Human's Dependence on Earth's Mineral Resources Unit I People, Products, and Minerals Post-class homework

Learning objectives

- Infer the relationships between sustainability, resource availability, population growth, and economic development.
- Extrapolate the impacts of growing populations and economic development on mineral resource extraction and use.

Population, economic development, and mineral resource use

In 1900, an estimated 1.65 billion people lived on Earth. Today, the population is more than 7 billion and still growing. By 2100, it is believed that an estimated 8–11 billion people will inhabit the Earth.

Every organism needs resources to provide food, water, shelter, and a location for waste disposal/processing. These resources are provided by the environment, which may include other organisms. Humans are unique in that we utilize so much of the planet for resource extraction and waste disposal to meet our needs and our desires. Our ability to innovate and act has enabled many of us in the developed world to enjoy a high standard of living, reshaping resources into "stuff" and consuming beyond our basic needs. For example, in 2005, the United States used 15% of extracted mineral resources but is only home to 5% of the world's population (Gierlinger and Krausmann, 2011).

- → Watch the TED talk "Global Population Growth, Box by Box" given by Hans Rosling (approximately 10 minutes) at:

 http://www.ted.com/talks/hans_rosling_on_global_population_growth.html. There is an "Interactive Transcript" in the bottom right corner of the video if you want to read along. It might be helpful to read through the questions below before you watch the video.
 - 1) Write down 10 items that you own that you feel you need in our modern U.S. society but that are in excess of truly basic survival needs (such as food, water, shelter, etc).

2) Circle any of the items on the list above (#1) that you think are likely to be owned by someone in an impoverished country.

3)	In what ways might population growth affect mineral resource extraction and use? Explain your answer.
4)	Rosling, in this TED talk, foresees an end to population growth. What factors does Rosling cite as reasons why population will stop growing? (These factors lead to an increase in child survival rate and a decrease in birth rate.)
5)	In what ways might increased economic development (more impoverished countries becoming emerging economies, and more emerging economies becoming developed countries) affect mineral resource extraction and use? Explain your answer.
	: Gierlinger, S., and Krausmann, F. 2012. "The Physical Economy of the United States of America." <i>Journal of al Ecology</i> 16: 365–77.