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Not enough earths to run our machines

From Tuesday's Globe and Mail

The West needs to find alternatives to rare earths - which have optical and magnetic properties that make them vitally useful in technologically advanced products, and which China largely controls.

The apparent pressure tactics in the delays of Chinese shipments of "rare earth" minerals to Japan last week have highlighted the need to develop alternative source of materials that have become increasingly important.

The restrictions on supply occurred after Japanese officials detained the captain of a Chinese fishing vessel in disputed waters. The fishing captain has now been released, and the kerfuffle is over, but the implications remain.

The rare earths are not particularly rare, though they can be made scarce as acts of state policy. They are a set of elements - almost all of them a consecutive series from no. 57 to no. 71 in the periodic table, called the "lanthanides" - which have optical and magnetic properties that make them vitally useful in technologically advanced products, including lasers, colour TV, flat-screen TV, iPhones, iPods, iPads and compact fluorescent bulbs - and not least in environmentally correct products such as solar panels, wind turbines, catalytic converters and hybrid cars.

In 1992, Deng Xiaoping, the nominally retired but still paramount leader of China, said that rare earths would be to China as oil is to the Middle East. Estimates of the proportion of the world supply currently coming from China - especially from Inner Mongolia - range from 93 to 97 per cent.

On the one hand, China has rare-earth export quotas, presumably to secure the minerals for their own factories' production; on the other, its sales abroad at low prices have undercut - and thus reduced - output in other countries.

The rare earths tend to occur in many fairly small deposits rather than in huge ones. Their extraction, difficult in itself, is apt to produce radioactive waste, and environmental regulations have restricted their mining in the United States.

Some Canadian companies are actively involved, including Great Western Minerals Group Ltd., which has a major site at Hoidas Lake, in northern Saskatchewan, and Avalon Rare Metals Inc., which owns the Nechalacho project near Great Slave Lake.

Mr. Deng may have overenthusiastically exaggerated 18 years ago, but the Chinese-Japanese episode this month is a reminder that the Beijing government's active strategic interest in the Chinese economy has both short-term and long-term consequences. Western countries do not need to resort to a mercantilism of their own in response, but public policy should try to resolve some of the environmental difficulties that rare-earth mining faces in North America.

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