

**When materials become critical : lessons from the 2010 rare earth crisis** Sprecher, B.

## Citation

Sprecher, B. (2016, June 28). *When materials become critical : lessons from the 2010 rare earth crisis*. Retrieved from https://hdl.handle.net/1887/41312

Version:	Not Applicable (or Unknown)
License:	<u>Licence agreement concerning inclusion of doctoral thesis in the</u> <u>Institutional Repository of the University of Leiden</u>
Downloaded from:	https://hdl.handle.net/1887/41312

Note: To cite this publication please use the final published version (if applicable).

Cover Page



## Universiteit Leiden



The handle <u>http://hdl.handle.net/1887/41312</u> holds various files of this Leiden University dissertation

Author: Sprecher, Benjamin Title: When materials become critical : lessons from the 2010 rare earth crisis Issue Date: 2016-06-28

- 1. The massive disruption caused by China's rare earth export policies leading to the 2010 rare earth crisis shows that the current *laissez-faire* approach to commodities is ill-suited to the metals market (Chapter 5).
- 2. The quick pace at which rare earths were substituted in the wake of the 2010 rare earth crisis shows that the current *laissez-faire* approach is well suited to the metals market (Chapter 6).
- 3. Most applications of REEs are inherently dissipative; society should prepare for a future without ready access to REEs (Chapter 2).
- 4. The environmental impact of REEs is negligible compared to the societal benefit its products bring (Chapter 3).
- Although industrial ecology aims to develop system level indicators and tools, these tools take a very narrow and technologically focused view on what a system is comprised of (Ruth, M. 1998).
- 6. The future of IE lies in the comprehensive application of dynamics to all tools in the IE toolbox (Chapter 4).
- 7. The next frontier for LCA is the implementation of easy to use and appropriate regionalization (Mutel, C. 2012)
- 8. Inequality is a problem that IE is equipped to handle, but does so far too seldom (Alsamawi, A. et al. 2014)
- 9. The failure of the IE community to build an open source and up-to-date LCA toolset is analogous to the coordination failures that can be observed in the REE system (Chapter 7).
- 10. Climate change is such an overriding and immediate concern that industrial ecologists should cease their research and be involved in the decarbonisation of society in a more hands-on manner.
- 11. Science should do more to expose its findings to a wider audience. Therefore PhD candidates should write several Wikipedia pages instead of a dissertation.