INSTITUTO PARA INICIATIVAS EN LATINO AMERICA

INSTITUTE FOR INITIATIVES IN LATIN AMERICA

Instituto
para Iniciativas
en Latinoamerica

Capacitación y Manejo en la Resolución de Conflictos sobre Recursos Naturales

Instituto Payne de Políticas Publicas

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El Instituto Payne para la Política Pública

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Proceso de Resolución de Conflicto

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Investigación y Información

- Publicar investigaciones en los medios relevantes para influenciar la conversación
- Promueve los esfuerzos de la Universidad para tomar mayor role en apoyar las relevantes partes interesadas

Proceso de Resolución de Conflicto

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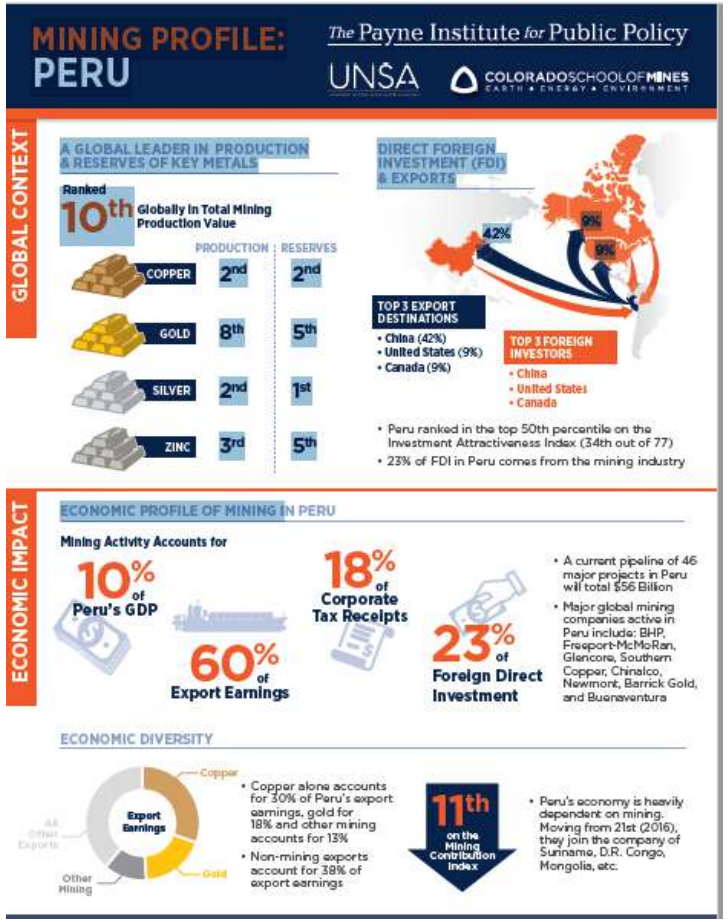
Instrumentos

- Communicación
- Participación de las partes interesadas
- Visualización de datos



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Participación de las partes interesadas

- Industria
- Comunidad
- Gobierno
- Sociedad Civil

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Instrumentos

- Conferencias
- Mesas redondas
- Seminarios web

Proceso de Resolución de Conflicto

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Soluciones

- Las soluciones provienen de las propias partes interesadas después de que el facilitador brinda el apoyo de información y participación

