercial law, in which Zarcan Minerals (a sometime CVE-listed entity, ticker ZRI) had directly and indirectly an interest of 58%. Importantly, PZA was, at last report, in receipt of the permit for the construction of the mining and processing facilities from the Iranian authorities.

A report by Christian Staargaard, a Vancouver geologist, had confirmed a total resource of 546,000 ounces of gold (297,000 ounces indicated, 249,000 inferred) from 5,000,000 tonnes of ore grading on average 3.4 grams per tonne gold. The report stated in none-too-modest Vancouver-speak that "the potential to expand this resource must be regarded as excellent".

The fate of Zarcan though remains unknown to us.

Sarcheshmeh

The Sarcheshmeh Copper Complex is a large open cast copper mine in the Kerman Province of Iran, considered to be the second largest copper deposit worldwide. Also containing substantial amounts of molybdenum, gold and other rare metals.

The Sarcheshmeh Copper Complex is located 65 km southwest of Kerman and 50 km south of Rafsanjan. The region's altitude averages about 2600m, the highest spot of which approximates 3000m. The Sarcheshmeh ore bodies, situated in the central part of Zagros ranges, consist of folded and faulted early tertiary volcano-sedimentary rocks.

The Sarcheshmeh mine was begun in 1972 and managed by the Anaconda Group up until the 1979 revolution. The entity formed the basis for the broader NICICO conglomerate.



Design and construction of the processing plant was done by Parsons-Jurden of the US. The complex consists of the mine itself, concentrator, smelter, refinery, foundries and leaching.

According to NICICO's website the total Sarcheshmeh ore reserve is about 1.2 billion tons of sulfide ore at the grade of 0.7% Cu.

Conclusion

Real, new frontiers in the mining investment space are few and far between. We could claim that Lesotho or Laos are opening up, but who cares? Recently we highlighted Cuba's potential and now Iran is reappearing from behind an Iron Curtain (or Veil, as the case may be) after a long period of being out of bounds or "too difficult". Iran has the potential to not only be big but to be "huge" and we are not usually indulging in hyperbole.

The mining potential is clearly there. Both Australians and Canadians have dabbled without getting to production before. Now clearly seems to be a moment when it might be worth reentering the waters, at least cautiously.