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# Critical Materials, U.S. Import Dependence, and Recommended Actions

## Addendum

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RAND Office of External Affairs

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Document submitted on May 26, 2015 as an addendum to testimony presented before the Senate Energy and Natural Resources Committee on May 12, 2015

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**The RAND Corporation**

***Critical Materials, U.S. Import Dependence, and Recommended Actions***  
***Addendum<sup>2</sup>***

**Before the Committee on Energy and Natural Resources**  
**United States Senate**

**May 26, 2015**

The subsequent questions and answers found in this document were received from the Committee for additional information following the hearing on May 12, 2015 and were submitted for the record.

**Post-Hearing Questions from Chairman Lisa Murkowski**

**Question 1**

In your experience, do you agree that minerals and materials are one of the leading supply chain concerns for manufacturing executives?

**Response 1**

While writing RAND's 2013 report on critical materials, my colleagues and I found that the availability of several critical materials—particularly those for which China is a controlling producer—presented serious concerns for U.S. manufacturers. In 2011, a PricewaterhouseCoopers survey of senior executives of leading global companies in the Americas, Europe, and Asia Pacific found that a majority believe supply risks will rise significantly over the next decade and that the impact will be felt throughout the supply chain. In some industries (renewable energy, automotive, and energy and utilities), the responses suggested that supply instability is already being experienced.<sup>3</sup> The RAND study team verified this situation through personal discussions with leading U.S. manufacturers dependent upon raw materials for

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<sup>1</sup> The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of RAND or any of the sponsors of its research. This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

<sup>2</sup> This testimony is available for free download at <http://www.rand.org/pubs/testimonies/CT432z1.html>.

<sup>3</sup> PricewaterhouseCoopers, *Minerals and Metals Scarcity in Manufacturing: The Ticking Timebomb: Sustainable Materials Management*, December 2011.

which China is a controlling producer. Their concerns included price volatility, supply instability, and a reduced competitiveness with Chinese products because their Chinese competitors have access to raw materials at lower prices. For example, one manufacturer reported seeing Chinese finished products sold at prices lower than what the U.S. manufacturer had to pay for raw materials exported from China. Another reported pressure to move its manufacturing to China in order to gain access to necessary raw materials.

## **Question 2**

If we are not producing minerals in our country, what does that mean for manufacturers' willingness to do business here? Is it a disincentive to produce here if they have to go elsewhere for their raw materials?

## **Response 2**

RAND's study team found that there are two key issues that affect manufacturers' willingness to do business in the United States: access to materials that are a critical input for the manufacturers and the ability to obtain those materials at a fair market price. These two concerns, access and price, were stated motivations for two World Trade Organization (WTO) complaints that the United States brought against China.

In 2009, the United States and the European Union brought a complaint against China's trade restrictions on several minerals: bauxite, coke, fluor spar, magnesium, manganese, silicon carbide, silicon metal, yellow phosphorus, and zinc. When introducing the case, U.S. Trade Representative Ron Kirk said: "China is a leading global producer and exporter of the raw materials in question, and access to these materials is critical for U.S. industrial manufacturers. The United States is very concerned that China appears to be restricting the exports of these materials for the benefit of their domestic industries, despite strong WTO rules designed to discipline export restraints."<sup>4</sup>

In 2012, the United States, the European Union, and Japan brought an additional complaint against China's trade restrictions on rare earths, tungsten, and molybdenum. Again, U.S. Trade Representative Kirk cited the negative effect that China's restrictions had on U.S. manufacturing:

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<sup>4</sup> For details, see Office of the United States Trade Representative, "United States Files WTO Case Against China Over Export Restraints on Raw Materials," June 2009.

“Because China is a top global producer for these key inputs, its harmful policies artificially increase prices for the inputs outside of China while lowering prices in China.”<sup>5</sup>

### **Question 3**

Beyond the indices you included in your report, what additional information might be needed to establish an early warning system for the concentration of supply, and how can the U.S. government obtain that information?

### **Response 3**

A system that provides an early warning of developing problems concerning the concentration of production could help recognize a developing pattern before it creates harmful market distortions and could prevent market concentration from reaching levels serious enough to warrant, for example, actions before the WTO. Such a system would require data already available to the U.S. government, and RAND employed these sources to develop a case example on tungsten. RAND relied on the U.S. Geological Survey’s *Minerals Commodity Summaries* and *Minerals Yearbooks*, the United Nations’ Comtrade database, and data from industry associations such as the International Tungsten Industry Association.

### **Question 4**

Your 2013 report states that the uncertainty created by a highly concentrated market must be overcome by actions at the local, national, regional, and global levels to create a favorable and sustainable climate for the investments that will ultimately encourage diversification of production. What specific actions would you suggest that the U.S. take at the national level to create a favorable and sustainable climate for investments?

### **Response 4**

Overcoming the uncertainty created by a highly concentrated market would be advantageous to U.S. manufacturers, and federal actions can play an important role in this effort. U.S. actions at the national level should be aimed at making the requirements for minerals production and processing, consistent with environmental standards, as clear as possible, and making the process of meeting those requirements as efficient as possible. Coordinated actions by importing countries may be effective here as well. Other areas where coordination is possible include filling

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<sup>5</sup> See CNN Wire Staff, “Obama Announces WTO Case Against China Over Rare Earths,” March 13, 2012.

stockpiles and establishing agreements about sharing limited resources in the event of supply disruptions.