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'Rare Earths: International Public Policies'

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Natural Resources GP

Presentation Structure

- **What are the Chinese trying to do?**
 - **Concerns**
 - **Policies**
- **Is the Rest-of-the-World reacting smartly?**
 - **Concerns**
 - **Policies**
- **Conclusions**

Key Issues Involved

**Geology → Financing → Processing
→ Environmentals → Market → Recycling**

Plus Policies

ie. RE has commercial as well as policy facets

The Need for Policies...in China and the ROW

Market imperfections, or the failure of the ‘invisible hand’

- **Resource preservation**
- **Security of supply**
- **Environmental protection**
- **National security**
- **Technological supremacy...**

What Are the Chinese Doing?

Brief history

How did this acute phase start?

- 11 Aug '10: China cuts RE export quotas 40%
 - 22 Sept '10: 'China bans Japan RE exports in retaliation to fishing vessel capture', Japanese buyers claim
 - 23 Sept '10 : China's Trade Ministry denies RE embargo
- ...
- 4 Jul '11: Japan discovers huge RE deposits on the floor of the Pacific Ocean!?

What Are the Chinese Doing?

Summary of Measures from 2010

- **Cut [and recently categorize] export quotas**
- **No new mining licenses to 2015**
- **Consolidate the number of their companies**
- **Co-ordinated pricing**
- **VAT rebate on exports withdrawn**
- **Tougher EHS**
- **Increase taxation for Chinese producers**
- **Assist in R&D**
- **Stockpile strategic reserves**

What Are the Chinese Doing?

Measures 2012

- **March 27, '12: Chinese Ministry accepts organisation plan put forward by Baotou: state increasing control over RE by stopping illegal mining via new invoicing system. For Baotou: formation of 'China North RE (Group) High-tech Co', to mainly mine and process light RE resources in N.China, together w/ Gansu Rare Earth Group.**
- **The company + the govt to consolidate several companies in Sichuan, Jiangxi, Shandong provinces & to have own invoicing system from June '12...same as salt and tobacco industry?**
- **This state-owned system will include all Chinese RE chains of reserve, mining, smelting and sales; identity assertion and an online system for all companies, to avoid illegal companies getting RE resources**

What are the Chinese Doing?

International Consequences 2011-2012

- **Dec 05, '11: China Cutting RE Production to 70% by 2015: Study**
- **Dec 05, '11: Grim Supply, Price Scenario Push RE Manufacturers to Scour New Options**
- **Dec 06, '11: RE Metals Scarcity: A 'Ticking Time Bomb' for the World?, PwC**
- **Dec 23, '11: Five RE Elements in 'Critical' Supply: U.S. Energy Department**
- **Jan 12, '12: New Kid on the Block: Germany Develops RE Mine**
- **Feb 06, '12: 'Colorado class action accuses Molycorp -- Was Mountain Pass attracting the attention [of U.S. lawmakers & the int'l business community] to RE shortages little more than hype'?**

Other Recent Developments

- **Feb 10, '12: Chinese [low] trade figures raise the alarm for global economy**
- **March 6, '12 IM: Graphite producers out of China calling for govt to afford them 'same protections' as RE**
- **March 9, '12: Appeal Process in Malaysia re. temporary operating licence for Lynas Advanced Materials Plant. Decision to approve the TOL: 2 February 2012. Appeal to be heard in April**
- **March 9, '12: Molycorp to buy RE processor Neo Material Technologies Inc. for \$1.31bn**
- **March 9, '12: Euromines Conference on Critical Raw Materials, Brussels...Criteria of Critical vs. Essential Raw Materials**
- **March 9, '12: Tasman presents Norra Kärr, Sweden, HRE/Zr project: Robust Economics and Long Mine Life...to start with producing 3000mtpa**

What Are the Chinese Trying to Do? Policies

- Growing attention to RE due to: change in Chinese RE export policies + consolidating RE companies + imposing [& enforcing?] tougher EHS standards + cutting down on illegal mining and smuggling
- China/RE not the only, or even the 1st, case: other emerging economies pursued industrial devt strategies by trade, taxation & investment instruments to reserve resource base for exclusive use - export taxes, quotas, subsidies
- **China openly moving to change from an export-led economy to a domestic-consumption-led model...**
- ...may start importing RE to meet demand, mining official says. Domestic RE demand increased 200 pct in '10-'11
- China aggressively investing [or attempting to] outside its borders

What Are the Chinese Trying to Do? Concerns

- **Cost**
- **H&S**
- **Environment community**
- **Preservation**
- **Local demand/consumption**
- **Technological supremacy**
- **National security?**

What Are the Chinese Trying to Do?

