

The Coming Global Resource Scarcity: America & Alaska's Role

Alaska Strategic & Critical Minerals Summit
November 30, 2012 Fairbanks, Alaska

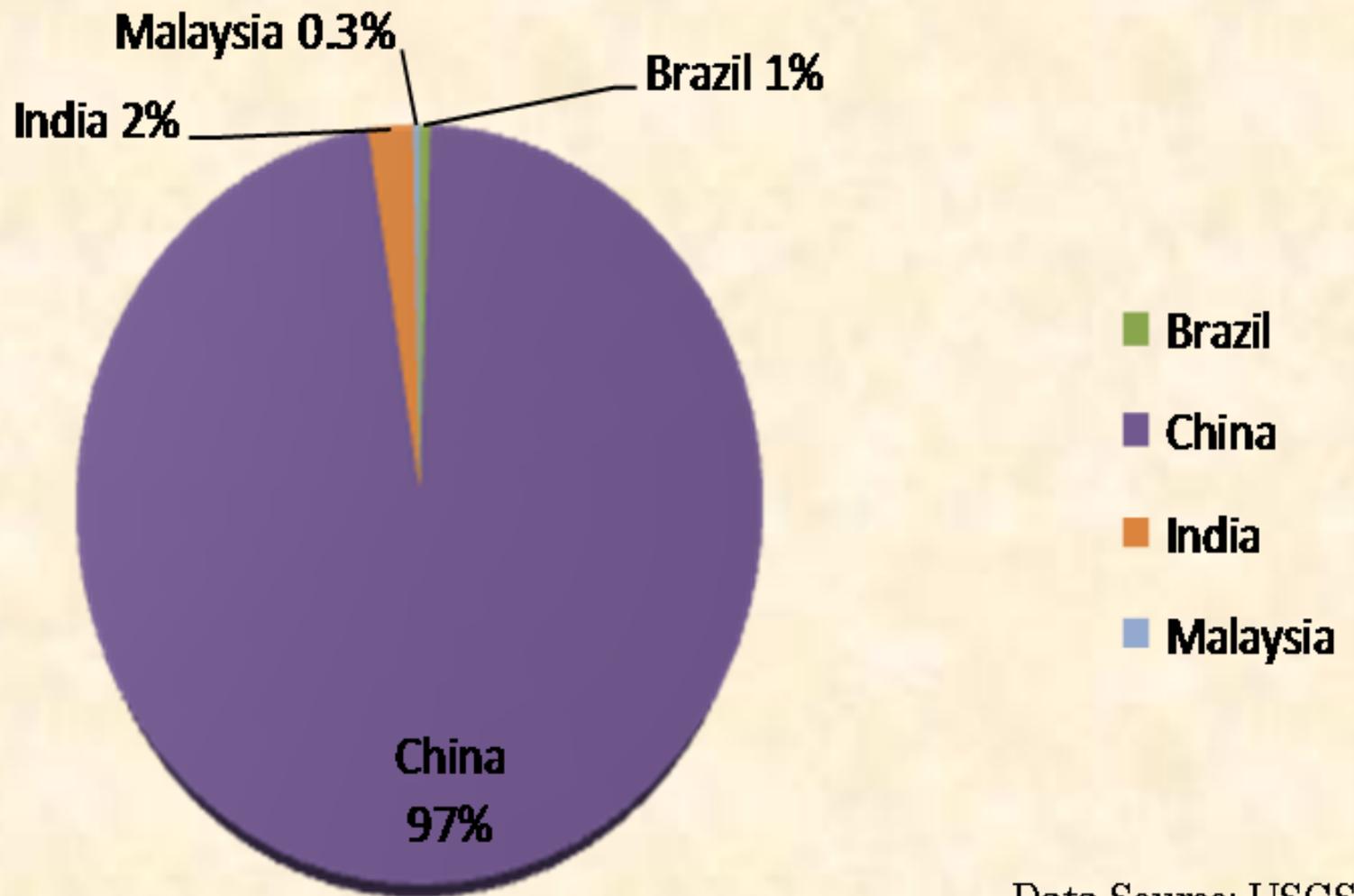
Michael N. Silver, President & CEO
American Elements