Eventos y talleres

Comentarios

NewSecurityBeat

The blog of the Wilson Center's Environmental Change and Security Program

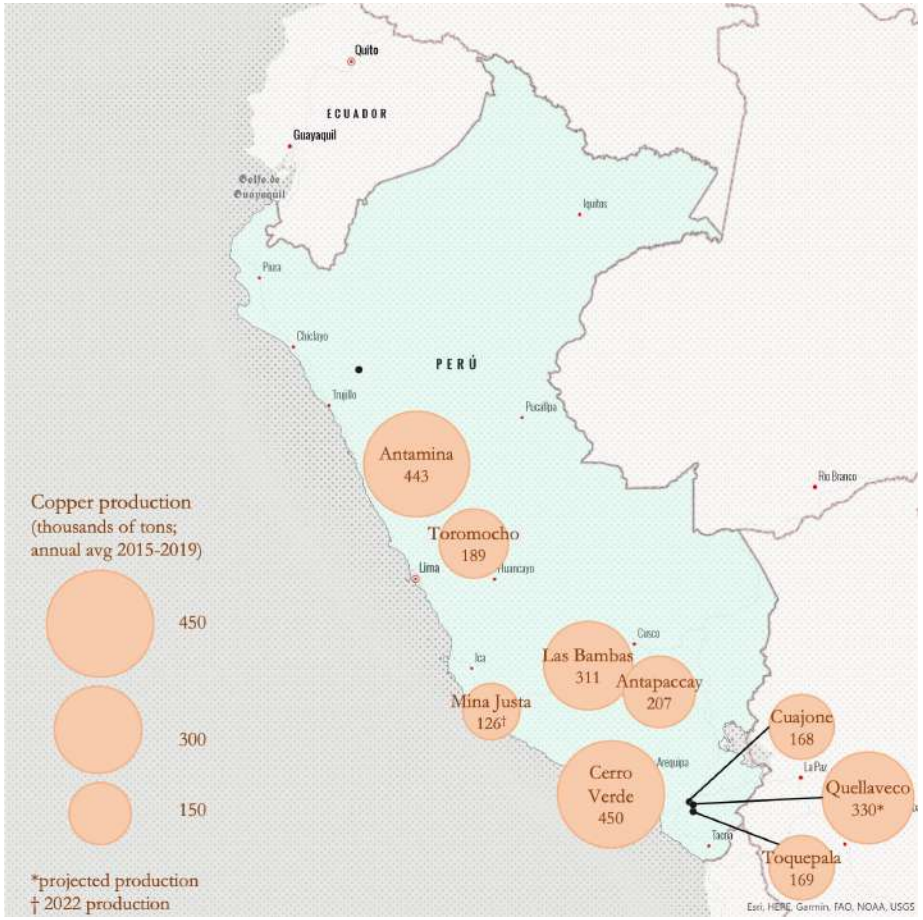
GUEST CONTRIBUTOR

Conflict and Copper

February 13, 2023 | *By Morgan Bazilian, Aaron Malone & Eliseo Zeballos Zeballos*

Global demand for copper has climbed dramatically in recent years, a trend that is likely to continue apace. Peru is the world's second largest producer of copper. Yet the clamor for copper is an opportunity that the nation is unable to seize upon at present. Peru is now undergoing severe political upheaval and protests that have brought new attention to the underlying risks in extractive industries and supply chains. Production cuts stemming from protests and blockades could amount to 3 percent of global copper output.

Recent events in Peru only underscore the geopolitical implications of vulnerable global supply chains. They also remind us that social issues and conflict have long been intertwined with the extractive industries. Indeed, many of the same dynamics driving Peru's current political crisis – income inequality, weak governance, rural mistrust and resentment of the capital, a sense of being left behind even as multinationals profit from local extraction – are the same factors that spark numerous social conflicts around mining.



PERFIL MINERO: PERU

The Payne Institute for Public Policy

UNSA

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CONTEXTO GLOBAL

LÍDER MUNDIAL EN PRODUCCIÓN Y RESERVAS DE METALES CLAVE

Clasificado en el **10°** lugar a nivel mundial en valor total de producción minera

	PRODUCTION	RESERVES
COBRE	2°	2°
ORO	8°	5°
PLATA	2°	1°
ZINC	3°	5°

INVERSIÓN EXTRANJERA DIRECTA (IED) Y EXPORTACIONES

LOS 3 PRINCIPALES INVERSORES EXTRANJEROS
- China
- Estados Unidos de América
- Canadá

LOS 3 PRINCIPALES DESTINOS DE EXPORTACIÓN
- China (42%)
- Estados Unidos de América (9%)
- Canadá (9%)

- Perú se ubicó en el percentil 50 superior en el índice de atractivo de la inversión (34° de 77)
- El 23% de la IED en Perú proviene de la industria minera

