Auxico Resources, producing and selling ores of critical EV metals and precious metals

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Today we take a look at a company that is focused on some of the most valuable metals, critical and precious, globally. This company has both mining and exploration stage project interests in multiple countries as well as its own high-value metals cracking and leaching technology. It is also involved in non-fuel minerals marketing and trading.

Auxico Resources Canada Inc. (CSE: AUAG) ("Auxico") is focused on the production and trading of critical and other high–value metals such as tantalum, niobium, iridium, tin, and the rare earths; as well as gold and the platinum group metals. Auxico owns directly or through joint ventures mineral rights in the Democratic Republic of Congo, Bolivia, Colombia, Brazil, and Ivory Coast. Auxico also has the worldwide rights to an environmentally friendly, non-mercury, non-cyanide gold and silver extraction process; and it is proposing to build mercury and cyanide-free gold and silver processing plants. Auxico's cracking and leaching extraction technology (UAEx) can be used fin the processing of a variety of critical and high–value metals to improve yields and economics.

Auxico's global projects location map

Source: Auxico Resources company presentation

Auxico's high-grade rare earths projects, plus tantalum and

niobium

Auxico's recent focus is on two very high-grade rare earths projects, in Colombia and Brazil, with a strategy of positioning the Company to be a major supplier of rare earths to North America.

Auxico Columbia properties

Auxico has acquired a total of 1,482 hectares of mineral rights and surface rights to properties (Minastyc, Agualinda) located in the municipality of Puerto Carreño, Colombia. The Properties are located within a strategic area designated by the Colombian Government for its potential for tantalum, niobium and the rare earths.

Auxico state (January 2022 company presentation):

"AUXICO has made a significant discovery of high–value rare earth ore in Colombia, **with a total rare earth content of 56.81%.** Subsequent to a sampling program of 23 pits, samples from the Company–controlled property were sent to Canada and analyzed by Coalia Research Institute in Thetford Mines, Canada. Test results on a sample from a separate pit on the property **resulted in 47% tin content**, as well as with tantalum, niobium, scandium and rare earth credits. The pitting program was conducted on the property subsequent to a satellite imagery interpretation study which identified in excess of 20 priority exploration targets that are in the process of being sampled."

Note: Bold emphasis by the author.

Auxico Columbia has the highest global TREO content by weight at 56.81 wt%

Source: Auxico Resources company presentation

Auxico Brazil JV

Auxico has an option to enter into a JV for the development of their properties in Brazil with a total rare earth oxide content of up to 63.49%. This is also exceptionally high.

Auxico's business strategy is a mix between high value metals exploration, processing, marketing & trading from multiple projects globally

Source: Auxico Resources company presentation

Note: Coltan is an ore that contains niobium and tantalum. Niobium was originally named "columbium" thus columbium and tantalum = coltan.

In addition to the above rare earth projects, Auxico has an MOU agreement with Minampro Asociados S.A.S for the exploitation and trading of industrial sands (tantalum ore) originating from Vichada, Colombia.

Auxico also recently signed a JV to acquire a 70% interest in a rare earth property in Bolivia. What is very interesting is that the property has "confirmed the presence of pegmatite veins containing lithium mineralization, as well as high-grade cesium and rubidium mineralization, and various rare earths."

High-value metals extraction and processing

Auxico has several agreements in place to process high-value metals. In Columbia, Auxico plans to build a 10,000 square meter rare earth refining facility. In the DRC, Auxico has signed a JV agreement with Kibara Minerals for the concentration and export

of tantalum and niobium ores.

Auxico state: “AUXICO has licensed a patent–pending environmentally friendly extraction technology (UAEx) for the processing of high–value metals. The UAEx process is very effective on high–value rare earth samples, achieving +80% recoveries of select rare earth elements over a 2–hour leaching time.”

Marketing and trading of metal ores

Auxico is also involved with marketing and selling manganese ore from Brazil, an MOU for exploitation and commercialization of tantalum, niobium, iridium and tin from industrial sands located in Bolivia, and has a LOI for the exploitation and trading of tantalum and iridium bearing minerals from the Ivory Coast.

Closing remarks

Auxico is certainly an adventurous company with projects in several high-risk countries. However, by diversifying across many countries, many projects, many valuable metals, and mining exploration and processing, marketing & trading; Auxico aims to lessen the risks and achieve success. In many ways, Auxico reminds me of a very early stage version of Glencore.

