WHY MINING IS A THREAT TO CLIMATE AND BIODIVERSITY

Metals

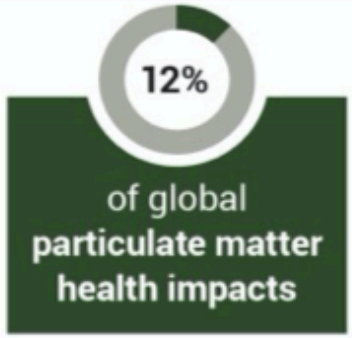
Use of metals 1970 and today (2017)

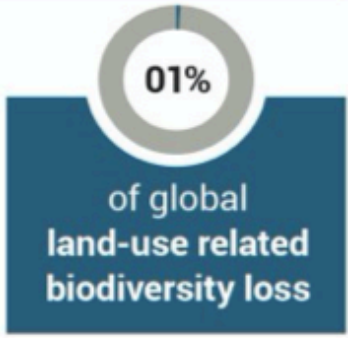
Extracted 1970 **2.6 billion tonnes**

Extracted 2017 **9.1 billion tonnes**

Metals extraction has **increased 3.5 times** between 1970 - 2017

Impacts of extraction and primary processing today (2017) - in shares of total global impact





Graphics from UNEP International Resource Panel's Resource Outlook (2019), and Resource Efficiency and Climate Change (2020) Factsheets

Cumulative Demand

	Cumulative demand in 2050 compared to reserves		Cumulative demand in 2050 compared to resources	
	Maximum scenario	Minimum scenario	Maximum scenario	Minimum scenario
Aluminium	2%	1%	1%	1%
Cadmium	4%	2%	0%	0%
Cobalt	423%	135%	120%	38%
Copper	18%	13%	4%	3%
Dysprosium	19%	12%	11%	7%
Gallium	2%	1%	0%	0%
Indium	51%	28%	16%	9%
Lithium	280%	86%	85%	26%
Manganese	14%	5%	0%	0%
Neodymium	13%	8%	7%	5%
Nickel	136%	43%	77%	25%
Selenium	11%	7%	7%	4%
Silver	52%	29%	21%	12%
Tellurium	75%	42%	48%	27%

NICKEL

- Nickel used in electric vehicle battery cathodes is of a higher quality than the nickel pig iron used in the stainless steel industry. To produce high-quality nickel products from the laterite ores found in Indonesia, PNG, the Philippines and other countries, a process known as High-Pressure Acid Leaching is being increasingly adopted.

- This process is highly toxic, polluting, energy-intensive, and leaves a massive amount of waste. Freshwater and marine ecosystems (through ocean mine waste dumping) suffer in Canada, Russia, Australia, Philippines, Indonesia, Papua New Guinea and New Caledonia due to nickel mining and refining practices.

COBALT

- The majority of global cobalt production is concentrated in the southern Democratic Republic of Congo (DRC), where decades of water and air pollution from to industrial-scale copper-cobalt mines is responsible for serious health impacts and the loss of vegetation and farmland.
- Cases of corruption, tax evasion and other improprieties by large mining companies have reduced what little economic benefits the sector offers the country and affected communities.
- While only producing an estimated 20 percent of Congolese cobalt, the artisanal cobalt mining sector has attracted the greatest international scrutiny--primarily over child labor. Meanwhile, artisanal miners cooperatives are developing solutions and calling for the formalization of the sector.

LITHIUM

- The vast majority of lithium deposits are found underneath the salt flats of Chile, Bolivia and Argentina. Current operations, and a massive wave of exploratory work, are a source of disputes throughout this region.
- Water impacts on the fragile desert ecosystem of evaporative brine extraction and a lack of respect for indigenous rights are the primary drivers of these disputes.

MAKING CLEAN ENERGY CLEAN, JUST & EQUITABLE: PLATFORM FOR CHANGE

- **Boost Recycling and Minimize Toxicity – at the design stage**
  - Scale up use of recycled minerals – corporate + policy shift
  - Product take-back requirements, design batteries and RE technologies for disassembly and efficient recycling
  - Prioritize health and safety for workers and communities.
- **Ensure Responsible Minerals Sourcing**
  - Where sourcing from new mining is absolutely necessary, operations must adhere to stringent environmental and human rights standards, such as those developed by the multi-stakeholder Initiative for Responsible Mining Assurance, with independent, third-party assurance of compliance.
- **Shift Consumption and Transportation**:
  - Rethink how we consume products and transport goods and people
  - Prioritize investments in electric-powered public transit
  - Promote Equity in access to benefits of clean energy and transit
  - Recognize impacts and act to avoid or minimize them

IRMA
Initiative for Responsible Mining Assurance

MAKING CLEAN ENERGY CLEAN, JUST & EQUITABLE

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Alaskan wild salmon imperiled by proposed Pebble mine