



Opportunity and Risk: Mining and the Green Energy Transition

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Rising Demand

Want this?



Then you NEED this



We need to mine better, smarter, cleaner, and fairer

Green Energy Minerals

Conflict Minerals

4 minerals in Central Africa linked to conflict

Critical Minerals

50 minerals critical to U.S. national security and the economy

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Overlapping Minerals

Aluminum - Chromium
Cobalt - Graphite
Lithium - Manganese
Nickel* - Rare Earth Elements - Titanium
Vanadium - Zinc*



















Silver
Lead
Molybdenum
Iron
Copper

Green Energy Minerals

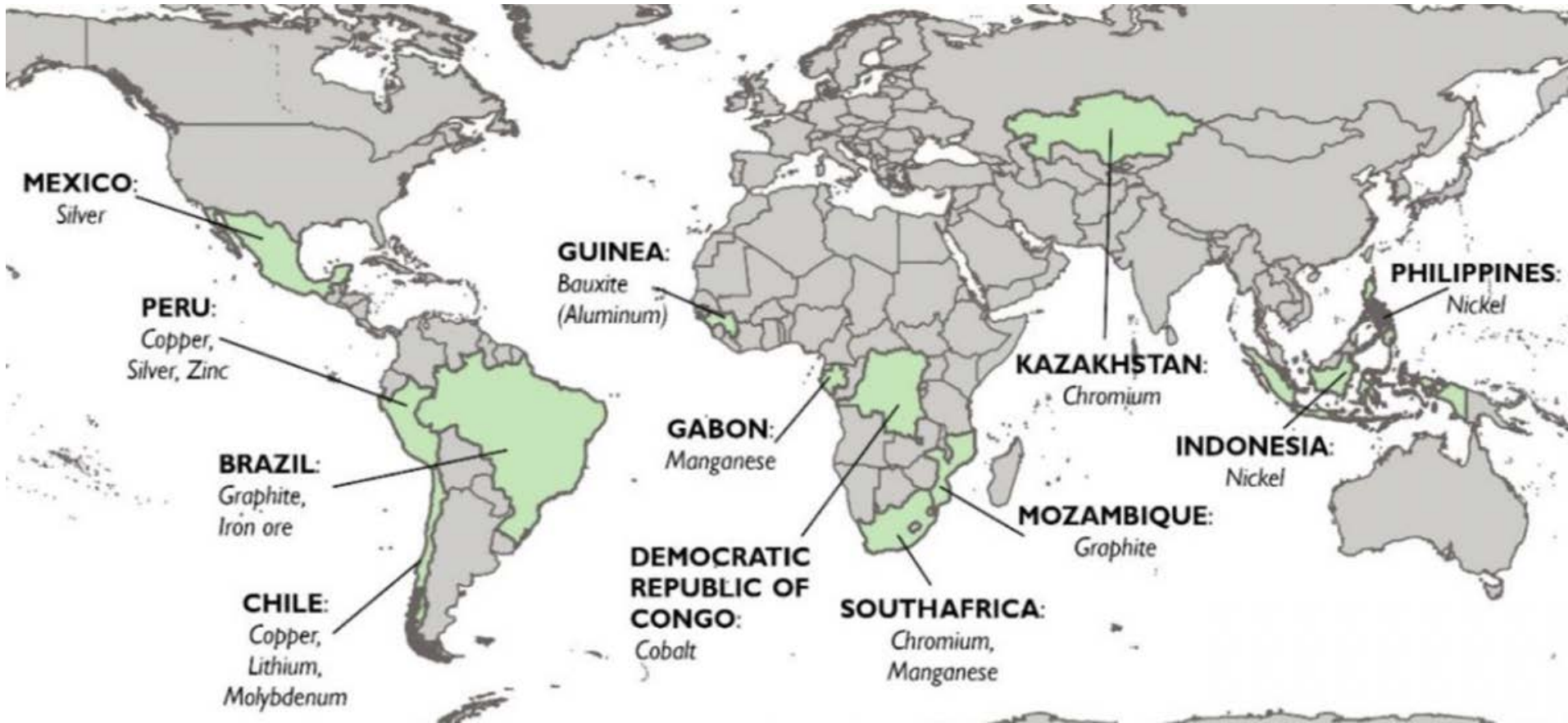
16 minerals key to green energy transition