The Chinese Arguments

- Many years exporting at very low prices, at the expense of [a] their domestic consumption, [b] local environmental damage.
- Now: Inflation, rising labor costs, power shortages
- Lifton: ‘We effectively told them in the past that we wanted them to produce our RE in order to save money. That has been accomplished. Now, we are saying why did you do this to us?’
- Most policies do not favor the Chinese producers
- Quota cuts only apply to raw minerals, not to processed forms eg magnets: strategy to develop Chinese domestic manufacturing industry [Chinese-owned or not] + trading ‘resources for technology’
- FT: In 2011, buyers of China’s RE did not use up the available export quotas. In most cases, no one has been prevented from acquiring the RE they needed if they were prepared to pay the price. 2012 quotas ~ same
- Illegal mining & smuggling makes official production & export *stats to err on the low side*. Actual figures considerably higher.

...What Are the Chinese Trying to Do?

- **Contested invoicing system: Whole-industry chain strongly opposed by downstream companies in China, as a further step towards the monopolisation of the industry**
- **Many downstream companies suggest that a better way to run the system would be to only cover the upstream industry, not the downstream consumer section, arguing that it will cause “chaos” to the whole industry**
- **Domestic usage of RE in China: the country sees demand exceeding local supplies by as soon as 2015, particularly as some of the more toxic and highly polluting producers are reined in**
- **Interestingly, REE in Agriculture ...radioactivity?**

What Are the Chinese Trying to Do?

The ROW View

- **Chinese policies & int'l reactions by no means limited to RE. Over quarter century, Chinese underwent transformation from exporter of cheap raw materials to... higher-price/higher-value-added.**
- **1985: China decided to maintain its dominance in Sn, pushing large quantities into world market @ low prices -->Sn miners in other countries went out of business. Even today, China > 85 pct of world Sn output. What if Beijing tried to repeat this with RE?**
- **Presently: a political move to encourage foreign companies to set up RE processing facilities inside the country...**
- **...which is already the case in office equipment etc**

What Are the Chinese Trying to Do?

The ROW View

- **FT: non-Chinese users of the country's RE face costs that can easily be > 50 pct higher than those paid by domestic industry...**
- **...but Roskill in this Conference: domestic prices also increasing**
- **Baotou, the world's largest RE producer: 2011 net profit > X4 2010, @\$555m... *China Daily*: 'The company attributed gains to favourable national policy'**
- **IM 3/12: Chinese government seeking to control the phosphate industry by buying out small companies**

Is the Rest-of-the-World Reacting Smartly?

Def: There are two ROWs:

- **The ‘West’ – RE consumers [and producers?]: US, EU, Japan, Canada, Australia, S.Korea**
- **South Korea sourced 78% of its RE imports from China in 2011 – *rest from?***
- ...
- **The developing countries – RE producers [and processors?]: Afghanistan, Brazil, India, Kazakhstan, Malaysia, RSA, ...**
- **Metal Pages 11/11: India to set national organisation for RE exploration, stockpile**

Is the Rest-of-the-World Reacting Smartly? Concerns

- **Security of supply**
- **Defense, esp. US – not explicitly in the EU, there is no common EU defense policy!**
- **Energy independence, esp. important for the US**
- **Market share in environmental technology**
- **For developing countries: produce RE...**
- **...but also: Opposition to RE projects on environmental grounds, eg Lynas in Malaysia**

Is the Rest-of-the-World Reacting Smartly?