IMPACTO ECONÓMICO

PERFIL ECONÓMICO DE LA MINERÍA EN PERÚ

La actividad minera representa **10%** de PBI del Perú

60% de las ganancias de exportación

18% de los ingresos de impuestos corporativos

23% de la Inversión Extranjera Directa

- Una cartera actual de 46 proyectos importantes en Perú totalizará $ 56 mil millones
- Las principales empresas mineras globales activas en Perú incluyen BHP, Freeport-McMoRan, Glencore, Southern Copper, Chinalco, Newmont, Barrick Gold y Buenaventura

DIVERSIDAD ECONÓMICA

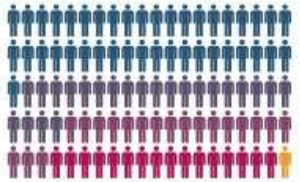
- El cobre por sí solo representa el 30% de los ingresos de exportación de Perú, el oro el 18% y otras minas el 13%
- Las exportaciones no mineras representan el 38% de los ingresos de exportación

11° en el Índice de Contribución Minera

- La economía de Perú depende en gran medida de la minería, pasando del 21° más alta de dependencia en 2016 al 11° para 2020

CONTEXTO CULTURAL

EMPLEO



- A pesar de su importancia económica, la minería a gran y mediana escala emplea solo alrededor del 1% de la fuerza laboral de Perú

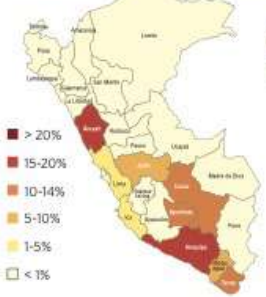
CONFLICTOS

44% de los **conflictos sociales** provienen de la minería

Los puntos de conflicto incluyen:
- Acceso al agua
- Acceso a la tierra
- Distribución de beneficios
- Polución
- Cuestiones ambientales
- Conflictos laborales

DISTRIBUCIÓN GEOGRÁFICA

PRODUCCIÓN DE COBRE



PRODUCCIÓN DE ORO

CONTEXTO DE AREQUIPA

2da ciudad más grande del Perú
- Población 1,4 millones
- 75% de la población de la región vive en el Área Metropolitana de Arequipa
- Las áreas exteriores son rurales con una población media del distrito de 2251

Cuota de la producción minera peruana

Oro 14% (#3)

Cobre 14% (#3)

Todos los metales 12% (#3)

1° en Desarrollo en etapa inicial con 17% del gasto total en exploración minera en Perú

Desglose de la producción de oro*

Arequipa tiene la mayor proporción de mineros MAPE registrados (19%)

*Incluye solo la producción registrada que probablemente subestima la MAPE

MINERÍA ARTESANAL

MINERÍA ARTESANAL Y DE PEQUEÑA ESCALA (MAPE)

Perú cuenta con **500.000** mineros informales o de MAPE
- Casi 90.000 mineros informales de MAPE se han registrado para formalizar
- El 11% de los inscritos ha podido completar la formalización

12% de la producción de oro en Perú proviene de la MAPE
- Casi toda la MAPE en Perú es minería de oro

ASM GOLD MINING PROCESS IN AREQUIPA

1 Extracción
Minería de roca dura, de baja tecnología y con uso intensivo de mano de obra. Pallaqueras, en su mayoría mujeres, escarban roca estéril en busca de mineral

2 Procesamiento local
Quimbaletes utilizados para triturar mineral para la amalgama de mercurio

3 Amalgama y relaves
La amalgama se vende localmente y se elimina el mercurio. Relaves enviados a plantas de procesamiento regionales

4 Exportación
El oro procesado final se comercializa y exporta a nivel mundial

FUENTES CITADAS Anuario Minero, MINEM 2019, Defensoria del Pueblo Informe, Cartera Exploracion 2021, Informe Annual de Empleo, ICMM Mining Contribution Index Report, Cartera Proyectos 2020, www.systems.inei.gob.pe

Investigación científica

Contents lists available at ScienceDirect

Resources Policy

journal homepage: www.elsevier.com/locate/resourpol

Musical chairs: Analyzing the evolution of stakeholders in Peru's mining sector through dialogue tables

Alicia Polo y La Borda Cavero [a,b], Yezelia Cáceres Cabana [c], Aaron Malone [b,d,*], Ronaldo Quinta Soto [c]