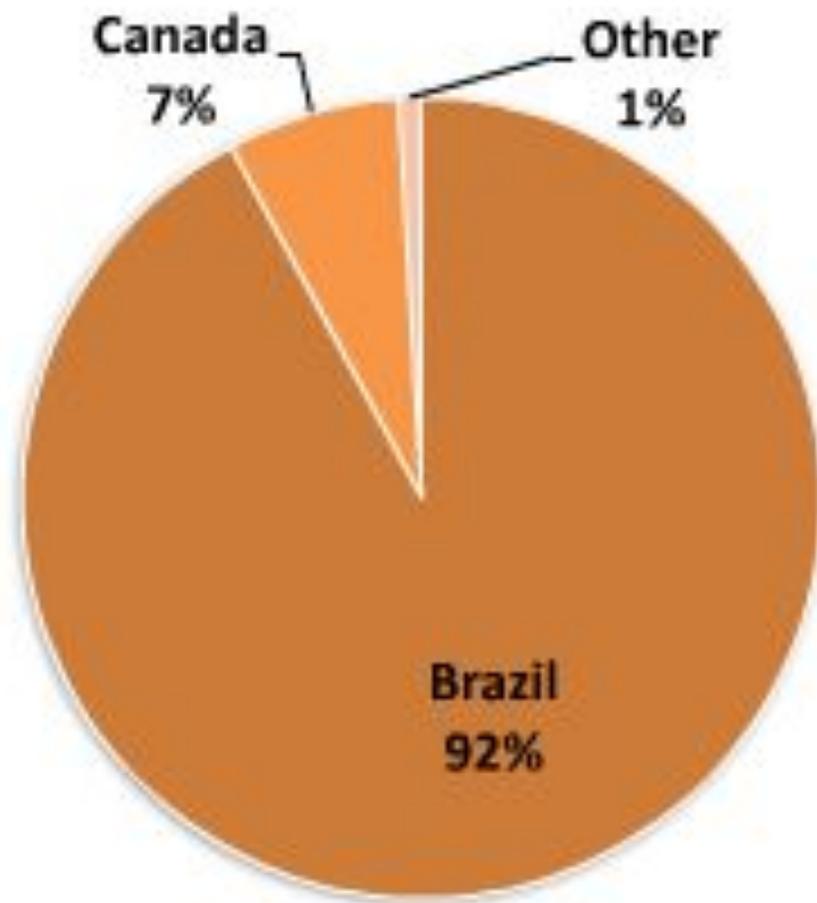


Global Rare Earths Production - 2009



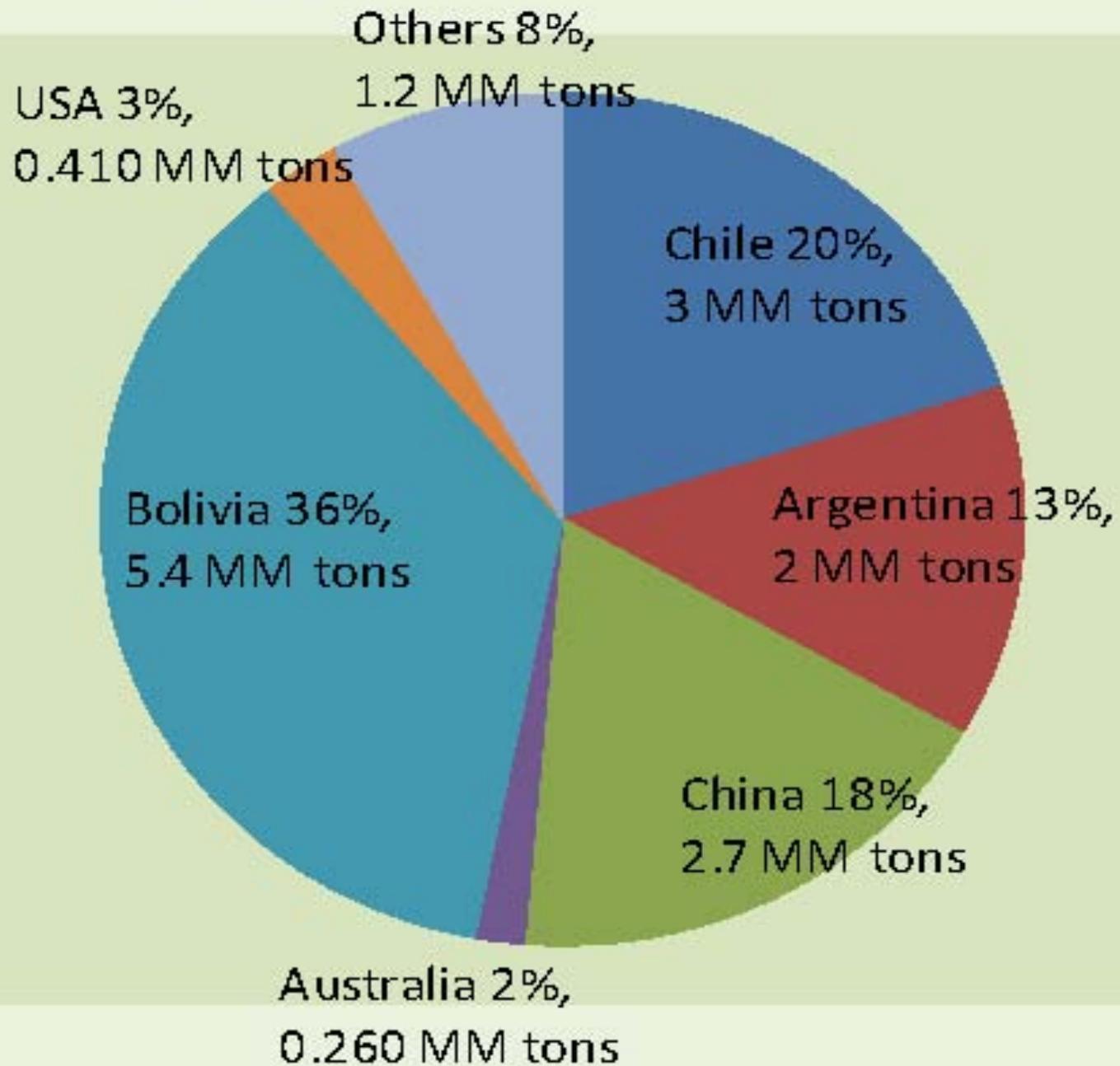
