Where does copper come from?

Copper Mine Production by Country: Top 20 Countries in 2016
(Thousand metric tonnes)
Source: ICSG

- Chile
- Peru
- China
- United States
- Australia
- Congo
- Zambia
- Mexico
- Indonesia
- Canada
- Russian Federation
- Kazakhstan
- Poland
- Mongolia
- Brazil
- Iran
- Laos
- Spain
- Bulgaria
- Turkey

0 1,000 2,000 3,000 4,000 5,000 6,000
What are major end uses of copper?

**Figure 1: Major End Uses of Copper [ICA/IWCC]**

- Power Generation, Distribution & Transmission - 45%
- Construction - 20%
- Appliances & Electronics - 12.5%
- Transport - 12.5%
- Other - 10%
Developing & sharing life cycle data

The life of copper is infinite

Mining → Smelting and Refining → Semi-Fabrication → Product Manufacture → Use Phase → Recycling → Smelting and Refining

Major drivers behind responsible sourcing

- Transparency in the supply chain from NGOs
- Data from downstream (electronics, autos, etc.)
- Assurance from investor community
- Regulation (EU regulation, Dodd Frank, etc.)
- New “responsible sourcing” schemes from various materials
Multitude of established and emerging initiatives competing in the space

- Aluminum Stewardship Initiative (ASI)
- Better Sourcing Program (BSP)
- Bettercoal
- Chinese Due Diligence Guidelines
- Extractives Industries Transparency Initiative (EITI)
- Global Reporting Initiatives (GRI) Standards
- Initiative for Responsible Mining Assurance (IRMA)
- International Council on Mining and Metals (ICMM)
- ITSCI Programme for Responsible Mineral Supply Chains
- London Bullion Market Association (LBMA) Responsible Gold Guidance
- OECD Due Diligence Guidance for Responsible Supply Chains
- Public-Private Alliance for Responsible Minerals Trade (PPA)
- Responsible Business Alliance (RBA)
- Responsible Cobalt Initiative (RCI)
- Responsible Jewelry Council
- Responsible Minerals Assurance Process (RMAP)
- Responsible Minerals Initiative (RMI)
- UN Guiding Principles on Business and Human Rights (UNGPs)
- World Gold Council Conflict-Free Gold Standard
Copper and Sustainable Development

ICA working with its members to better understand sustainability challenges and encourage progress

- Member commitment to existing initiatives
- Sustainable Development Indicators
- Life Cycle Assessment
- Stocks & Flows
- Recycling
- Upstream collaboration (*e.g.*, ICMM Performance Expectations)
ICA member commitment to existing initiatives

- Global Reporting Initiative (GRI G4) 19
- ISO 14001 (Environmental) 17
- UN Global Compact 16
- OHSAS 18001 (industrial safety and health protection) 15
- ICMM Sustainable Development Principles 11
- Extractive Industries Transparency Initiative (EITI) 11
- UN Guiding Principles on Business and Human Rights 10
- Responsible Minerals Assurance Process (RMAP) 9
- UN VP's on Security and Human Rights Initiative 8
- UN SDG mapping or commitment 8
- LBMA’s Responsible Gold Programme 6
- ISO 26000 (Social Responsibility) 6
- ISO 50001 (Energy Management) 6
- ILO Declaration on Fundamental Principles and Rights at Work 6
Investment in sustainable operations*

* = (Capital + R&D + Environmental protection + Occupational health and safety) expenditures
Figure 5: Relative Results for Copper Cathode, by Category

- AP: -7%
- EP: -5%
- GWP: -7%
- POCP: -7%
- ODP: -20%
- PED, nr: -14%

Credits: 5%
Other: 13%
Concentration Reagents: 25%
Sulfuric acid: 51%
Explosives: 4%
Transport: 54%
Fuels + Direct Emissions: 57%
Electricity: 47%
Knowing where the copper goes and reducing losses

Keeping it in the loop

COPPER, THE RECYCLING CHAMPION

On average, 25 million tonnes of copper were used globally (2006 – 2015); 35 percent of this was sourced through recycling.

Source: ICA/Fraunhofer ISI (2017)

COPPER IS 100% RECYCLABLE: unlike most other materials, it can be perpetually recycled without loss of performance or qualities. Recycled copper is identical to mined copper.
Challenges ahead of us

Issues are different depending on the mineral, where it is produced and where and how it is utilized

- No one initiative works for the whole minerals value chain, yet need some coordination and harmonization

Mineral producers are working to improve their contribution to sustainable development
Thank you

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Appendix
Copper abounds… 1/2

**FIGURE 1: World copper reserves and resources in million tonnes (USGS, Kesler)**

- Resource Base: 300,000 (Kesler, 2008)
- Reserves: 720 (USGS, 2017)
- Resources: 5,000 (USGS, 2014)
Copper abounds… 2/2

Reserves (million tonnes)  Mine Production (million tonnes)  Reserves/MineProduction Ratio (years)