



Powerful Disciplinary Knowledge (PDK) Vignette

TOPIC: Climate Change and Greenhouse Gas Emissions

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DESCRIPTION

Most climate scientists agree that greenhouse gas in the form of carbon dioxide emissions is a key cause of global climate change – but where does the responsibility lie for cutting carbon emissions?

Consider the chart displayed below in Figure 1. The chart indicates that some countries, including the U.S. and India, contribute a large share of global emissions stemming from energy consumption within their borders. Energy consumption in other countries, such as the U.K., emits much less carbon into the atmosphere.

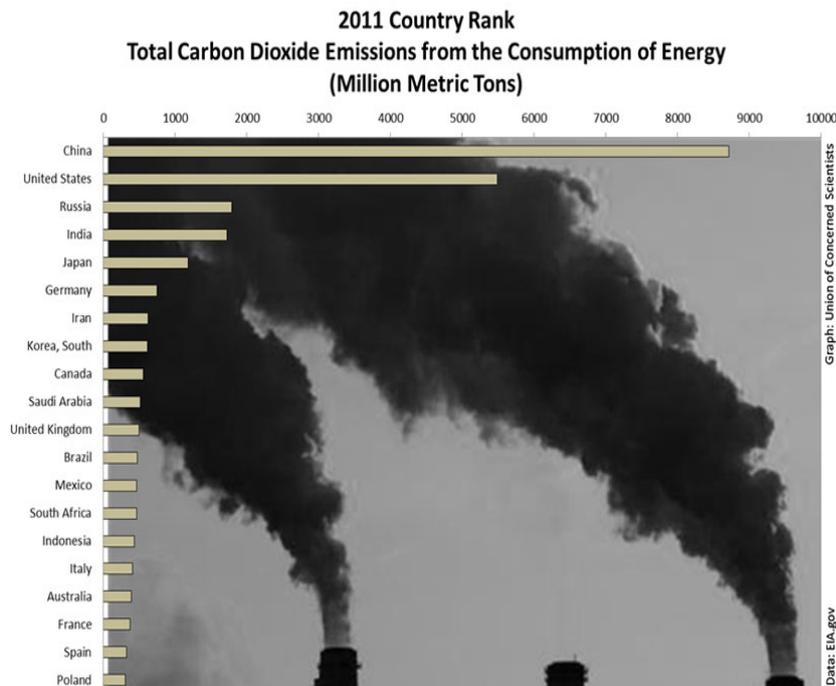


Figure 1

On the surface, it seems obvious which governments should bear a larger responsibility for reducing their internal emissions.

In this regard, some countries, including the U.K., have claimed substantial progress in cutting emissions. However, this ignores a deeper geographical reality. The idea of global interdependence exposes the limitations of assigning responsibility to individual nations on the basis of energy consumption within national borders. Such calculations miss the effect of traded goods and manufacturing activities of multinational corporations operating outside of their home country. For example, the U.S. imports manufactured products from China, but the carbon emissions come from plants located within China's borders. Companies which are incorporated in the U.K. have branches which operate – and pollute – in India.

What does this knowledge suggest as to who should be responsible for carbon reduction?

DISCUSSION

As this PDK vignette about climate shows, people could easily read the 'bald facts' presented on Figure 1 and reasonably decide who are the 'good guys' and who are the 'bad guys' when it comes to assigning responsibility for global greenhouse gas emissions. However this is an incomplete understanding because it does not account for the economic relationships connecting different nations. Geographic knowledge of the global economy is necessary to reach an accurate understanding of the data displayed in Figure 1. It is not difficult to imagine the implications of geographic ignorance on a mass scale for climate policy. Without geographic knowledge of the global economy, people tend to base their decisions on their immediate and everyday experiences (e.g., saving energy by buying efficient light bulbs). Geography education, on the other hand, provides a framework that enables people to think beyond their everyday experience and weigh decisions about how to assign responsibility for reducing emissions on a global scale based on how countries are interrelated and how they operate interdependently in a global economic context.