

MDN developing two of the world's most critical metals: niobium and tantalum

On June 18, MDN-Mines ('MDN', TSX: MDN) announced that it will soon launch a niobium and tantalum exploration program at its 100% owned Samaqua property, in the Saguenay-Lac-Saint-Jean area of Quebec – close to Niobec's Crevier project. The initial geophysical survey and drilling program (1,500 meters) aims to confirm the presence of niobium and tantalum mineralization. The evidence certainly suggests it. The property has shown a magnetic geophysical signature similar to that associated with Iamgold's Niobec's niobium rich carbonatite deposit.

Niobium (Nb) is mainly used in steel alloys to create high strength low alloy steels (called "High Strength Low Alloy Steels"), stainless steel and heat resistant steels. Niobium's properties have generated considerable demand from advanced industrial sectors because it helps increase steel's resistance to high temperatures, corrosion while raising superconductivity. Niobium has, therefore, become essential in the automotive industry, heavy engineering and infrastructure (i.e. bridge construction and earthquake resistant buildings), the petrochemical industry, power plants and oil & gas pipelines. A smaller percentage of high grade niobium is used exclusively to make superalloys used for the manufacture of aircraft engines.

The highest niobium grades (over 99% purity) are used in optical and electronic devices. However, niobium is going to be growing in demand, because it allows for weight reduction, which in automotive and transportation 'language', translates to higher energy efficiency. There are only three major niobium producers worldwide. CBMM in Brazil owns the world's

largest niobium deposit and its Araxa mines supplies some 83% of niobium consumed around the world. Anglo American (UK) also extracts niobium in Brazil but no more than 3% of the world's total, while IAMGOLD in Canada, thanks to its Niobec mine, is the second largest producer of niobium in the world, accounting for 9% of global supply. There is a potentially rich source of niobium in Tanzania as well. Clearly, Brazil enjoys an overly dominant – one might say hegemonic – position over niobium. Given that the European Union and the United States consider niobium to be a critical metal, they are both interested in reducing reliance on Brazil and identifying new sources closer to home. The limited supply and number of plays – and the long supply routes – simply adds too much pressure on prices while CBMM is the only niobium producer that is able to deliver all the varieties, including the highest grades. Therefore, MDN's new niobium venture will be welcomed by the market.

The market for tantalum is equally critical but more complex. MDN and Iamgold have already been working on a tantalum resource at the Crevier project (MDN owns 72.5% of it). Tantalum is crucial in the manufacture of electronic capacitors used in mobile phones, digital tablets, green technology (wind turbines, solar panels, batteries for electric vehicles). Less than 1,000 tons of tantalum is produced each year – worldwide. Tantalum, like so many other critical metals has largely been produced in China. In order to reduce reliance on Chinese tantalum, western countries have developed tantalum resources in Africa. The Democratic Republic of Congo has been one of the leading global tantalum producers; however, tantalum extraction in Africa involves coltan, a so called 'conflict mineral, which has gained more fame for its geo-political risk rather than its industrial applications. Western companies must now prove that the tantalum meets certain standards of extraction, particularly human rights standards. Any company that uses potential conflict minerals to must disclose its supply chain in order

to reduce the amount of coltan mines (and tungsten) operated by rebel militias in the Congo. Meanwhile, in 2013, the Geological Society of South Africa claimed that tantalum would be ever more difficult to find. As in the case of niobium, the European Union and the US Department of Defense have classified tantalum at the top of their list of critical metals. By developing a tantalum resource in Canada, in the mining friendly district of Quebec, MDN Mines will control a very high demand mineral, whose demand is increasing and whose global competition has been hampered by geopolitical risk.

The post-Chavez Venezuela era begins: the regional, oil and mining implications

✘ Hugo Chavez has died. The charismatic Venezuelan president, who first came to power in 1999, has succumbed to cancer. Both his fans and detractors will agree that he was a larger than life figure, who led his country through sheer charisma and he will leave a large power void in Venezuela and Latin America as a whole. Indeed, Venezuela will no longer be the same and many Latin American countries will now have to confront a new reality, such was Chavez's influence for better or worse. Nicolas Maduro will take over as interim president power and within thirty days, if Maduro honors the mandate left by Chavez, fresh presidential elections will be held. Maduro fully represents Chavez's legacy; Chavez himself appointed him, while the Constitution stipulates that the interim president should have been the Speaker of Parliament – in the present case in the person of Diosdato Cabello.

This is no mere passing of a political figure; many Venezuelans were crying and sobbing both out of sincere sorrow for the passing of a mighty figure- who managed to touch large sectors of society deeply- and out of a deep concern for the future. Despite an odd silence (perhaps in 'retaliation' for accusations pronounced by Maduro himself that Chavez's 'enemies' – i.e. the United States – was somehow responsible for Chavez's cancer such that two US Embassy officials in Caracas have been formally expelled), Venezuelans concern for the future is shared across the Americas and has certainly reached 1600 Pennsylvania Avenue. President Barack Obama, meanwhile, called for "constructive relationship" with the government in Caracas reaffirming "support for the Venezuelan people." Venezuela's opposition leader Henrique Capriles, meanwhile, expressed his condolences to the family and supporters of the deceased Chavez, appealing for unity.

