Conclusion of Analysis I: Copper Recycling and Substitution as Alternatives to Mining

The demand for copper outstrips the available supply. Recycling, substitution, and copper mining are required to meet global demand.

There are two main paths that could potentially reduce the need for additional copper mining. The first option would be to redesign products so that more copper can be pulled from these products when their useful life is complete. The second route would be the substitution of other materials and technologies for a significant portion of the copper stock currently in use. This would require a system for replacing the services of copper and cheaply mining built capital copper stocks without damaging in-use buildings and other facilities.

Though this approach may be viable in the future, it is not yet feasible, and the demand for copper still outstrips the available supply, including recycling and substitution. For a more in-depth discussion of recycling and substitution, please see Appendix C.

Three important conclusions are:

1. Copper recycling prices are high, with brisk, robust copper recycling markets. However, there is not much idle copper available to be recycled.

2. Copper recycling is likely limited to around 35% of global supply, and the substitution of other materials and technologies for the currently in-use copper stock will not be realized in the near future, thus, demand for copper ore will remain high and copper mining will likely expand globally.

3. Even if recycling a significant portion of the current global built capital stock became feasible, copper ore mining would still be required in order to meet global demand.

As it is clear that neither recycling nor substitution can fully displace mining, the question remains of how best to mine copper with the fewest negative externalities or damaging impacts to communities, biodiversity, water quality, and natural systems. This report aims to contribute to the knowledge of best copper mining practices through a comparison of the Solwara 1 site and the three terrestrial mine sites.

▶ Fiber optic cable
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