



## China's export restrictions on rare earth elements

**SUMMARY** Rare earth elements (REEs) are coveted minerals used in high-tech products. China has about 50% of known world reserves and until very recently was behind 95% of global supplies. It has reduced its export quotas drastically since 2010, arguing that the country had paid a heavy price for its mining activity in the form of resource depletion and severe environmental damage.

In March 2012, together with Japan and the US, the EU demanded dispute settlement consultations in the World Trade Organisation (WTO) on China's REE export restrictions. The consultations failed and, in June 2012, the EU, Japan and the US, decided to pursue further litigation at the WTO. In a similar case concerning China's raw materials export restrictions, a WTO appeals panel found, in its report, that the country had violated international trade rules. Up to now, China has maintained its position, releasing a White Paper reflecting the country's official rare earth policy. Nevertheless, the country is still open to some consultations under the umbrella of the WTO.

Several international experts believe that nothing will come of the WTO action. Moreover, China's monopoly could be coming to an end with the opening of new production facilities elsewhere in the world. Some other experts expect that the WTO will oblige China to raise its export quotas.



Dragline used in open cast mining.

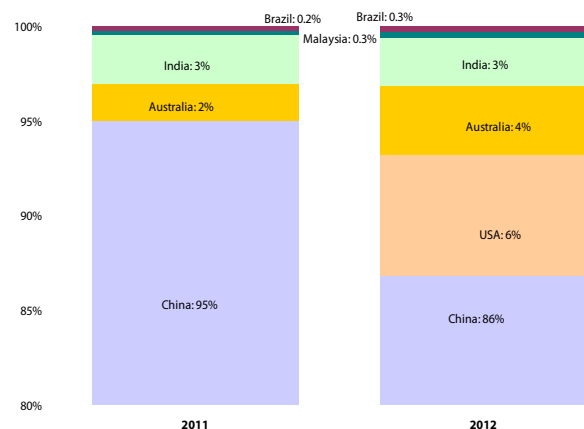
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### Background

Reserves of rare earth elements are, as is their mining, unevenly distributed across the world. China has about 50% of known world reserves. However, its share in REE production has been declining since 2010, and that trend is expected to continue. Despite the drop, China still holds a virtual monopoly on rare earths. The available stock of rare earth minerals lags behind global demand, which is expected to outpace Chinese supply capacities if current trends continue. Production and supply from the rest of the world should increase further in coming years.

**Fig. 1. Share of global REE production by country, (2012)**



Data source: [US Geological Survey, 2013](#)

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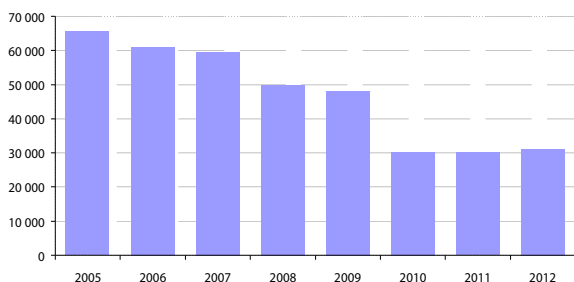
The US, Australia and India increased their production capacity in 2012 to 13% ([USGS 2013](#)), bringing China's share down from 98% to 86%. In particular, the US is currently seeking to boost its REE mining production. It will do so partly by reopening mines that were abandoned in the 1990s, as they had become economically unviable when China's REE mining boom started.

Outside the US, exploration to develop mines has also started in Africa (South Africa, Malawi, Madagascar, Mozambique and Tanzania), Canada, Vietnam, Turkey and Greenland. However, the effects will only be felt in the medium term, as it takes on average 10-15 years until a newly developed mine can be commercially exploited.

There are, for the moment, no REE mining activities in the EU. Relatively small reserves are known in Sweden, Germany, Ireland and Finland. A [Commission Communication](#) indicates that the EU's import dependence on China for REEs was 100% in 2011.

China started to reduce its export quotas slowly in 2005, and then more severely in 2010. It argued that it had to prevent depletion of its own rare earth resources, to curtail environmental pollution from mining and to meet domestic consumption needs.

