

# In Metals, China Domination = Criticality of Supply

Even ten years ago the British Geological Society was a very low profile institution and scarcely figured on the radars of mining folk, with the USGS being far better known and cited far more often. However, while the USGS was known for its annual individual metals summaries, the BGS appeared on the scene with a wallop at the end of the last decade with its broad reaching study and ranking of criticality of metals, which came to be known as the "Risk List". The first of these to glean notice was the one that staked out Rare Earths as being the world's most critical metal in terms of supply problems. This made the list, the favoured bedside reading of every Vancouver promoter for a fleeting moment.

Here is the latest version of the Risk List.



Despite having fallen out of favour with investors, the Rare Earths have remained at the top of the rankings of criticality over the more than half a decade since their first flush and the debut of the "risk list". Well they might because if one weighs up the metals that are most important (in terms of volumes and breadth of applications) and yet still the most tenuous in having an open supply source, then Rare Earths justifiably rank as those with the most critical supply outlook. Frankly reading between the lines of the BGS list the prime characteristic that gets any metal rated critical is NOT a lack of supply, but that the Chinese have any sort of dominance in a metal, and thus the ability to turn off most or all supply in a situation where countries are "fixing bayonets".

## The China Syndrome

We cannot fault the BGS's targeting of China as the main driver of criticality. The Chinese brought this designation upon themselves when they escalated the fishing boat incident of several years ago into a full-blown ban upon Japanese companies receiving exports of REEs sourced from China. When they took that action they signaled that they could and would repeat this across the whole spectrum of strategic metals in which they have a dominance of either production and/or processing. Hence when one looks at the current list of metals ranked by criticality there is a heavy weighting at the top towards metals in which China has a dominant position like REEs or Antimony (or is perceived to have a dominant position, like Tungsten). Amongst the other top ranked metals where there is perceived to be Chinese dominance are Gallium and Germanium, both with valuable high-tech application. Nine out of the top ten metals are China dominated in the BGS's opinion. The 10<sup>th</sup> is Cobalt where fears have stirred in recent years that the DRC's key position is being cultivated by China as an almost exclusive offtaker. Bismuth, Antimony and Indium are infamously remembered for having been the three horseman of the apocalypse at the FANYA Exchange with Chinese retail investors piling in to real or imagined positions in real or imagined warehouse stockpiles with negative blowback for the prices of the metals in question.

## **Exposure**

The big issue, as always is how to get exposure to these metals. Is exposure to the metal alone (through an explorer) as good as being exposed to production or potential production? In many cases though the choices of producers can be narrowed down to a finger on one hand.

Starting at the top, there are still some REE companies around. Of these only one (Lynas) is a producer while there is a chance that several of the juniors will actually move up to the front ranks. Almost all of the potential producers are

represented frequently in the commentary on InvestorIntel's pages. This reinforces the general feeling that InvestorIntel is the go-to place for this metal.

In Antimony the number of plays outside China is a sparse choice indeed. There is one US-listed company with no production of its own and some processing in Mexico. There is one TSX-listed company which has by-product Sb production in Australia.

Bismuth is largely a by-product of base metal processing, while Gallium and Germanium are almost totally Chinese sourced.

Vanadium exposure is obtainable via Largo Resources (TSX: LGO) (OTCQB: LGORF), a primary producer in Brazil but much of the rest of production is by-product in nature (including, strangely, as a result of gasoline processing). The upcoming source that a number of companies are talking of is as a byproduct of revived uranium/vanadium mines, of which there is a strong potential in the Mountain States of the US. Those are dependent upon the Uranium price coming to the party. Vanadium though has potential to become an "energy-metal" in its own right if Vanadium Radox batteries start to gain traction on a larger scale (pardon the pun).

Tungsten has been written of extensively by us in the context of Almonty Industries (TSXV: AII), the consolidator in the space. Tough pricing in recent years has thinned out the number of juniors significantly. The producer ranks have also been winnowed by the collapse of Malaga and the bankruptcy of North American Tungsten. There are a number of sizable projects still going around but these require higher prices to get funded and that is not happening for the moment. This leaves China with the whiphand and explains why end-users have anointed Almonty, and the new producer that has come on-stream in England, as their favoured suppliers.

Moly is a strange appearance so high up the rankings. Pricing has been so bad in recent years that producers have almost been giving away the product while the largest primary producer in the West, Thompson Creek shuttered its mines. The bulk of non-Chinese output is ex-Chile as a by-product of copper

## **The Second Decile**

This group contains a heavy weighting of more accessible metals that we cover with frequency on InvestorIntel. Lithium and Graphite come in at 15<sup>th</sup> and 17<sup>th</sup> respectively. These rank as critical due to their importance in the battery applications. While the Chinese don't have anything like the amount of Lithium that they need they have been hyperactive in securing access to supplies. Neometals (ASX: NMT) is an obvious case in point of a company that has an arrangement with them. Graphite is a mineral long dominated by Chinese output that should shortly see more diversified in its non-Chinese sources. Ironically, as mines in the West fire up the criticality will probably decline due to China's reduced control on supply. Beryllium we speak of often is totally dominated by the US. This in itself is a restriction because, from what we hear, the US actively discourages the evolution of alternative sources of supply to maintain this dominance. As a result almost all the processing of the metal also takes places in the US with two companies dominating that converting/alloying activity.

Finally, the survey sort of undermines its credibility with Silver ranked in the top 20 of metals by criticality. Frankly even a silver-nut would not argue that this metal is in short supply. There is not only substantial supply from mines, but there are also large passive investment holdings and there is a vast stock of jewelry that holders would release if the price rises. The spike to \$50 several years ago (and the Hunt Brothers corner decades ago) shows that high prices produce a

tsunami of supply from householders at the right moment.

If we have any criticisms beyond that we would say that Tantalum (a conflict mineral) and Tin (with declining alluvial production and Indonesia restricting concentrate exports) are far more near the edge of a supply crisis than many of the metals ranked as having a higher risk. Both should definitely be in the second decile. Scandium does not even feature on the list, but as applications expand it could be a prominent feature in five years from now.

## **Conclusion**

I thought it might be an interesting exercise to run the BGS Risk List as a filter over the universe of InvestorIntel companies at the current moment. Here is how it turns out.



Understandably with the first decile so dominated by obscure metals under Chinese domination the representation suffers a big gap between the Rare Earths companies and the Vanadium players. Not surprisingly the Lithium and Gold spaces are the most densely populated due to them being the most favoured by markets in recent times.

The task for companies and promoters (and dare I say, governments) is to encourage companies to go forth and fill up the gaps in the strategic and critical metals matrix. The Chinese don't dominate Gallium, Germanium and Antimony because they are the only country that has these metals. It is only because of a conscious policy on the part of the Chinese government and an unconscious acquiescence on the part of West that has allowed this situation to evolve. A goal for 2020 (dare we call it a Five Year Plan) should be to break the Chinese dominance in the top ten metals on this BGS list.