

Defining Criticality

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Everybody is claiming to have “Critical Metals/Minerals” these days. Desperados in the copper space are the most shameless at touting this claim, while the most ludicrous are those in the gold space (though that goes without saying).

But how to measure what is and what isn't critical?

Rankings

Criticality and Chinese dominance have become popular themes over the last decade with the British Geological Survey's (BGS) first Criticality ranking in 2011 (in the midst of the Rare Earth boom) firing the starting gun on a race between countries to define what is critical to their own circumstances.

All attempts at ranking criticality are bound to run into criticism with different pundits and different economies perceiving different needs. Moreover, circumstances change, as Cesium showed when it went from being dominated by the US to being dominated by China when the US, fecklessly, let Sinomines acquire Cabot's specialty fluids division. In our perception, Tungsten is not as critical as it was due to numerous non-Chinese developments in the pipeline.

Of all the Criticality lists the BGS one was the only one giving scoring to the metals and then producing degrees of risk to supply. Moreover, it gives the impression of being focused upon which metals are at risk (largely from China-dominance, though unstated) rather than saying (as the JOGMEC list does) that certain metals are critical for a specific (i.e. Japan's) economy.

Criticality as Semantics

Metals rankings have now become like radio stations' Top 40 lists of days gone by. However, it may just be a matter of international semantics as to what the word "critical" actually implies.

Some are saying that this means a metal is vital to an economy (which of course iron ore is to every economy) but others are interpreting it as being that the supply is in some way threatened or vulnerable. And the latter is where the China Factor is invoked. Europe meanwhile wants to fence-sit and pretends that it is not accusing the Chinese of wielding a big stick threatening EU industries (when really the Chinese are being threatening indeed).

The BGS by using the word "Risk" did not mince its words. Everyone knew what it meant. Chinese dominance meant supply could be turned off.

Rising Tide of Concern?

The financial media chattering about Chinese dominance of particular metals is one thing, but it is when the average householder gets concerned that the issue really becomes popular. Giving a speech several years ago on Erbium and 5G we noted that few, if any, of the public even knew that the jump from black & white TVs to colour TVs was made possible by Europium and behind that lay the Mountain Pass mine.

For the public, the new 5G technology seems to come out of the ether, literally, and thus it is not a good idea to ask too many questions about what metals make it happen because one would find out that (notwithstanding Huawei's involvement) the REE component (Erbium) in 5G largely is China-sourced or China-processed. Who amongst the Great Unwashed (or experts) can tell us where other 5G inputs, like Scandium, Cesium and Tantalum, come from?

Alarm bells though have been ringing in the C-Suites (of Germany and South Korea, more than Detroit) about the vulnerability of the EV “revolution” to Chinese machinations and that has set off a furious hunt for non-Chinese supply chains.

Curiously though, the European list does not include Lithium amongst the critical metals, though this is probably predicated upon its upstream supplies being mainly from “friendly” sources such as Australia, Argentina and Chile. But with China dominating conversion of Lithium into Lithium ion batteries (and having a stranglehold on Cobalt from the DRC) it does not pay to be so simplistic in calculating where one’s sources might be.

Ergo, with China being the principal midstream processor, can one be so blithely dismissive of the criticality of Lithium?

The various surveys that followed on the heels of the original BGS Criticality rankings now reinforce the sheer number of metals at risk, though as one can see below each agency producing these lists has differing views of the criticality of different metals within their remit.



We can note from the lists above that the US regards most metals as having some degree of criticality.

Conclusion

The critical metals space is torn with rising demand for metals that have seen little, to no, development since before the Commodity Supercycle even began and is now seeing a secular decline in Chinese production due to over-production, exhaustion and environmental devastation. This makes for a rather dramatic tug of war.

It is now clear that the genie set free by Trump’s seemingly

prophetic “Trade War” of the Chinese threat to supplies cannot be put back in its bottle. The “love” of the US industrial complex’s for cheap Chinese minerals has now even been called into question. We doubt that the East Asians (i.e. Japan, Korea and Taiwan) and the Germans can ever be easily lulled back into a false sense of security (of supply) by the Chinese.

The legacy of underinvestment and the lack of capital markets’ interest in specialty metals stories (beyond momentary pump-and-dumps) combined with the Chinese massive own goal in splurging its resource base in predatory pricing and, frankly, dumping over three decades has made for a secular crisis in metals supplies.

This crisis is likely to be enduring and will definitely result in the long-term higher prices (even shortages).

All the chatter does not provide money for projects. Unfortunately, it is only metal price spikes that seem to do so. The soaring price of Lithium and Cobalt in 2017 was a case in point and then the Vanadium surge of 2018. However, the REE putsch of mid-2019 waxed and waned so fast that no party got any financings done before the brief window of opportunity slammed shut.

Less sexier metals never even get their day in the sun. Tellurium or Cesium could quadruple and it would not generate more than a muffled whisper in the trade journals. The same for individual Rare Earths such as Erbium and Dysprosium.

We are of the opinion that the critical “state” of the metals world will remain as long as the West is not self-sufficient in its supply of specialty metals. The Chinese have shown themselves to be malevolent players and that was while they had the whiphand in many metals. As they start to lose their grip the frustrations will start to rise, already we are starting to

see some rancour in relations with Burma over neo-colonial resources policies being imposed by China on its neighbour. Other Belt-and-Road “beneficiaries” have found that Chinese largesse comes at a hefty price. Is this mere sparring or the first shots in a monumental struggle over the world’s most crucial mineral resources?