The RE market

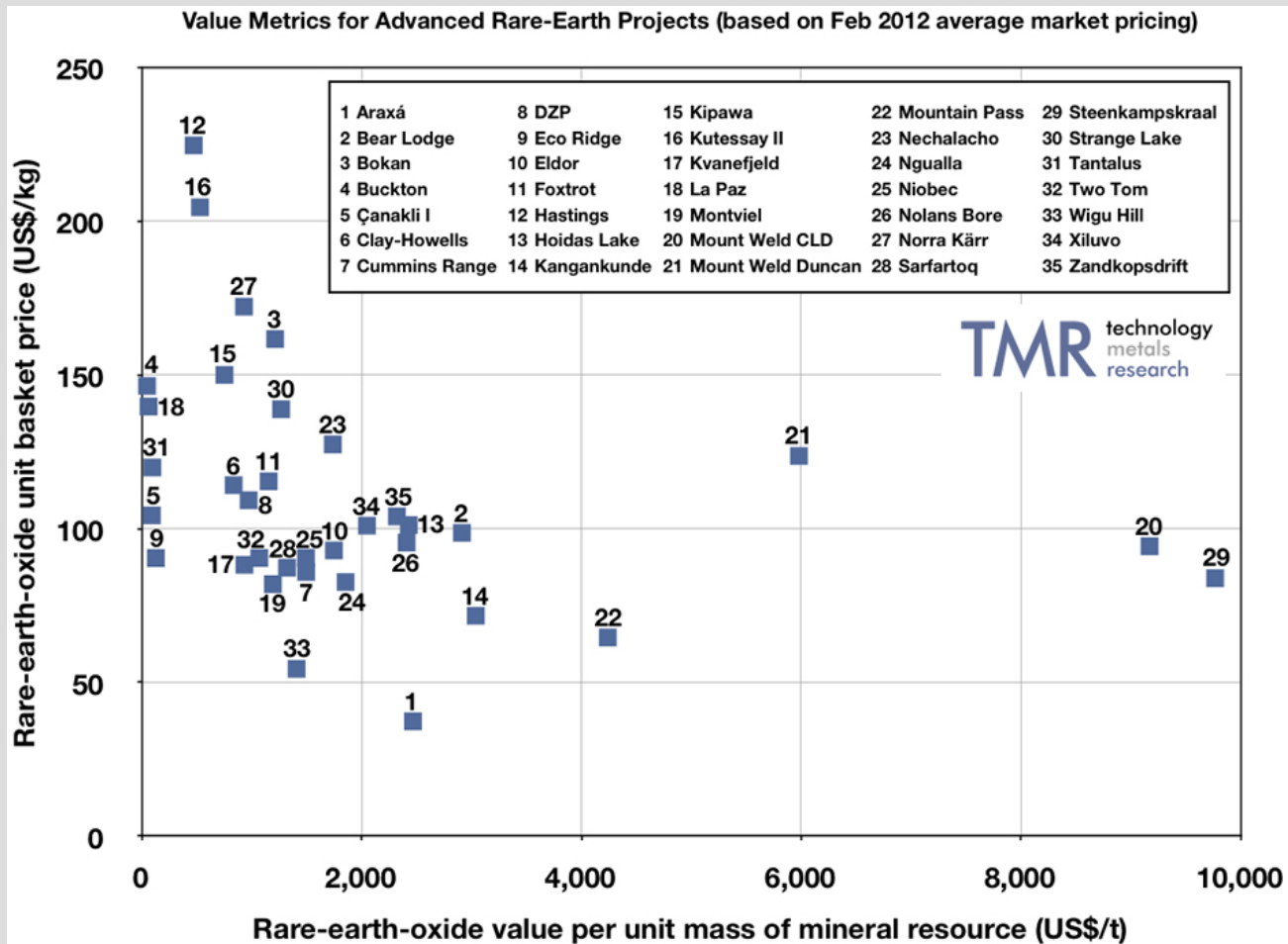
- RE prices rose dramatically in 2010 and part of 2011...
- ...and fallen sharply since!
- REE market prices not terminally traded - a difficulty for speculative investors
- However, these wild gyrations cannot be wholly attributable to fundamentals!
- Tasman Norra Karr PEA assumes significant fall in RE prices from 185 now to 51 long-term
- Market valuations and financing???

Is the Rest-of-the-World Reacting Smartly?

Commercial Decisions

- **Non-Chinese RE companies announcing new projects, even though may take years to materialize...China abundant in HREEs, while many projects outside China overweight in LREEs**
- **Many Western companies indirectly depend on illegal mining and smuggling. Estimate: illegal production ~ 1/7 of the supply of LRE in the world and ~ 1/2 of HRE. ~20 pct of Japan's RE imports from China are on the black market.**
- **The US [Molycorp in Stilmets and in Japan...], Australia [Lynas in Malaysia] and Japan aggressively invest [or attempt to] outside their borders**
- **Renault Criticality Matrix**
- **Japan: new Shin-Etsu plant to recycle up to 1,000 mtpa RE from discarded appliances**
- **TMR Advanced RE Projects Index: currently 35 advanced RE projects, w/ 33 different companies, in 13 different countries**

Is the Rest-of-the-World Reacting Smartly? Advanced New Projects



Is the Rest-of-the-World Reacting Smartly? Commercial Decisions

- Rhodia processing plant near Baotou, to benefit from cheaper prices
- Dec '11: Rhodia, CHINALCO, commit to cooperation in RE
- Association of German wind turbines: 'none of our members use magnets w/ Nd, only 5% of wind turbines in Germany are concerned'
- Office equipment: Hewlett Packard makes most equipment in China: where do their interests lie?
- IM: Russia could enter WTO next year, but their vast RE deposits will have to wait > 5-10 yrs due lack of investor interest
- Russian fertilizer group Phosagro working on technology to extract REO from phosphoric acid or phosphogypsum by-product
- Molycorp US\$1.31bn acquisition of Neo Material Technologies, a processing company into products such as magnetic materials that earns most of its revenues in Asia...
- Molycorp then to begin RE exports to China which accounts for ~70 pct of worldwide RE demand
- Neo has plants in China and Thailand serving markets in China and Japan, which together accounted for 64 per cent of its sales last year

Is the Rest-of-the-World Reacting Smartly?

