

We will start our tight relationship between China and rare earths with the discovery of the Bayan Obo mine in Inner Mongolia in 1927. Initially considered as an iron mine, it soon developed into the largest mine producing rare earths ore. Since the 1960s, China put its faith firmly in rare earths by developing new process methods and finding innovative applications.

During the 1980's and 1990's, China stepped fiercely into the international rare earths market. That provoked a drop in the price of rare earth ores that slayed the at-that-time other manufacturers (located mainly in the USA and Australia) and promoted the industrial applications of rare earth elements even further.

To quote the former leader of the People's Republic of China, Deng Xiaoping:

**“There is oil in the Middle East; there is rare earth in China”**

In the following years, China kept an expansive foreign policy to consolidate a leadership position in the rare earths sectors. Examples are the acquisition of the American high-tech magnet producer *Magnequench* and some attempts to buy Australian and American mineral rights. China moved from upstream operations (ore processing) to downstream operations (fabricated or semi-fabricated products with higher added value) that had previously been carried out abroad.

The beginning of the new millennium was very controversial for the Chinese policies regarding rare earths. Export and production quotas (1999 and 2006 respectively) on rare earth ores, export taxes on their products (2007) and restrictions of foreign investment were implemented. In 2015, China was sued for the export quotas in the World Trade Organisation and had to remove them. <sup>[1]</sup>

However, such a growth in production rate came not without drawbacks. According to Wang Caifeng, China's Deputy Director-General of the Materials Department of the Ministry of Industry and Information Technology: “China assumed a high environmental cost in its extraction of rare earths”. <sup>[2]</sup>

Every ton of rare earths produced in Bayan Obo generates 9 kg of fluorine, 13 kg of dust, 12,000 m<sup>3</sup> of waste gas, 75 m<sup>3</sup> of acidic water and about one ton of radioactive tailings (containing Th). Furthermore, the Chinese government had to fight severely against smuggling and illegal operations within the country. <sup>[3]</sup>

<sup>[1]</sup> Shen, Y., Moomy, R. & Eggert, R. G. China's public toward rare earths, 1975-2018. *Miner Econ* 33, 127-151 (2020).

<sup>[2]</sup> Wang Caifeng spoke at the 2009 Minor Metals and Rare Earths Conference, Beijing, China, September 2-3, 2009.

<sup>[3]</sup> Hurst, C. China's Rare Earth Elements Industry: What Can the West Learn? Institute for the Analysis of Global Security (IAGS): Washington, DC, USA, 2010; pp. 10–20.

