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Can Latin America Become a Major Player in Rare Earths?

Inter-American Dialogue's Latin American Energy Advisor

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Q and A: Can Latin America Become a Major Player in Rare Earths?

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Brazilian mining giant Vale last fall discovered what it described as a rich deposit of rare minerals (also called rare earths) at its Salobo copper mine in Carajas, Brazil. Prices of certain heavy rare earth metals doubled last May after China, the world's top producer, enforced restrictions on exports of the materials, which are used in industrial applications and for advanced electronics products. Can Latin America become an important player in the rare-earths market? Where are rare-earth deposits most likely to be found in the Americas, and what will it take to most effectively exploit them? What problems—such as environmental opposition, regulatory hurdles and social protests—will most likely stand in the way?

A: Gareth P. Hatch, founding principal of Technology Metals Research, LLC in Carpentersville, Ill.:

"Historically, Brazil was well known for the production of rare earths from its monazite-bearing beach sands, but in recent years there has been relatively little activity in Brazil or elsewhere in Latin America, in the rare-earths sector. Of the 35 global rare-earth projects (as of this month) that have an NI-43-101 or JORC-compliant resource estimate, only one is located in Latin America—namely the Araxá project owned by MBAC Fertilizer Corp., in Minas Gerais, Brazil. Technology Metals Research (TMR) is tracking six projects in Argentina, four in Brazil (including Vale's Salobo project as well as the aforementioned Araxá project), three in Peru and one each in one in Colombia and Paraguay. This compares to more than 75 projects in the Canadian province of Quebec alone. So in terms of the development of new rare-earth projects, the region is somewhat behind others such as North America, Australia and southern Africa. Worldwide, TMR is tracking more than 419 individual rare-earth projects, so for new deposits in Latin America, or elsewhere frankly, to be of any real strategic interest, and to have any chance of being developed, they would have to be something really special or unusual. It is possible that such deposits do exist in the region; the initial results for the Araxá project, for example, indicate comparatively high grades of rare earths are present. As may be a possibility at the Salobo project, there may be opportunities to look for rare earths as potential byproducts of other operations. There are also a number of projects of interest in Brazil and elsewhere, where the tailings of previously mined mineral deposits are being evaluated for potential rare-earth content."

A: Robert Jaffe, Jane and Otto Morningstar Professor of Physics at the Massachusetts Institute of Technology:

"Whether Latin America can become an important player in the rare earths market depends on the quality, quantity and accessibility of deposits. Compared to other minerals, exploration for rare earth deposits is not very mature. Major new deposits may await discovery. According to rare-earth mineralogy expert Anthony Mariano, 'showings' can be found in countries including Brazil, Venezuela and Argentina. Most are sub-economic (at present rare earths are only mined from 'carbonatite complexes,' 'ion-absorbed clays,' and rarely from 'placer deposits.' However, if prices remain high, undoubtedly efforts will be made to explore them further. Rare-earth mining is not, to my knowledge, particularly beset by environmental, social or regulatory problems compared to the mining of other minerals. Environmentally and socially irresponsible mining in China may have created the opposite impression. Some rare-earth deposits occur along with thorium, which is slightly radioactive, and would have to be treated appropriately. It could be a useful byproduct if nuclear reactor fuel cycles based on thorium ever became practical (they are not at present). Otherwise it would have to be disposed of appropriately. Like any mining activity, rare earth mining should only be pursued if it can be done in a way that protects the environment and rewards the stakeholders including local, perhaps indigenous, populations."

A: Beatrice Rangel, member of the Advisor board and director of AMLA Consulting in Miami Beach:

"Rare-earth elements are not rare at all. In fact, they are relatively abundant in the Earth's crust as they are part of nonalkaline igneous rocks or concentrated with other heavy metals. They, however, rarely are concentrated into mineable ore deposits. The leader in production of rare-earth elements from the mid-20th century until five years ago was the United States, followed by China and Australia. China's production consistently rose toward the end of the last century and the beginning of this one as U.S. depositories were exhausted. In Latin America, only Brazil has identified and exploited rare-earth deposits. The export halt that China implemented last year attracted a lot of attention to the potential of these minerals. However, aside from Brazil, countries have done little to pursue this opportunity. For Latin America to become a significant player in the production of rare-earth elements, more investment is needed in exploration and production. The Carajas discovery places Brazil at the forefront of potential suppliers of rare-earth elements. Colombia, Argentina and Peru could be the next entrants into this race. Environmental opposition should not be an obstacle if projects are designed and implemented with a bottom-up approach that includes communities settled around rare-earth deposits. Or better said, in so far as mining companies embrace the "Shared Value" approach to rare earths production, these minerals could trigger development in depressed regions of Latin America."

The Energy Advisor welcomes reactions to the Q&A above. Readers can write editor Gene Kuleta at gkuleta@thedialogue.org with comments.