Data Source: USGS

Exhibit 11: Niobium Producers



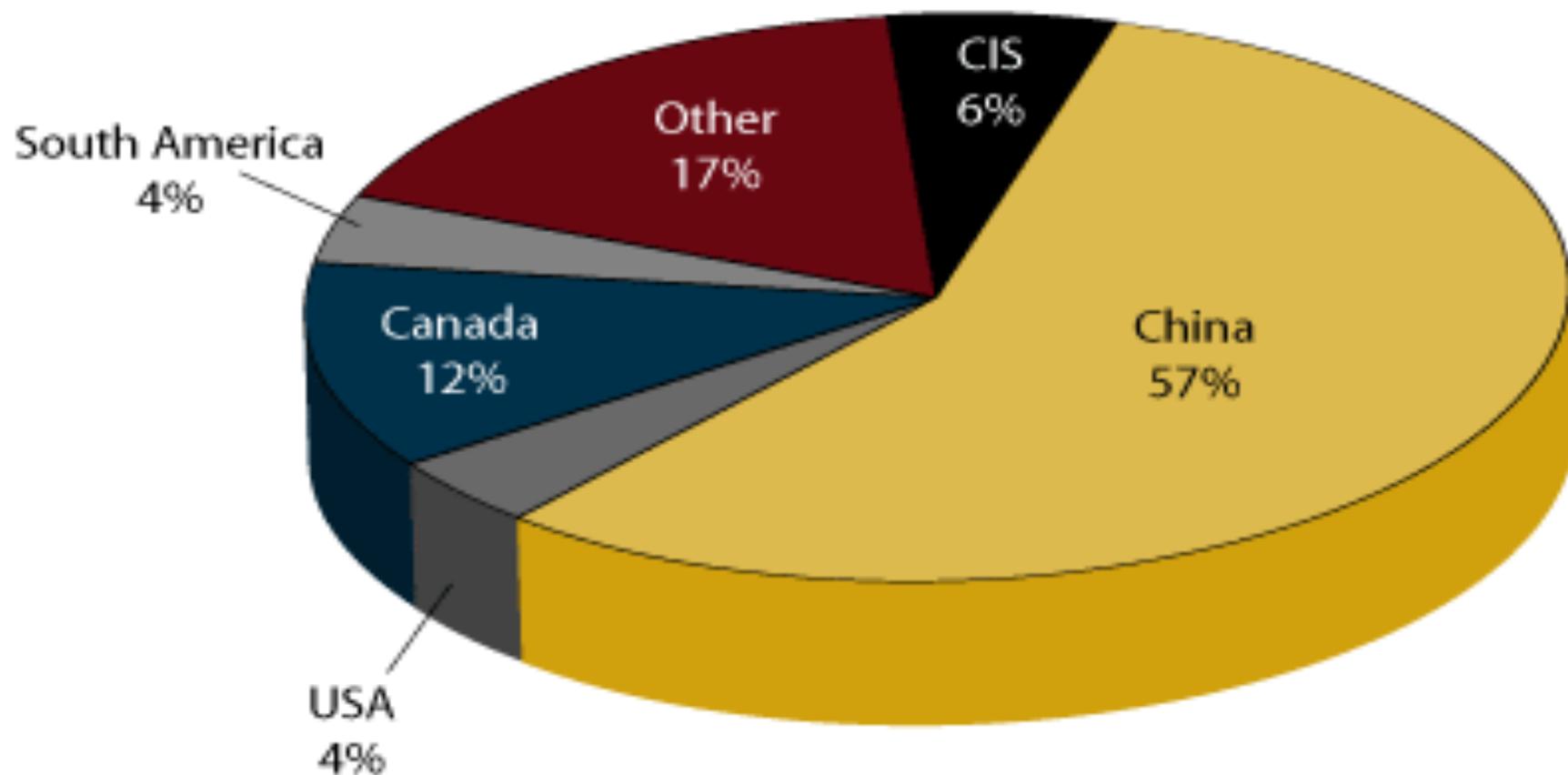
Source: USGS

Lithium Reserve Base