Gold
Tin
Tantalum
Tungsten

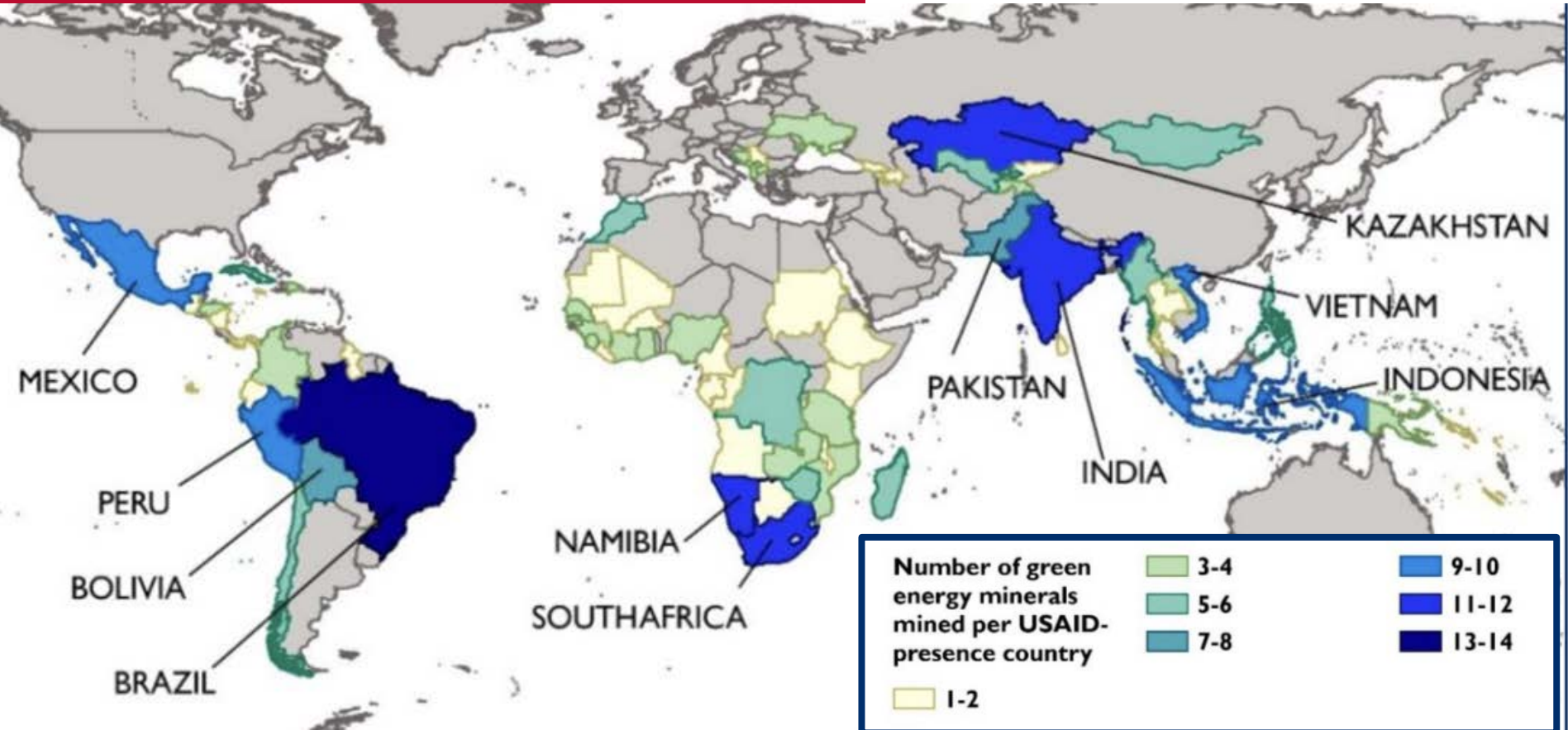
Green Mineral Demand (2° scenario)

Mineral	Green Energy Uses	Percent Increase by 2050 <i>(compared to 2018 production levels)</i>
Graphite		 494%
Lithium		 488%
Cobalt		 460%
Vanadium		 189%
Nickel	   	 99%
Silver		 56%
Rare Earth Elements	 	 37%

