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Reflections on a Year with Congress

As previous GSA-USGS Congressional Science Fellows have stated, "This fellowship will be the best year of your life." I can only agree, and my life has been longer than most fellows, at least at the time of appointment! As I have recounted in previous columns, my year as a Congressional Science Fellow has been a roller coaster of highs and lows, with the tragic shooting of my boss, Congresswoman Gabrielle Giffords, being a pivotal event. Although no one could have predicted nor wished for such a tragedy, the events of the year exposed me to many things that few inside or outside of Congress get to experience.

Overnight, I went from working for a very well-respected, but not widely known, Congresswoman to working for the most famous member of Congress and one whose name is instantly recognized throughout the United States and much of the world. From 8 Jan. 2011 on, I could not go to any meeting wearing my nametag (Office of Rep. Gabrielle Giffords) without the conversation immediately focusing on the events of that day and the aftermath. Conversations with people I had never met, not to mention friends and professional colleagues who knew of my deeper association with the Congresswoman, would come to a halt as people reflected on the meaning of that moment. Like the events of 9/11, the Apollo Moon landing, and the assassination of President Kennedy, the shooting of Representative Giffords changed people's lives and the American political landscape.

I continued working in Rep. Giffords' office for another four months, and much of my efforts centered on the emerging issue of rare earth elements (REE) and critical materials. The phrase "critical materials" describes non-fuel natural resources that are important to domestic industry and technology, but that may also be scarce or subject to supply restrictions. Critical materials include rare earth elements, rare metals, and other key materials for which there are no readily available substitutes. Criticality involves two factors: (1) the likelihood of a supply disruption, and (2) the consequences of a supply disruption.

What are REEs?

The REEs are a group of 17 elements in the periodic table of elements: 15 within the chemical group called lanthanides, plus yttrium and scandium. Two specific REEs, neodymium and dysprosium, are essential for the high-strength magnets used in hybrid cars, such as the Toyota Prius, and wind turbines, such as those that are supplying an increasing share of America's renewable energy. "Rare earth elements" are not actually very rare. They are moderately abundant in Earth's crust—some even more so than copper, lead, gold and platinum—but REEs typically are widely dispersed and not commonly concentrated by geologic processes in specific deposits that can be mined economically.

Until the mid-1990s, the United States was the global leader in REE production and was self-reliant in domestically produced REEs. Over the past 25 years, domestic production declined to the point that the U.S. has become 100% reliant on imports, almost entirely from China, partly because of China's lower-cost operations. China supplies roughly 97% of global REE demand. China is also the global leader in REE consumption at 60% of global supplies, followed by Japan (22%), the U.S. (9%), and others (9%) (USGS, 2010, Scientific Investigations Report 2010-5229).

On 22 Sept. 2010, *The New York Times* reported that China had blocked REE exports to Japan as part of a bilateral marine border dispute. The Chinese government has denied any direct export intervention, but the situation had the effect of underscoring China's dominant position in REEs. These events also raised the specter of China leveraging its control of REE supplies in international affairs and using the associated competitive advantages of such control to facilitate the location of manufacturing and other industries within its borders. As a result, there has been great interest throughout the world and especially in the U.S. Congress in REE and critical materials. At least nine bills concerning REEs have been introduced in the House and Senate, and part of my contribution as the GSA-USGS Congressional Science Fellow was to help organize a congressional briefing on this subject, which was attended by more than 100 congressional staff, as well as the general public.

The last four months of my congressional fellowship were spent in the office of Senator Chris Coons (D-DE). Although I had hoped that some of this time would be devoted to the very serious matter of U.S. energy policy, that turned out not to be the case and instead just about all of Congress' attention was focused on budgets and debt ceilings. The former is a serious issue that did not receive the action that it deserved and the latter is somewhat a technical, manufactured issue that was more about partisan politics than attempting to address real

problems. In political speak, the can was kicked down the road; further wrestling with budget issues will be required in the fall legislative session.

Reflecting back on my year as a Congressional Science Fellow, there are many things that stand out. Probably the most fundamental insight is that successful legislation does not happen quickly or the first time it is put forward. Rather, it reflects years of work by many staff and offices, and then some event, usually a "crisis" allows/causes the legislation to finally move forward. This is not as negative as it might sound. In fact, I would argue that it was precisely the intent of the founding fathers; based upon their experience with the excesses of English monarchy, they did not want the legislative process to be easy or easily subject to what has been referred to as the tyranny of the majority. Rather, they intended legislation to be difficult and slow, such that only the test of time would allow a very few ideas to make it through the process. In this sense, they succeeded and although the general public can be forgiven for lambasting a congress which appears to have accomplished little, my year as a Congressional Science Fellow has taught me that perhaps that is not such a bad thing.

A second lesson is that Congressional staff members are always "behind the scenes." Success is measured by the success of our office and our bosses. It is not about us. My offices and bosses have been very successful and I am proud to have contributed to that success. With great humility, I hand the mantle of this Congressional Science Fellowship to Kelly Kryc, the very talented person who will succeed me. I have no doubt that GSA, USGS, and the nation will be well served.

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