[a] Center for Mining Sustainability, Colorado School of Mines, USA
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ARTICLE INFO

Keywords:
Dialogue tables
Stakeholders
Participation
Conflict resolution
Mining
Peru

ABSTRACT

Mining is an important but often contentious activity. Despite substantial research on mining dynamics and conflict, there has been less analysis of the stakeholders. This paper centers stakeholders and analyzes the case of Peru, asking: Who are the stakeholders in dialogues and conflicts around Peru's mining sector? How have stakeholders changed over time, and how do they vary across contexts? Drawing from reports of Peru's ombudsperson's office (*Defensoría del Pueblo*) from 2004 to 2019, we compiled a database of 321 cases in which dialogue tables had been established in response to mining conflicts, disputes, or for monitoring and communication. Dialogue tables had an average duration of 2.6 years and an average of 11.4 members, divided between central government, regional/local government, civil society/community, and miners. We differentiate central from regional and local governments to reflect the varied relationships to the mining sector. Central government agencies' participation in mining dialogue tables increased over our study period. The number of dialogue tables also increased during much of the study period, mirroring the trend in mineral prices. Although 64% of mining assets (mines/projects) in the database had only one dialogue table, some had up to 16. Large-scale mines had more, larger, and longer-lasting dialogue tables compared to medium, small, or artisanal mines. We suggest future directions to build from this database and results, as well as discussing limitations in the data and our analysis.