Despite its tense relations with the United States (and some of its neighbors) Venezuela is very important politically as a laboratory for political and economic ideas that have spread to Bolivia, Ecuador and most recently to Argentina, influencing the outcome of several elections in the past decade. If Cuban medicine managed to keep Chavez alive a few extra months, Venezuelan oil revenues have been keeping the Cuban Communist economy afloat. Many fear a season of change in Latin America and Chavez's death has delivered its opening salvos. The international mineral resource business (oil and metals) will certainly be watching the next political moves in Caracas closely. Venezuela has some of the largest natural resource deposits in the Americas and its oil deposits are deemed to be the world's largest including iron ore, bauxite and gold. The first post-Chavez election will raise expectations for opposition candidate, Henrique Capriles's victory. His rise to power would have been welcomed by Venezuela's neighbor Colombia and quietly perhaps by Brazil, Peru and even Ecuador or Bolivia where Chavismo (the socialist policies inspired by Chavez) has been spreading and

influencing policy.

The United States would certainly welcome a Capriles victory along with many international businesses eager to invest in Venezuela's massive resources. Last fall, Capriles came as close as anyone, in the past 12 years, to defeating Chavez. The main reason for this partial success is that the opposition was finally united under a single candidate. This fact, combined, with the lowest victory margin ever for Chavez, suggests that Venezuela will inevitably divert its highly ideologically driven course toward a more pragmatic and business friendly one (even if that openness will likely be in favor of selective partners such as Brazil and Argentina – first). However, the one month timeline before elections will not give Capriles enough time to overcome the obvious pro-Chavez sentiment and sympathy. Maduro has declared seven days of mourning. Latin American leaders will be attending the state funeral, which promises to involve more popular participation than even the funeral of Gamal Abdel Nasser in Egypt in 1970. Capriles, scored significant political points in the last election because he managed to gain votes away even from those who had voted for Chavez in the past.

Maduro, who has none of Chavez's charisma, will exploit the people's sympathy to the fullest extent, consolidating support for the continuation of Chavez's 'Bolivarian Revolution'.

Fear of losing to Capriles, pushed the Chavez camp to fight hard for their votes as the opposition under the leadership of a young and charismatic figure managed to make significant gains presenting a united opposition front, 'Mesa de Unidad Democratica' (MUD), which has become a true contender. Were the elections to be held in the summer Capriles's chances of winning would be higher. MUD's strong showing in the December elections suggests that many more Venezuelans than in the recent past would like to see their country adopt a more pragmatic and open economic vision, one that would necessarily invite more outside investment.

Chavez's strong legacy and influence, meanwhile, also suggests that any more free market inclined president or party would be politically obliged to keep the social and welfare programs of the 'Bolivarian Revolution'. In other words, Venezuela appears to be on course to produce its own version of Brazil's president Ignacio Lula, a leftist and union activist, who has led Brazil through its longest period of economic growth, enjoying support from the rich and poor strata of society. Capriles did suggest he would adopt Lula's model, which provides for more room for private business and reducing expropriation risks for existing ones. The nationalizations of Chavez's early years – the most significant of which, in the oil sector, occurring in the wake of the 2002 failed coup- and the struggle against capitalism will have to give way to more business friendly policies.

Chavez's rise in Venezuela led to the so-called 'pink tide', the popular ideology that links the presidents and former presidents of Ecuador (Rafael Correa), Bolivia (Evo Morales), Argentina (Nestor and Cristina Kirchner), and possibly even Brazil (Lula and Rousseff – although to a much lesser extent) and Paraguay (Duarte). That ideology stresses close cooperation between South American countries, the development of nationalistic policies – Argentina being its champion now after the nationalization of Repsol after being highly fashionable in Venezuela – and opposition to U.S. dominance in foreign policy. Yet, despite the socialist rhetoric, Venezuela is poor. The population is exposed to poor health conditions and extremely high crime rates, which, along with the overly economically nationalistic policies, have repelled foreign and domestic investors.

Chavez's chosen successor Maduro, should he manage to win the presidency in the next elections, doesn't have the cards to last. Chavez could mask Venezuela's problems under his undeniable charisma. Maduro only has ideology on his side and rivals itching for power at an arm's length. He will face a

very difficult presidency and will not be able to manage in the interest of all Venezuelans, especially the many opposition supporters. Capriles, meanwhile, has proposed a program aimed at developing Venezuela's economy beyond crude oil production, which still accounts for some 90% of the country's foreign exchange earnings. The mining sector is a clear candidate for greater investment and the next Venezuelan government, regardless of its colors, will have to consider setting, rather than unsettling, the conditions to facilitate investment this time around. The experience of President Ollanta Humala of Peru is instructive in this sense. He too won the presidential election in 2011 on a strongly interventionist and nationalist platform. At a year and a half since being elected, Humala has continued to promote the business friendly model set by his predecessors, angering some of the very constituencies that brought him to power in the first place.