Advantage China

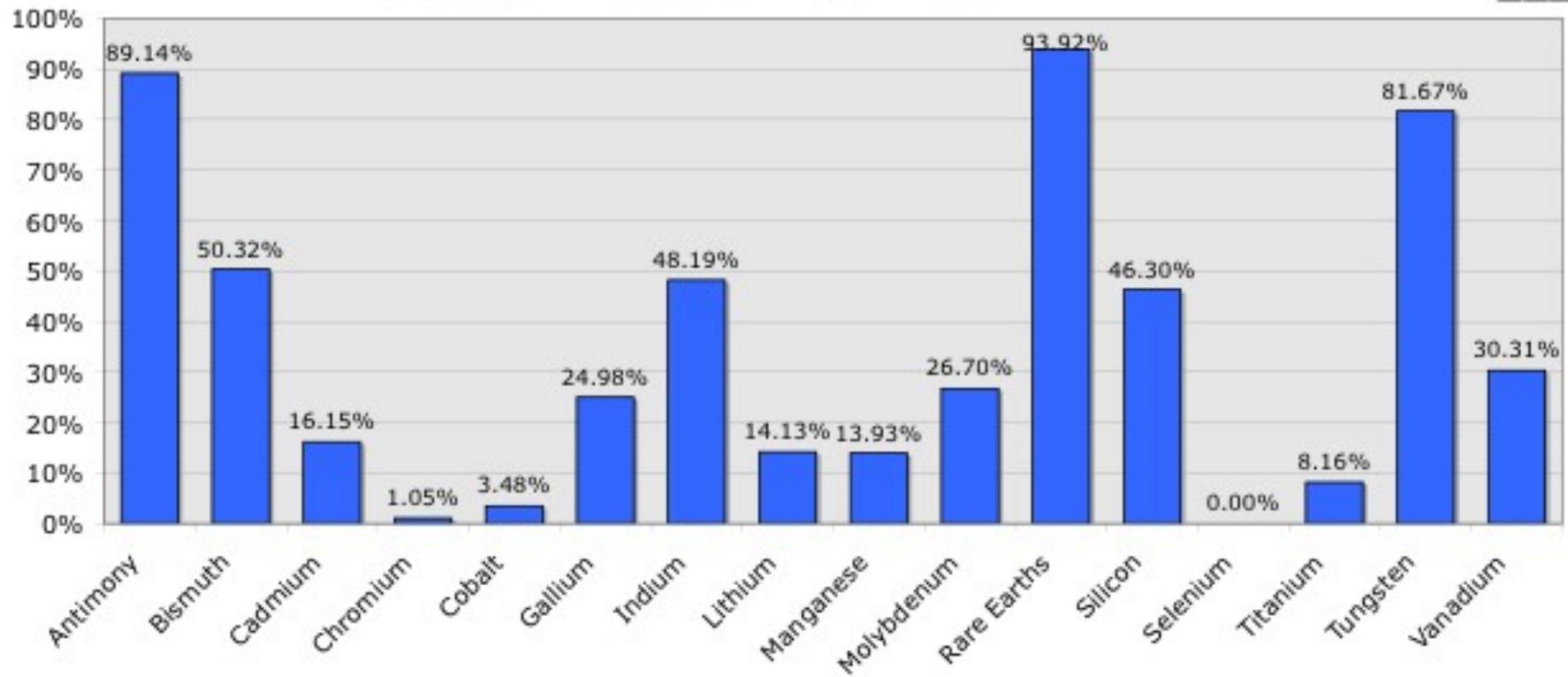
Estimated world tungsten reserves 7.0 million tons (W Content).