Mesas de dialogo y stakeholders

Contents lists available at ScienceDirect

Resources Policy

journal homepage: www.elsevier.com/locate/resourpol

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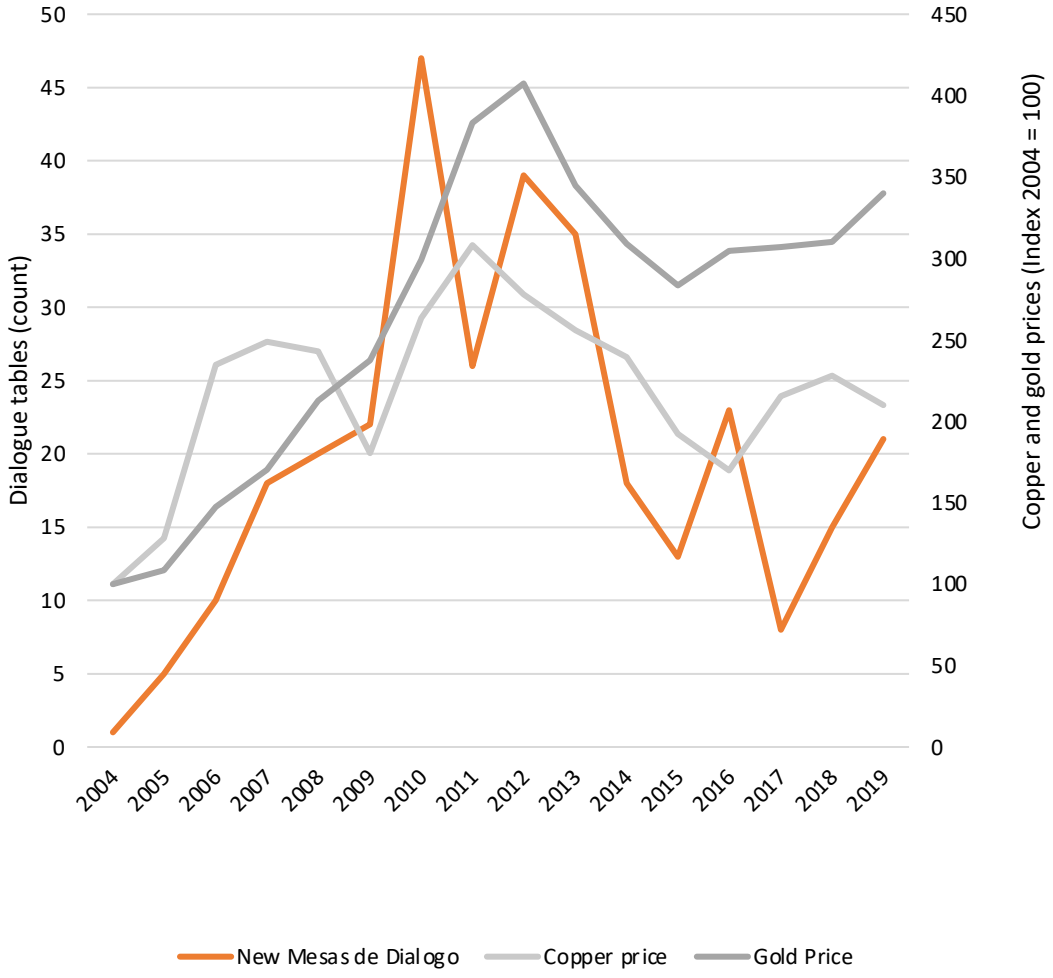
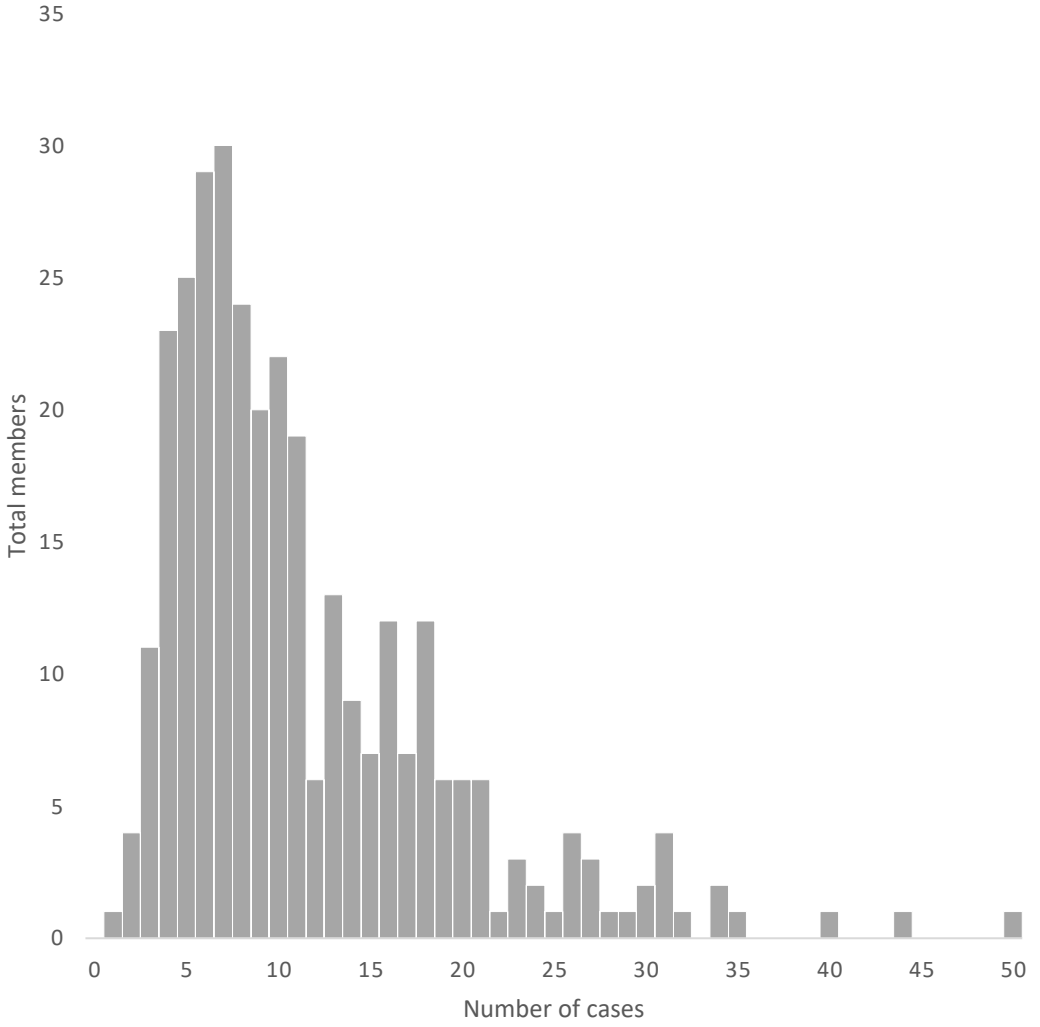
- Construcción de base de datos sobre 321 casos, colectados de reportes de la Defensoria del Pueblo, 2004-2019
- Promedio 2.6 años con 11 miembros
  - Crecimiento en número de miembros del gobierno central
- 153 distintas minas con mesas de dialogo; 64% de casos no repitieron, aunque algunos proyectos tenían hasta 16 distintas mesas de dialogo