In retrospect, Trump’s “Trade War” of 2018-20 may be seen as the “phoney war” phase of a much bigger tussle over access to the world’s scarce specialty metals resources. The criticality rankings are the playlists for the background music as this plays out.

Note from Publisher: Next week – on Wednesday, November 9th in Toronto, the inaugural [Critical Minerals Summit](#) is on! To secure a delegates pass, [click here](#) – READ: [Summit to Address the Impact of the \\$1.2 Trillion EV Market Demand by 2030 on the Critical Minerals Sector](#)

Hastings Technology Metals secures Australian Government Funding for Yangibana, World’s Richest NdPr Deposit

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Many are now asking will [Hastings Technology Metals Ltd.](#) (ASX: HAS) (“Hastings”) be Australia’s next rare earths producer?

The answer is ‘maybe yes’ after the Company [announced](#) on

February 2, 2022: “NAIF approves \$140 million loan for Yangibana Rare Earths Project.....NAIF loan forms part of A\$300-400 million of total debt financing required for Yangibana.”

Yangibana is the first Australian rare earths project to receive NAIF funding. The above mentioned Northern Australia Infrastructure Facility (NAIF) loan has a 12½-year tenure and is subject to pre-completion conditions.

Hastings [stated](#): “Yangibana early works construction and design for long-lead items underway in anticipation of plant construction commencing in September 2022 Quarter.” The NAIF loan first drawdown is expected to occur in early 2023, aligned to the Yangibana funding schedule.

Hastings [states](#) about its planned project: “The Yangibana project, which comprises a mine and beneficiation plant at the Yangibana site and a hydrometallurgical plant at the Ashburton North Strategic Industrial Area (ANSIA) near Onslow, will become Australia’s second rare earths producer and expands the country’s strategic capability in downstream processing of rare earths minerals.”

More about Hastings Technology Metals Ltd.

Hastings controls two rare earth projects in Western Australia. They are the [Yangibana](#) and [Brockman](#) Projects. The more advanced Yangibana Project contains a predominance of neodymium, praseodymium, dysprosium and europium.

The Yangibana Project (mine, beneficiation plant, and hydrometallurgical plant) – Western Australia

Hastings [state](#): “Yangibana has the world’s highest composition of neodymium and praseodymium and is located in the Tier 1 mining jurisdiction in Western Australia.” The significance here

is that neodymium and praseodymium (NdPr) are the highly valued magnet metals.

The Yangibana Project [Proven & Probable Reserve](#) is 16.7Mt at 0.95% TREO (0.35% NdPr oxide) for a total contained 158,419 t TREO. The Total Mineral Resource has a contained TREO of 266,417 t (at 0.97% TREO).

Yangibana Project has great metrics – Has a 37% NdPr content – double the world average



Source: [Company presentation](#)

The Yangibana Project's CapEx is estimated at [A\\$516 million](#) (A\$67 million contingency) but is currently being revised. The Project's November 2019 NPV was [A\\$549 million](#) (IRR 21.1%). NdPr prices have increased significantly since then, so updated Project economics are expected soon.

The Yangibana Project is planned to have a [1.2Mtpa ore throughput](#), a 15 year mine life, ~15,000 tpa of MREC production, ~8,500 tpa TREO production and [3,400tpa NdPr](#) production. Commissioning is targeted for 2024, subject to final project funding.

Hastings' Yangibana Rare Earths Project and their planned Onslow hydromet plant in Western Australia



Source: [Company presentation](#)

Hastings has commenced early site works at Yangibana (Mining Proposal [has been approved](#)) and recently received Commonwealth environmental approvals to develop the hydrometallurgical plant

site at ANSIA near Onslow. Subject to funding, Hastings intends to then commence construction of the beneficiation plant and the hydrometallurgical plant.

On February 2, 2022, Hastings Executive Chairman Charles Lew, [stated](#)

“The commitment by NAIF will enable Hastings to finalise the funding requirements for Yangibana’s development and move into full-scale construction throughout 2022, with the objective of delivering first production by 2024. Yangibana is an amazing, rare earths, opportunity that will supply the world’s highest composition neodymium and praseodymium concentrate to Tier 1 customers in Europe and Asia. This is an exciting time not just for Hastings but for Australia’s emerging rare earths sector. We look forward to finalizing the funding arrangements that will enable the Hastings’ Board to make a final investment decision in the coming months.”

Hastings Technology Metals investment highlights (as of November 25, 2021)



Source: [Company presentation](#)

Note: The 52% NdPr to TREO ratio refers to the highest-grade deposit within Yangibana called Simon’s Find, which contains [52%](#) of rare earths as NdPr. It potentially provides strong early cash flows to the Project.

Closing remarks

Hastings Technology Metals certainly looks well on the way to becoming Australia’s next rare earths producer, and only the second one following on from the very successful [Lynas Rare Earths Limited](#) (ASX: LYC) (market cap [~A\\$8 billion](#)).

Hastings ticks all the right boxes in terms of a great resource, high NdPr content, location, integrated project, off-take contracts signed, and now is getting closer to achieving project funding ([awaiting final credit-approved commitments](#) from lenders' consortium) with only [minor regulatory approvals remaining](#). Executive Chairman Charles Lew owns 7.1% of the Company so that is also a great endorsement.

All going well Hastings could begin Yangibana Project construction in 2022 ([September Quarter 2022](#)) and commercial production in 2024. Hastings Technology Metals trades on a market cap of [A\\$516 million](#) and looks set to have a very big 2022.