Key Green Mineral Producers



Greatest Variety of Green Minerals



Mining Risks & Challenges



Mining Governance



Conflict & Human Right Abuses



Labor & Working Conditions



Land Tenure & Property Rights




























Environment

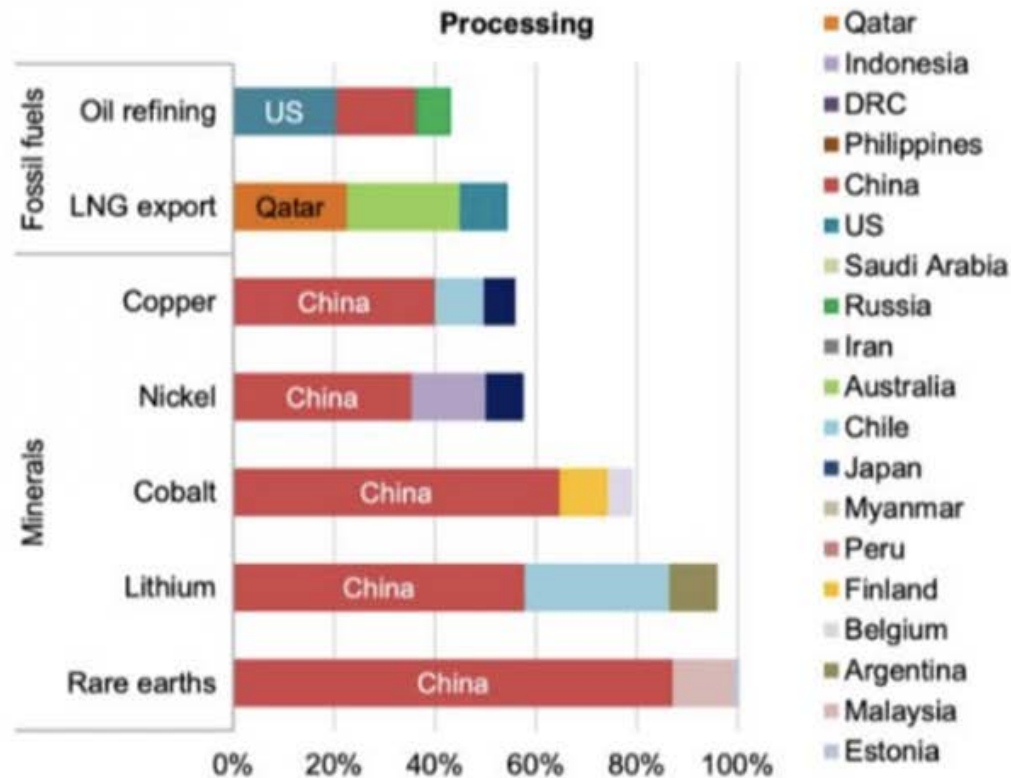
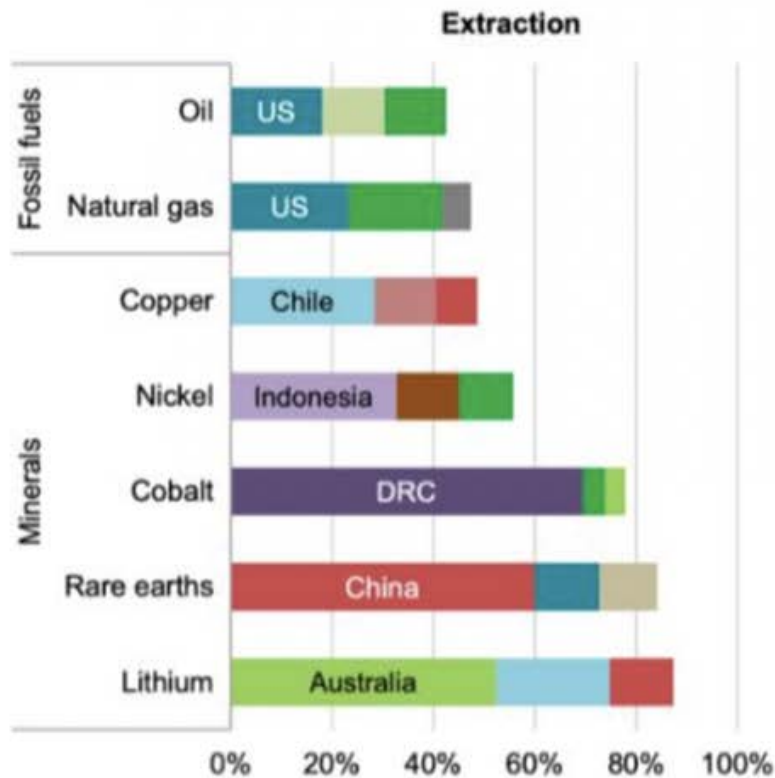


National & Local Economic Growth

Mining Risks & Challenges

Mineral	Mining Risk	Key USAID Countries
Graphite	  	Mozambique, Brazil
Lithium	    	N/A
Cobalt	   	Democratic Republic of the Congo
Vanadium	 	South Africa
Nickel	    	Indonesia, Philippines
Silver	   	Mexico, Peru
Rare Earth Elements	 	Burma (Myanmar)

Concentrated Sourcing and Processing



Examples of Solutions


Private Sector – Responsible Sourcing

Government – Anti-Corruption and Accountability

Civil Society – Watchdogs

Local Communities – Benefit Sharing





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