Source: Energy & Scarcity Investor

WWW.AGORAFINANCIAL.COM

Chart 2: Average Annual Chinese Production by Metal - % Global Production 2000-2009









Philips Reduces Dependence on Rare Earths for LEDs

Posted 4/23/2012 11:13 PM by Esther Tanquintic-Misa from [International Business Times](#) in [Investing](#), [Commodities](#)

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Royal Philips Electronics has started working on a technology that will significantly reduce its dependence on rare earth minerals for creating its light-emitting diode (LED) lighting products.

"We have launched some innovation projects in order to become less dependent on rare earths," SmartPlanet quoted Frans van Houten, CEO of Royal Philips Electronics, as saying in a conference call with analysts on Monday.

Mr van Houten explained creating the LED lighting products will remain dependent on rare earths, it being a vital component to its efficiency. But such dependence can be lessened.

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Hitachi spins up 'leccy fan motor sans rare earths

Where's your monopoly now, China?

By [Phil Muncaster](#) • [Get more from this author](#)

Posted in [Hardware](#), 13th April 2012 08:15 GMT

Japanese electronics giant Hitachi has unveiled what it claims to be a highly efficient mid-sized electric motor built without using the rare earth minerals which have become essential to the production of much of modern technology.

The 11kw motor is designed to power pumps or fans in factories and tunnels and should be ready for commercial production by 2014, said Hitachi.

The key design challenge the firm had to overcome was to build a magnet synchronous motor with the requisite energy efficiency and performance without using the rare earth minerals neodymium and dysprosium.

Hitachi said it achieved this thanks to developing its own "iron-based amorphous metal core", which it has been working on since 2008.

The main drivers for the project were improving energy efficiency to counter global warming and move away from a reliance on rare earth materials which China has a virtual monopoly on.



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GREENTECH

A Push to Make Motors With Fewer Rare Earths

By JIM WITKIN

Published: April 20, 2012

FOR much of the last century, the straightforward solution to making a car perform better has been to install a bigger engine. In the hybrids and [electric cars](#) of coming years, however, the answer might be installing motors with more powerful magnets.

Enlarge This Image



Until the 1980s, the most powerful magnets available were those made from an alloy containing samarium and cobalt. But mining and processing those metals presented challenges: samarium, one of 17 so-called [rare earth](#) elements, was costly to refine, and most cobalt came from mines in unstable regions of Africa.