Chavez's death has enormous implications for Cuba and surely many (but by no means all) are crying in Havana today. Venezuela has lost Chavez at a time when its opposition has become credible and powerful; this opposition has far different foreign policy targets than Chavez. Capriles has no interest in continuing to fund Cuba, which would inevitably intensify the need for foreign investment and expertise. This could come from other Latin American nations, Brazil in particular, but Canada should not be overlooked as a potential and important partner either. Paradoxically, if Cuba should follow Chinese (or even the Vietnamese) approach that gradually opened China to the world since 1973, adopting capitalism it could expect a radical shift from Washington. For that matter, China has complained about the slow pace of reform in Cuba even as Chinese cooperation has targeted the creation of industrial and entrepreneurial capacity in Havana. In Cuba then, Beijing and Washington have congruent goals. China could increase imports of sugar and nickel from Cuba, while helping to raise its oil production output at the

refinery in Cienfuegos. Should Cuba opt to liberalize the economy more than its politics, the United States would still be able to craft a policy to manage closer ties just as it has for China. The US has advocated more human rights in Beijing and openly backs Tibetan self determination claims. The US and Cuba have military ties though the presence of a US military base at Guantanamo.

As for Venezuela's oil, the big question is: would foreign oil companies be drawn back to Venezuela to rebuild the stagnating oil industry now that Chavez has died? Oil prices will no doubt rise in response to the inevitable risk of instability in the void left by a leader of Chavez's stature. However, nobody expects change to come overnight and even those hungriest to tap into the massive resources will be hesitant for the time being. Chavez nationalized and used the Venezuelan oil industry as a political weapon; nevertheless, private resources will be needed to boost the exploitation of oil reserves. China perhaps may be the one to lead the 'pack'. China has officially become the world's largest oil importer and it is very keen to secure energy supplies. However, not all is well between Beijing and Caracas.

After giving massive loans (USD 50 billion) to Caracas through the China Development Bank (CDB) in exchange for oil, Beijing will worry about the future of this strategic investment. China will now be more concerned about offering more loans in the absence of Chavez. Yet, Maduro, ideological as he remains, must drive oil production higher if he is to keep his predecessor's social policies. The new leader therefore will be forced, gradually perhaps, to change course. PDVSA's production since nationalization has fallen 25% from 3 million to 2.4 million barrels per day since 1998. This happened despite the fact that Venezuela holds the largest oil reserves in the world, at more than 500 billion barrels. Without Chavez's charisma and with few resources on hand, the new president will face ever rising bouts of nationwide unrest in

the form of road blockades, arson against property and confrontations between the people and security forces. The only tool available to avert this scenario is to improve the oil and mining regulatory framework. The government will inevitably need to ease the fiscal terms in the sector in order to encourage a rise in production.

The mining nationalizations started later. In 2011, Chavez targeted the gold industry issuing a decree that allows the state to collect a 13% royalty on gold mining; smaller operations are only being subject to a 3% tax. Military zones were also established to crack down on illegal mining operations. Gold companies wanting to do business in Venezuela, therefore, were forced to enter into minority partnerships with the government, which is another key issue that the new president may wish to reverse. Apart from gold, Venezuela is also rich in coltan (columbite-tantalum). Five years ago, a large deposit of coltan was discovered in the Venezuelan Amazon. The government militarized the area to control an illegal trade that sprouted between Venezuela and Colombia as traffickers and speculators traded the precious mineral across the region. Coltan is an important mineral for the manufacture of electronic devices such as cell phones, computers, plasma televisions, video games, MP3, MP4, GPS, satellites and electronic systems for high-precision weapons, such as the so-called "smart missiles". Tantalum is essential because it is used in construction and miniaturization of electrolytic capacitors. Strategic reserves of coltan have led to wars in Africa and there are few sources – the Democratic Republic of Congo is said to have 80% of it.

Venezuela could have some of the world's finest. The rest of the reserves of coltan are located in a strategic area at the turn of Brazil, Colombia and Venezuela. There is some extraction in Colombia but much of it has been of the illegal variety, because it is based in areas controlled by FARC or other guerrilla groups. There are rumors coltan can command

some USD 60,000/ton when smuggled. In Brazil, the coltan deposits are near a number of native reserves and highly politically sensitive. Venezuela is the best area for development. Multinational companies operating in Venezuela, not content with the mining regulations, have been asking for increased shares of their extracted minerals to be exported. Eager to diversify the economy, Chavez started to move in this direction in the last full year of his presidency (2011) and this suggests that even if the next president shall be a full-fledged Chavista, some business and investment friendly changes will be inevitable.