

China's Pollution Problem points to Growing Demand for Rare Earths



Chinese authorities have not been able to reduce pollution in Beijing, which has reached record levels. The government has intervened with traffic controls, forced factory stops and other measures to no avail. People are demanding a 'Clean Air Act' even as they reach for the nearest hospital to get treatment for respiratory and cardiovascular ailments.

The problem reached a peak this past week and a third of all cars were ordered to stay off the roads – even while the number of cars has doubled in the past five years alone, with a similar jump predicted to occur before the end of this decade, meaning that such measures have little to no effect whatsoever. To make a dent in pollution, authorities have suggested shutting down over a hundred factories, but even this will have very little impact: the Chinese Ministry of the Environment said that has the heavy smog now spread over an area of 1.3 million square kilometers, or 13 percent of China itself (the size of Central Europe), too large an area to control to affect the current air quality index values. The Air Quality Index (AQI – based on pollutants in the air with negative effects to health including Nox, CO, sulfur compounds and any number of particulates) in Beijing is said to be hovering at 200 according to the US Embassy with average levels in 2012 of 145. To understand just how high this is, consider that major North American cities like NY City or Toronto typically range in the low twenties or below. Children, elderly and the sick were advised not to go outside.

The reason for this pollution is that China is the world's

largest consumer of coal-by far, using 50% of the world's total production. More than 70% of China's energy derives from coal generated power. Coal consumption had increased annually by an average of nine percent for the past decade. Nevertheless, there is increasing pressure for change at all levels of society. The 'China Daily' newspaper has called for action; coal has powered China's tremendous economic growth, but if such growth levels are to be sustained, energy production must change. This change should affect the global production and distribution of rare earths. The government cannot hold back any longer on addressing environmental degradation of which air pollution is one of its most notable effects. China will have to devote more resources to innovation to address the problem because it has become a major issue of social and political concern. Chinese citizens are no longer content to be 'mute'; they have taken quite well to protesting to express discontent and demand for changes. Many of the recent protests have addressed environmental degradation and the lack of standards.

Chinese authorities have certainly become concerned by the events known as 'the Arab Spring' and they seem well aware that if political and democratic rights are denied, they will have to take action. Demand for environmental protection – a phenomenon contributing in no small part to the closure of Chinese REE production last October – and higher wages can only point to the inevitability of China losing its low-cost wage advantage and the price of its export goods will increase in accordance – no doubt leading to the emergence of new cheap labor workshop countries and, more likely, a gradual increase of the prices of many consumer goods. Xi Jinping, China's new leader clearly outlined that one of his government's priorities will be to tackle environmental degradation. The recent crackdown on illicit rare earth miners has reflected this trend, sending a signal to the West that it is becoming risky for China to absorb the environmental and socio-economic risks associated with low cost industrial practices.

China itself have to change and become less price competitive with the unavoidable rise of labor and regulatory costs, resulting from stricter emissions, tougher industry entry obligations or even energy consumption. China has already started to address the coal problem and in the period from now to 2020, it will vastly expand its nuclear power generation. Electric vehicles are also going to be promoted to mitigate the smog effects from the steady increase in car sales. All of this suggests that China should see a surge in internal demand for green technology solutions. This means that China will need more rare earths, despite the lower output [numbers](#) reported by such Chinese rare earth producers as the Baotou Group (IMBREHT). The lower production of rare earths in the past year, caused by consumer reluctance and global economic uncertainty – in China as elsewhere – should soon start reversing in a more bullish direction.

The kind of cars that China will be needing to address the politically and environmentally risky problem of pollution, hybrids or full electric, need dysprosium, neodymium and lanthanum, to mention a few of the rare earths. While domestic production fell in 2012, demand for rare earths will increase to the point where China will soon start to import these minerals. About 90 percent of all currently mined rare earths come from China. With its pricing policy, the country has displaced almost all competitors from the market. The USA, Canada and Australia have been challenging this market dominance, and new mines and processing facilities are being developed. There is no risk of market saturation because when the new mines come on line, China's experience with coal suggests that it will become a major importer of rare earths.

China used to be a major exporter – as well as user – of coal. However, with the tremendous pace of its industrialization, domestic consumption limited the amount of coal available for export, as the mineral was needed to fuel steel plants and power generation. It has not taken long for China to become

one of the largest importers of coal in the world. Rare earths may well meet the same fate – and one that is approaching at rapid pace. Domestic concerns – environmental ones in particular – will boost internal demand, limiting the amounts available for export. Ten years ago, China has consumed about 25% of domestically produced rare earths; even in the slower growth scenario of 201, China's domestic rare earth consumption has risen to 65%. Today, 80 percent of the magnets, and 70 percent of the world's manufactured phosphors originate from China. Domestic supplies of rare earths will not be sufficient to sustain such a rhythm of production and Chinese government agencies will have to seek other products to maintain this dominance, forcing it to seek supplies elsewhere. China's pollution is encouraging news for the newly emerging rare earth plays.