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Those Revolting Europeans



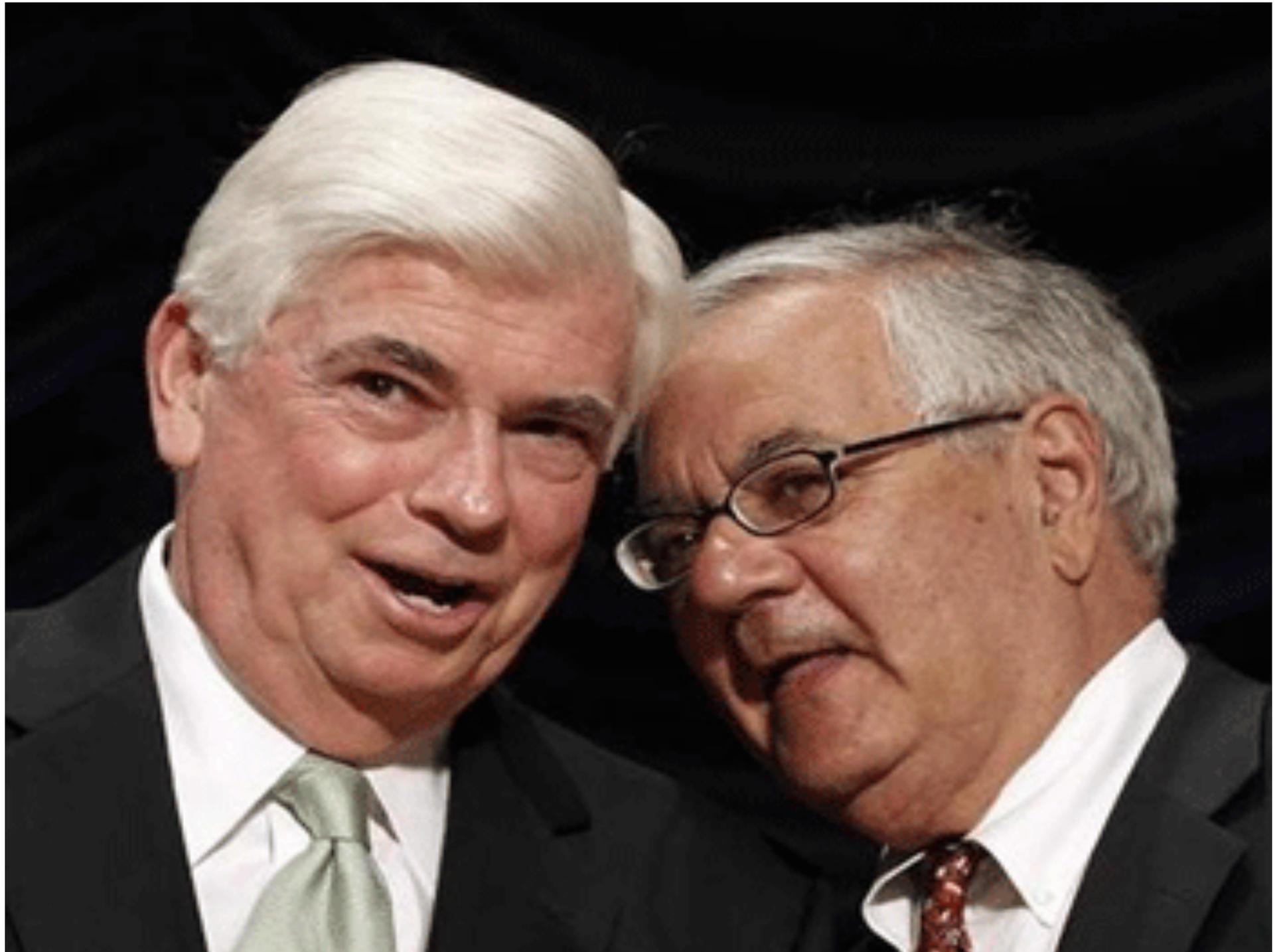
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Monday, June 18th 04:38 PM IST

China sees Greenland as potential rare earth competitor

REE # Greenland rare earths # China rare earth monopoly

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Greenland has some of the world's biggest deposits of rare earth elements, strategically important metals in which China has a near monopoly.



LONDON(BullionStreet): World's rare earths monopoly China sees a potential competitor in Greenland as far as mineral trade is concerned, analysts said.

They said, the dragon nation already started talking to Danish authorities about possible alliances in the trade.

Chinese President Hu Jintao's three-day visit to Denmark is in line with this aim in mind, they said. That may explain why the leader of the world's most populous country decided to

devote three days to visiting Denmark, a nation of just 5.6 million

Greenland, a self-governing dependency of Denmark, has some of the world's biggest deposits of rare