Public Policies

- **Japan, world's largest REE importer, stands to lose more from Chinese supply bottlenecks than any other nation**
- **Following Japan, the EU and the US established lists of critical materials. RE feature high in these lists. EU CRM programme.**
- **Strategic stockpiles outside China: Japan, S.Korea, European Commission**
- **01 March 2012 W. Australia imposes new 2.5% royalty charge on RE mining**
- **Govts often back outsourcing efforts: Japan, S.Korea, France and recently Merkel w/ Kazakhstan**
- **'Reduce/ Reuse': Govt-backed R&D in reducing need for RE, developing substitutes, recycling**
- **Foreign policy: [a] pressuring Chinese to relax export restrictions + [b] stimulating supply outside China eg with state guarantees**

Is the Rest-of-the-World Reacting Smartly?

US Policies and Concerns

- **Early Oct '10: House of Representatives passes the Rare Earths and Critical Materials Revitalisation Act, to reestablish the US as a leading producer of REEs and to make it self-sufficient**
- **Kathy Dahlkemper, Author of the Bill: “We need to act now to begin the process of creating our own supply of RE materials so the US is never dependent on China for crucial components for our national security”**
- **An obvious concern for the US govt as a result of possible REE supply disruption is the risk to its defense program**
- **11/11 The National Center for Policy Analysis Conference On Rare Earths And National Security, Washington, DC**
- **‘Natural resources and RE materials in geopolitical and intelligence terms as the successor for the jihad and cyber challenges and threats → join the LinkedIn group ‘...’**
- **Obama WTO move pleasing US autoworkers in election year:**

Is the Rest-of-the-World Reacting Smartly?

WTO Activity

- **US, EU, Mexico ... lodged complaint regarding a '1st wave' of minerals: bauxite etc. China objected, mostly on environmental and resource preservation grounds. Jan '12: Decision upheld**
- **March 12, '12: '2nd wave': EU, US, Japan, incl. RE**
- **In a U.S. election year is China trade convenient political football to be kicked around by the Presidential candidates, while the European politicians divert attention from the EU economy/debt problems?**
- **China could either integrate RE companies so they could not be forced to export RE, or treat local sales same as exports, eg. limit production instead of exports**
- **Clyde Prestowitz, director of Reagan's strike force against unfair trade: 'In this globalised world two different games are being played, one suggested by WTO formal rules, the other a silent mercantilism played by countries that use subsidies and domestic regulations to exploit ambiguities in the formal WTO rules – or that simply ignore them'**

Conclusions...

- **RE a very complicated subject**
- **Variety of RE and uses**
- **This is a supply-chain issue, not one of just mineral exports..**
- **...As many as seven steps to end use [office equipment]**
- **China is, and will remain, dominant, esp. in LRE...**
- **...because of deposits but also due to Western downstream processing and consumer-goods production in China ...**
- **...and to ROW public opposition**
- **Now that REE export quotas separated into lights, mediums and heavies → more evident where the real demand is & how tight the export quotas really are**

...Conclusions...

- **FT: ‘The overstated fear for RE’: *The US, the EU and Japan are justified in bringing case against Beijing’s RE export controls to the WTO. But they need not crow quite so much about it. Geostrategic panic about China’s dominance in rare earths is exaggerated.***
- **~Same opinion by US DoD...but not DoE!**
- **Chinese economy could slow down severely**
- **The ROW is indeed reacting smartly, especially in cooperating with China, developing mines outside China, working on Reducing/ Recycling/Substituting**
- **‘Rare’: not geologically but commercially, partly through policies!**

... Conclusions

- **Environmental considerations [chemical & radioactivity]: important in ROW as well as in China itself**
- **Six key issues for future projects: scarcity of HRE; Technology and Environment; Pricing based on Supply & Demand; Logistics; Finance; Politics**
- **IM: RE projects could be shelved on rising costs of establishing and operating RE mines and plants: Higher overheads reported by Molycorp will be industry norm, says Dahlman Rose**
- **Economising & substitution to grow; recycling less so**
- **The RE market has a speculation/bubble aspect to it as well**
- **WTO could be slow in reacting against China...plus 'no teeth'**
- **ROW should collaborate with China, not clash**

Selected Sources

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9. TMR Advanced RE Projects Index
10. 'Rare Earth Elements in Agriculture': Redling thesis
11. WTO documents
12. **Natural Resources GP study on Rare Earths**
13. **Other NR publications on Mining Policy, Critical Raw Materials, RE, Afghanistan etc**

Thank you very much!
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