Auxico Resources Canada trades on a market cap of C$44 million and looks suitable for adventurous and risk-tolerant investors hoping to prosper from Auxico’s efforts across a wide range of valuable metals. A very interesting company with plenty of paths to profitability and success.

One of the world's richest rare earth deposits continues towards resolution of issues with Burundi partner

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Rainbow Rare Earths' production in Africa to be expanded through extraction from South African mine tailings.

When it comes to rare earths it is important to identify the most valuable ones. Rare Earth permanent magnet production accounted for 91% of the total monetary value of rare earth consumption in 2019, and neodymium and praseodymium (NdPr) are the two key rare earth elements used in permanent magnets, particularly neodymium. This explains why most rare earth miners target NdPr. They are simply the most in demand and are highly valuable.

Rainbow Rare Earths Limited (LON: RBW) ("Rainbow") is a rare earths miner targeting NdPr production at their two African rare earth projects. Rainbow's strategy is to become a globally significant producer of magnet rare earths. Rainbow has two African-sited projects, each of which has a special attribute leading to potentially lower cost mining. Rainbow also has exclusive rights, across the SADC region of Africa, to privately owned American specialty chemical engineering company's (K-Tech) rare earths continuous ion chromatography separation technology.

The K-Tech process targets individual separation of rare earth from natural mixtures in fewer stages with more flexibility than traditionally used solvent extraction thereby saving on upfront CapEx and ongoing OpEx and potentially producing a higher end-value separated oxide rather than a carbonate. Testing is ongoing.

Rainbow's two rare earths projects are:

- The Phalaborwa Project in South Africa.
- The Gakara Project in Burundi, East Africa.

The Phalaborwa Project (70% earn-in agreement)

The Phalaborwa Project comprises an Inferred Mineral Resource estimate of 38.3Mt at 0.43% Total Rare Earth Oxides (TREO) contained within gypsum 'tailings' stacked in unconsolidated dumps derived from historic phosphate fertilizer hard rock mining. Being a tailings resource eliminates the need for hard rock mining, which is expected to lead to lower operational costs. The Resource has a high-value NdPr content representing 29.1% of the total contained rare earths, measured as oxides, with economic dysprosium and terbium, key rare earths for high temperature operation of permanent magnets, as valuable by-product credits. The Project has 5-10 times higher grade NdPr than a typical ionic clay style rare earth deposit (see table below). It also has low levels of radioactive elements which means easier processing and lower costs.

Being on the site of a past mining operation, the Phalaborwa Project has excellent infrastructure and transport logistics. The Project is largely permitted and positioned in an

established mining region.

The Gakara Project (90% interest)

Rainbow states that "the Gakara Rare Earth Project is one of the world's richest rare earth deposits." Rainbow has a 90% interest in the Gakara Project with a non-dilutable 10% owned by the Burundi State. The mining permit covers a large area of over 39km^2 and has a 25-year mining license that began in March 2015.

Gakara was placed on care and maintenance in June 2021 at the request of the Government of Burundi. Primary concerns of the Burundi Government are understood to relate to the pricing of the mineral concentrate currently sold under a long-term off-take agreement with a German company's (ThyssenKrupp), trading arm. Rainbow states: "Rainbow continues to engage constructively with stakeholders to resolve the issue and allow trial mining to recommence as soon as possible."

Closing remarks

Rainbow has two exciting African rare earth projects.

The Phalaborwa Project has several advantages including:

1. An ore tailings source, so no need for hard rock mining, crushing, or milling and hence lower production costs.
2. High-value Nd and Pr oxide content representing 29.1% of the total contained rare earth oxides, with low levels of radioactive elements, and
3. An existing mining site with great infrastructure and logistics available.

The Gakara Project has outstanding NdPr grades in visible

“veins” and is amenable to simple physical separation of minerals from waste rock to produce a high value rare earth concentrate. This makes for a low OpEx project. The Project is currently on care and maintenance pending the expected resolution of certain legal issues with the government of Burundi.

Risks are typical of those for junior rare earths miners including funding risk and in this case, sovereign risk in Africa.

Rainbow Rare Earths Limited trades on a market cap of £ 78 million (~US$105 million). One to follow with great interest.