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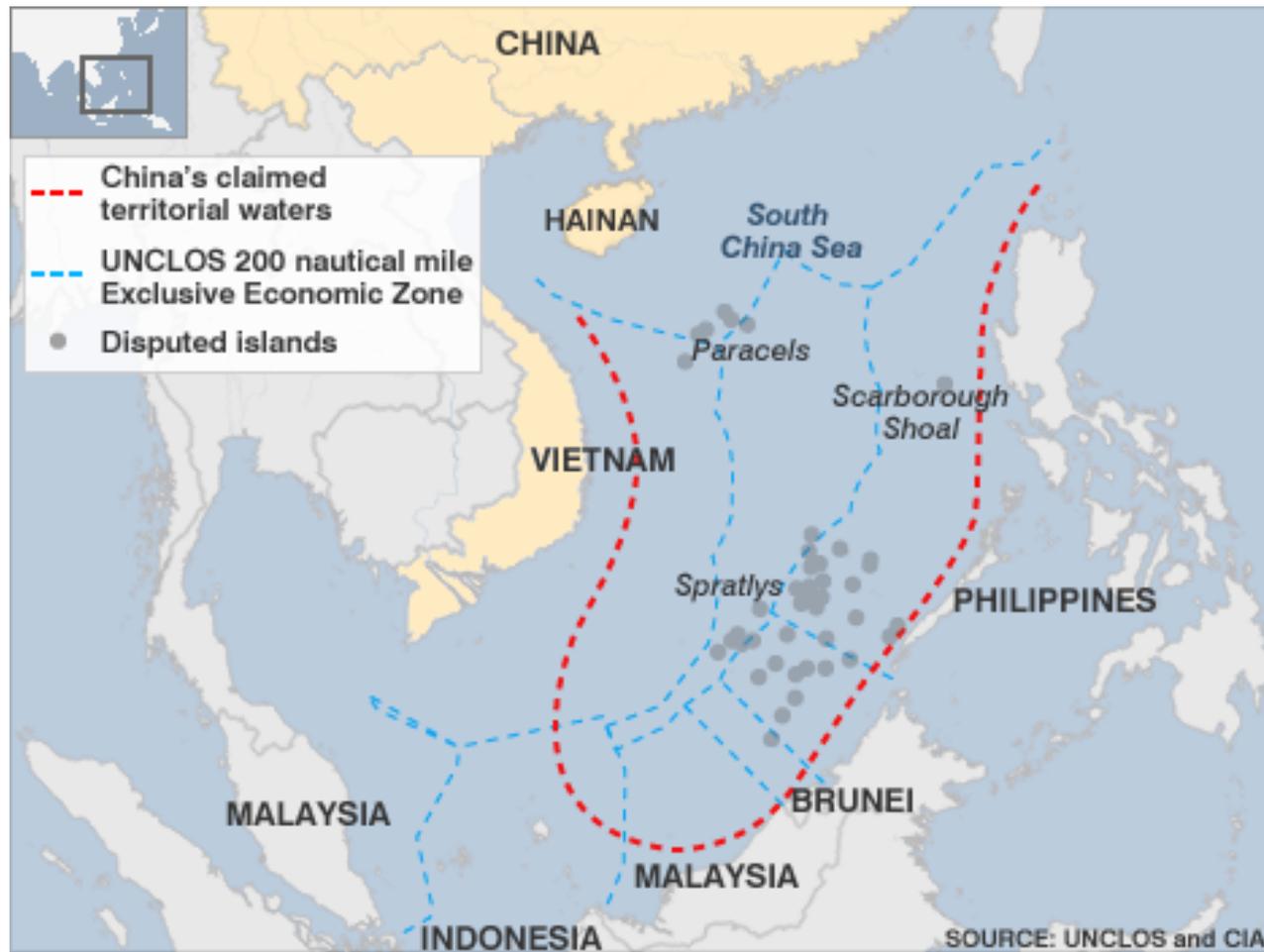
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QUINN AND SILVER: 'Call of Duty' video game highlights real threat

U.S. minerals supplies threatened by China

COMMENTS (3) SIZE: + / - PRINT



By Hal Quinn and Michael Silver

Thursday, November 22, 2012



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Illustration COD by Greg Groesch
for The Washington Times
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As people head out to the store this Black Friday, one item on many shopping lists is certain to be "Call of Duty: Black Ops II." This recently released and wildly popular video game features a chilling scenario: a new Cold War between China and the United States has erupted, spurred by a ban on Chinese exports of rare earth minerals. While this may sound like video game fantasy, U.S. minerals security and supply stability is a real and pressing issue that impacts U.S. manufacturing, economic growth and national security.

Currently responsible for more than 95 percent of the global supply, China has an undisputed monopoly on production of rare earth minerals — resources essential to the innovation and manufacturing of advanced-energy, consumer and defense technologies, including wind turbines, night-vision goggles and satellite positioning systems. As we saw this past spring, when President Obama filed a challenge with the World Trade Organization against China's export restrictions on important minerals for the second time in recent years, minerals supplies are subject to intense geopolitical instability.

China's edge on the minerals market goes beyond rare earth minerals. The country ranks as the world's leading producer of more than 80 percent of mineral commodities, such as tungsten, a mineral used in incandescent light bulbs and CAT scans. While China maintains its stranglehold on a variety of in-demand minerals, the United States

China makes \$15b direct investment in Africa – Statement

Page last updated at Friday, November 9, 2012 8:08 AM // [Leave Your Comment](#)



Statistics show that about 18,000 Chinese companies have invested overseas, mainly in the developing world.

By the end of 2011, China has executed more than 2,200 projects for less-developed countries to the benefit of local people.

A statement signed by Mr. Shao Haijun, Bureau Chief of Xinhua News Agency Accra Bureau, copied to the Ghana News Agency (GNA), said with direct investment

in Africa totaling nearly \$15 billion, less-developed countries have been exempted from the re-payment of 4.8 billion dollars debts.