**Fig. 2. Evolution of Chinese REE export quotas from 2005 to 2012, in metric tonnes**



Data source: [US Congress research service](#), March 2012

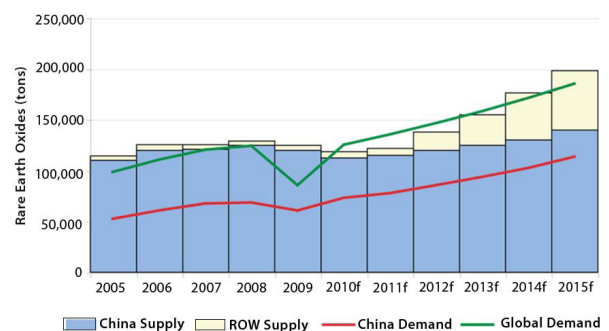
China's policy has driven up global prices and sparked international concerns about supply shortages in coming years. China is refocusing its priority from supplying the world, to meeting demand from its own domestic industries. By 2015, global consumption of REEs is forecast to increase

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by 65% from current levels, driven by expanding markets for many applications that rely on REEs. As a result, the world needs new suppliers of REEs to meet that growing demand.

**Rare Earth Elements (REEs)** is the collective name for a group of [17 minerals](#) which are natural resources used in a wide range of high-tech products. These elements appear in low concentrations with other minerals in the earth's crust making them costly to extract; this is the reason why they are referred to as "[rare](#)".

**Fig. 3. REE supply and demand, 2005-2015**



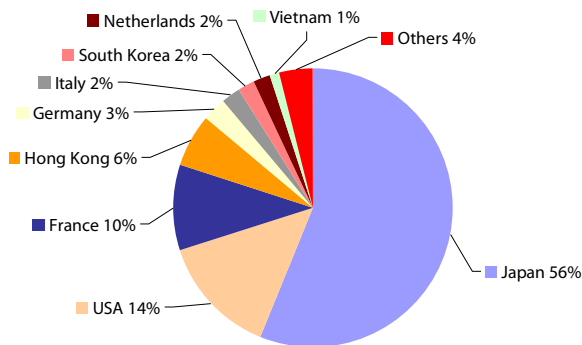
Data source: [D Kingsnorth, IMCOA \(2011\)](#)

The [environmental impact](#) of REE mining in China is of serious concern. Due to their low concentration in the ore, the extraction of REEs is inevitably linked to pollution. The process of separating REE particles in crushed ore involves large quantities of toxic chemicals, which often pollute groundwater. This is exacerbated in Chinese mines, which tend to apply an "in situ" method whereby chemical substances are directly injected into the ground. This also leaves radioactive residues which result from the process. Illegal mining is a major problem in China; from the environmental point of view it is even more hazardous due to the lack of proper controls.

### China's policy on rare earths

The State Council of China released a [White Paper](#) in June 2012 reflecting China's official position on the situation and policies of the country's rare earth industry.

**Fig. 4. Markets for China's REE exports, 2011**



Data source: [Information Office of the State Council of the People's Republic of China](#), June 2012

According to this document, China faces several problems; after 50 years of intensive mining, China's rare earth reserves have declined and rare earth production has been reducing. There has also been severe damage to the environment due to outdated production processes and mining techniques. Research and development is lagging behind and the country lacks large enterprises with core competitiveness. World price of products containing rare earths remain low and fail to reflect their real value, the paper says.

To address this situation, the Chinese State Council has issued guidelines to promote more sustainable development of the rare earth industry, with greater importance for the protection of resources and the environment. The Chinese government has decided to strengthen control over mining, production, circulation, imports and exports, to curtail illegal mining.

Despite these new guidelines, the country [has reaffirmed](#) its will to continue supplying rare earths to the global market, in compliance with World Trade Organisation (WTO) rules, and to promote fair trade. China hopes that other countries and regions with rare earth reserves will make active efforts to develop them to diversify supply. In March 2013, China's deputy ambassador to the EU [confirmed](#) that the restraints challenged by the EU, Japan and the US at the WTO were in

line with the environmental standards adopted by China.

