

ENVIRONMENTAL IMPACT

Global copper scenarios

Global Environ. Chang. **49**, 106–115 (2018)



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Copper is ubiquitous in applications as fundamental as electricity distribution or household water pipes. Although global demand for copper continues to increase, it is unclear how this will be met in the future and what its environmental impacts may be.

Using life-cycle analysis, Koen Kuipers of the Norwegian University of Science and Technology and colleagues developed scenarios of global copper production and its environmental impacts. They explored the evolution of several supply and demand scenarios for the period 2010 to 2050, looking at various impacts such as global warming and acidification potentials, and ecotoxicity.

They found that three main factors and their interaction determine the change in environmental impacts of global copper production. Degrading copper ores

requires more energy-intensive extraction methods. Increasing the share of renewable energy sources and improving technology both reduce impacts. However, increasing demand, expected to multiply by between 2 and 3.5 times by 2050, influences the impact most and also determines how much copper is available for recycling, which has considerably less environmental impact than other forms of copper production. While the combined trajectory of all these factors is uncertain for the next three decades, research and policy should pay particular attention to managing demand.

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Published online: 18 April 2018
<https://doi.org/10.1038/s41893-018-0055-7>