It said, a decade ago, in 2000, the Forum on China and Africa Cooperation was established and since then, there has been rapid development in the economic relations between China and Africa.

The statement said in June, this year, Ghana signed a \$3 billion Chinese Master Facility Agreement with the China Development Bank.

"Looking back, one can see that burgeoning development of China has brought huge vigour and vitality to world peace and development over the past decade, as a number of facts and statistics prove it," it said.

The statement said African countries were eager to reduce poverty, create jobs and increase economic growth.

It said Mr Hu Jintao, President of China, has pledged to offer 20 billion US dollars as loans to African countries to support infrastructure, industries and small-scale businesses to boost the continent's development agenda.

"China is already playing an increasingly helpful role in Africa's developmental process," the statement said.



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BMO Capital Markets Named World's Best Metals and Mining Investment Bank by Global Finance Magazine

TORONTO, March 24, 2011 – For the second year in a row, BMO Capital Markets has been named the World's Best Metals and Mining Investment Bank by *Global Finance Magazine*.

Each year *Global Finance* selects the best financial institutions around the world. These awards have become a recognized and trusted standard of excellence.

"2010 was a standout year for our team and our clients," said [Egizio Bianchini](#), Vice-Chair and Co-Head, [Global Metals & Mining](#), BMO Capital Markets. "This award is testament to our commitment to clients. Whether it is advisory services, capital raising, research or investing, we are here to help our clients stay ahead, and we look forward to another great year helping them achieve their ambitions."

In 2010, BMO Capital Markets achieved the following:

- ▶ Ranked #1 in North American mining M&A by Bloomberg, with 20 deals totalling close to US\$18 billion.
- ▶ Ranked in the Top 3 in North American mining equity underwriting, with 56 deals (24 of them as Bookrunner), totalling more than C\$1 billion.
- ▶ Solidified its position as the largest mining research group in the world, with 10 dedicated analysts covering more than 150 global metals, mining and fertilizer stocks.

"Today's global mining industry is a maze of complex economic, geographic, environmental and regulatory challenges. With nearly a century of service to clients, we understand the forces shaping the industry, and this award recognizes our ability to assist companies who are looking for new global opportunities," added [Jason Neal](#), Co-Head, [Global Metals & Mining](#), BMO Capital Markets.

"The investment banking industry has changed as a result of the financial crisis," said *Global Finance* publisher Joseph D. Giarraputo. "The best institutions are those that have a business model focused on customer needs, and BMO Capital Markets Metals and Mining team is an excellent example of this."

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- Niobium:** Niobium is an essential ingredient in structural steel. It increases steel's strength and toughness. It is also used extensively in the super alloys from which jet engines are produced making it critical to the U.S. military and aerospace industries. Yet at present a single nation produces virtually all of the world's niobium. That nation is Brazil, which last year produced 58,000 of the 63,000 total tons produced worldwide. Should Brazil suddenly discontinue niobium exports due to worker strikes, for geopolitical reasons or other events, it would have an immediate dramatic impact on American manufacturers.
- Antimony:** All car batteries contain antimony to improve their charging ability. For the U.S. auto industry to compete with other newly emerging national auto industries, America will require a ready access to antimony. Additionally, in the form of antimony oxide, it is an essential ingredient in flame retardants required for fire protection. Yet America produces no antimony and 90 percent of the world's antimony production comes only from China.
- Strontium:** Strontium in the form of strontium nitrate is the propellant that causes air bags in cars to open. Yet again the U.S. is 100 percent reliant on foreign producers, with three countries -- China, Spain and Mexico -- controlling most of its production.
- Platinum:** If you look at a periodic table you might note that all the metals found in a jewelry store are touching each other in a little island in the center. Gold, silver, platinum and palladium form a class of metals we commonly call the "precious metals" because unlike most other metals they always remain shiny and lustrous. However, they also share other even more significant properties for industry and science. They constitute the catalysts which run much of our modern industrial world. Look hard enough in the catalytic converter on your family car and you will find platinum. We can make neither food nor energy without these precious metal catalysts. Yet, the U.S. produces essentially none of its platinum consumption. Nearly all of the world's platinum production comes from one country -- South Africa -- and much of the balance from Russia. The two countries combined account for 86 percent of world production. The heavy future demand for precious metals, particularly platinum, as catalysts in industry and as safe havens of choice for emerging wealth will put significant pressure on their availability in the future.
- Yttrium:** Yttrium is an essential ingredient in many green technologies. It is also in every auto spark plug and every medical laser. Today China is nearly the only nation in the world producing yttrium.