### EU actions at the WTO

On [13 March 2012](#), in coordination with [Japan](#) and the [US](#), which are likewise highly dependent on REE imports from China, the [EU](#) demanded dispute settlement consultations on China's export restrictions of 17 rare earths, as well as tungsten and molybdenum at the WTO. They claimed China was using environmental concerns as a pretext. EU Trade Commissioner, [Karel De Gucht](#) said that these restrictions contravene international trade rules and must be removed, since they were hurting EU producers and consumers.

The EU's complaint is based on the fact that these export restrictions breach [general WTO rules](#) but also China's commitments on export duties made in its [accession protocol](#) on [joining](#) the WTO in 2001. Consultations took place at the WTO on 25 and 26 April 2012 but did not lead to a solution. On 27 June 2012, the EU decided, together with the US and Japan, to pursue further litigation and requested the establishment of a WTO panel, the second step [in WTO dispute settlement proceedings](#).

The WTO's Dispute Settlement Body established the panel in September 2012; it is expected to issue its final report by [November 2013](#). On [23 January 2013](#), the EU and China agreed at the WTO to facilitate the resolution of the dispute and to enter into consultations. In an earlier [EU complaint](#) on China's raw material export restrictions, a [WTO appeals panel](#) found in its report of February 2012 that China had violated international trade rules. It concluded that WTO obligations required the end of export restrictions.

### The EP's standpoint

In its [resolution](#) on an effective raw materials strategy for Europe adopted in plenary on 13 September 2011, the EP states that the

WTO should monitor more closely the impact of import and export restrictions on REEs. The EP supports the creation, inside the WTO, of a monitoring tool on tariff and non-tariff barriers to trade on REEs, and also favours setting up, in the G20, a "Raw Materials and Rare Earths Stability Board". The EP insists on concrete priority actions and a comprehensive REE strategy for sustainable supply to be developed in the very short term.

In its resolution of 23 May 2012, on "[EU and China: unbalanced trade?](#)", the EP calls for negotiations on common rules for trade in raw materials, and the creation of a common framework within the WTO for the use of export restrictions.

### Academic positions

As far as global reserves of REEs are concerned, the Polinares consortium indicates in a [working paper](#) that industries using REEs in high-tech products are looking to diversify their sources of supply. Polinares believes that new sources of REEs will be developed outside China and recycling will take on a more important role. The consortium affirms that there are many activities aimed at opening new mines outside China, in particular in [Australia](#), the [US](#), Canada, Vietnam, south-eastern Africa, Kazakhstan and Kyrgyzstan as well as the Danish [territory of Greenland](#).

Richard Herrington, professor of mineralogy from London's Natural History Museum [believes](#) that the exploitation of abandoned mines in Greece and Albania, along with newly discovered deposits in Finland, would also alleviate European industries' problem. The fallout from the ongoing Sino-Japanese dispute over the [Senkaku/Diaoyu Islands](#) indicates that China's rare earths monopoly is ending. Japan no longer fears China's threats to cut off its rare earth supplies as it did in [2010](#). As well as securing supplies elsewhere, a new undersea REE deposit has

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been [found](#), large enough to supply Japanese market demand.

As far as the WTO dispute on REEs is concerned, an [article](#) published by the American Society of International Law (ASIL) highlights the fact that there is always tension between permanent sovereignty over natural resources and WTO obligations. ASIL believes that the experience and rulings in the [Chinese raw materials case](#) will be significant in the later dispute on REE export restrictions.

Some [experts](#) believe that nothing will come of the WTO action; and that China's stranglehold on rare earth production could be coming to an end with the opening of new production facilities elsewhere. This point of view has been reiterated in a study by [the US Congressional Research Service](#).

### Further reading

EP Library Briefing on [Rare earth elements](#), March 2011.

EP Library Briefing on [Rare earth elements and recycling possibilities](#), May 2013.

European Commission Communication on commodity markets and raw materials, [COM\(2011\) 25](#)

[China's Rare Earth Industry and Export Regime](#): Congressional Research Service, April 2012

[Rare Earth Elements: The Global Supply Chain](#), Congressional Research Service, June 2012

[European dependence on and concentration tendencies of the material production](#) POLINARES working paper No 14, March 2012

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