Tantalum – Conflicts of Interest

Like so many other things out of the US, a good idea often ends up coming out less than well-thought-out in the final wash. The last 20 years saw a rising tide of bad press for 'conflict minerals" with the film *Blood Diamond* topping off the trend and finally stirring some official action. As is so common, the focus ended up being a highly publicized region and a few prominently mentioned minerals and as time (and conflicts) "moved on" the original purpose became obscured and various conflicts and minerals flew under the radar.

These days the focus on conflict minerals is concentrated on Tin, Tantalum, Gold, Diamonds and Tungsten. Indeed these were encompassed in the behemoth Dodds-Frank law which was supposed to fix the ailments of the US financial system in the wake of the 2008 debacle and ended up in true Washington fashion being a catch-all for pet-projects and waif-and-stray measures that couldn't find a legislative life of their own. The 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act requires manufacturers to audit their supply chains and report conflict minerals usage.

The perversity of this, as I have pointed out before, is that in Burma around 10% of the world's supply of Antimony is produced artisanally by rebel tribes then smuggled into China where it is paid for with arms, or money to buy arms to fight the Burmese government. There is no more classic example of a conflict mineral – yet neither Antimony, nor the region, are within the ambit of current conflict mineral restrictions. Maybe if a film with Johnny Depp came out on the subject it might get some traction.

Exotic Supply Sources

We shall focus here though on Tantalum, by far the least known "household name" in the conflict minerals space. As can be seen by the pie chart below showing sources of current production there is a heavy preponderance towards Africa as a supply source with a very high proportion of production emanating from those hot-spots of the last 20 years, the DRC, Burundi and Rwanda. Mozambique is no longer unrespectable but for a long time was riven by civil war and Nigeria has been an on-again, off-again trouble spot currently tormented by the Boko Haram movement. This puts the vast majority of tantalum production in the category of conflict minerals.

It might be said that there is a swathe of quasi-artisanal sources in Africa, and secondary by-product sources making up much of the rest of global supply. Some of this by-product flow comes from the large-scale producers of niobium, CBMM (in Brazil) and Niobec (in Canada), with the ore at these mines also yielding a small percentage of tantalum. Tantalum is also produced in Thailand and Malaysia as a by-product of the tin mining there. The slag from the tin smelters then contains economically useful amounts of tantalum, which is leached from the slag.

It is worth mentioning that the "major" producer of Tantalum in North America at the moment is the Tanco Mine, owned by Tantalum Mining Corp. of Canada (Tanco), a subsidiary of Cabot Corp (NYSE:CBT). This is an underground cesium and tantalum mine on the Bernic Lake, Manitoba, Canada.

As far as up and coming projects are concerned, those on our radar include MDN's Crevier project in Quebec, the Woodgina project and Alkane's Dubbo project in Australia and Tantalex's Mayoko project in the far north of Brazzaville Congo. The latter has only recently come to our attention. A key point to note here is that Brazzaville Congo is the old French Congo and NOT to be confused with the DRC (which is the old Belgian

Congo).

A Rare Element Indeed

On the more practical side Tantalum is a chemical element with the symbol Ta and atomic number 73. It is a rare, hard, blue-gray, lustrous transition metal that is highly corrosion-resistant. Tantalum is estimated to make up about 1 to 2 ppm of the Earth's crust by weight. Tantalum, always together with the chemically similar niobium, occurs in the minerals tantalite, columbite and coltan (a mix of columbite and tantalite).

Applications – A Very High-Tech Metal

Tantalum is part of the refractory metals group, which are widely used as minor components in alloys. The chemical inertness of tantalum makes it a valuable substance for laboratory equipment and a substitute for platinum. Tantalum is also used for medical implants and bone repair. Its main use today is in tantalum capacitors in electronic equipment such as mobile phones, DVD players, video game systems and computers.

One could almost argue that it is like some of the rarer REEs and Scandium in that further applications are restricted because of supply issues, not by human ingenuity. For this reason the current squeeze on supply by the implementation of anti-conflict mineral measures just makes the metal even tougher to source.

As can be seen from the price chart, the metal has had a fairly attractive chart, compared with other metals, in recent years.

It is estimated that there are less than 50 years left of tantalum resources, based on extraction at current rates,

demonstrating the need for increased recycling.

The intriguing thing about Tantalum is its fluctuating supply. The chart below shows supply over recent decades and it’s been a wild ride. This irregularity of supply also gives a good reason why inventors of applications may be wary of creating some new usage that cannot then be supplied.

Conclusion

Tantalum appears to be one of those technology metals where expanded supply will probably expand demand commensurately. Recent decades have seen the metal constrained by occurrences and production being skewed towards zones of conflict.

The metal has thus become enmeshed in the conflict minerals issue with a predomination of artisanal and clandestine producers over listed mainstream (respectable?) miners. There is a fine line to draw in the whole area of “exploitation minerals” which in quite a few cases includes artisanal mining where dubious middle-men are involved. If there was a crackdown on exploitation of the artisanal sector globally, then the party most likely to be negatively impacted would be the Chinese. The US can’t be too aggrieved to see Chinese manoeuvres in shady metals trading being cramped by Dodds-Frank.

So Tantalum is tantalizingly scarce both as a metal and as an investable option. While investors have a choice of number of companies with deposits, those with production are a distinctly rare commodity. Hopefully this situation will change over the next few years.