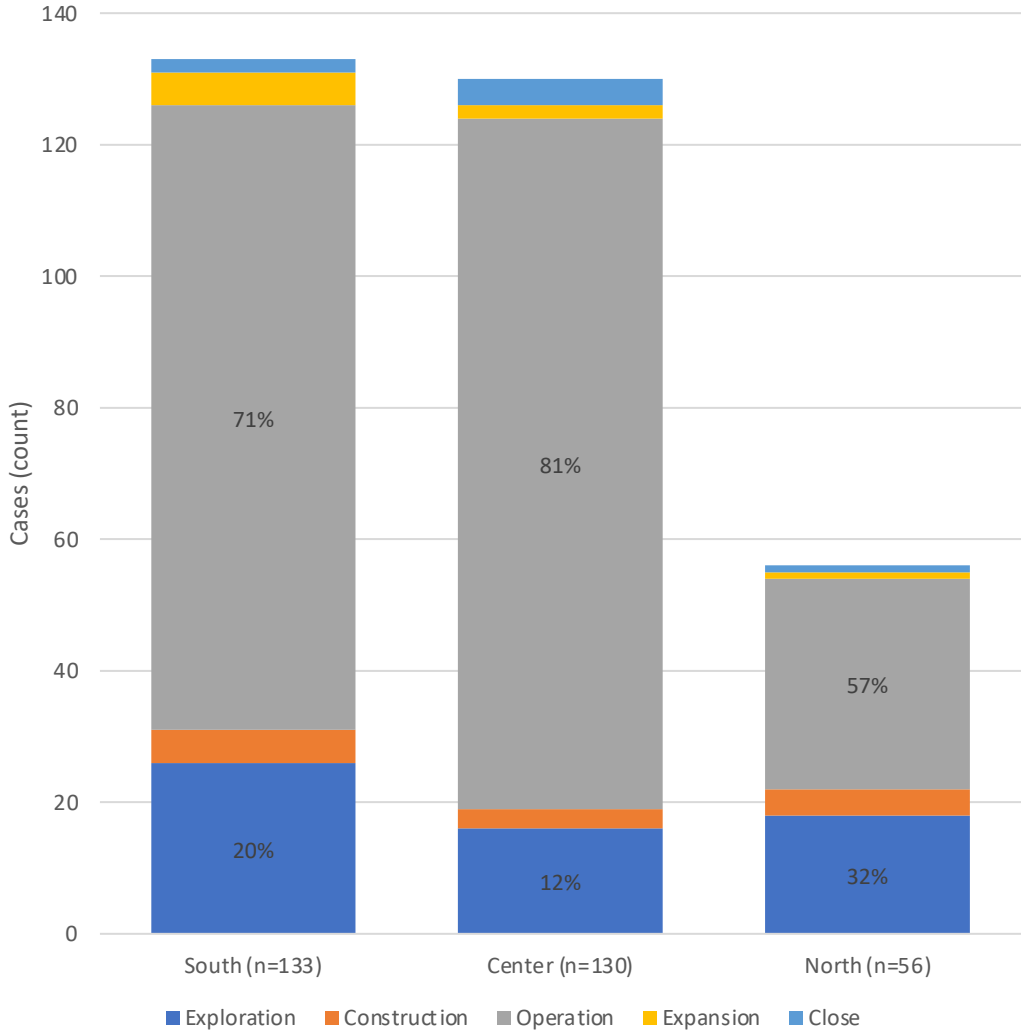
Nuevas mesas de dialogo, con precios de oro y cobre



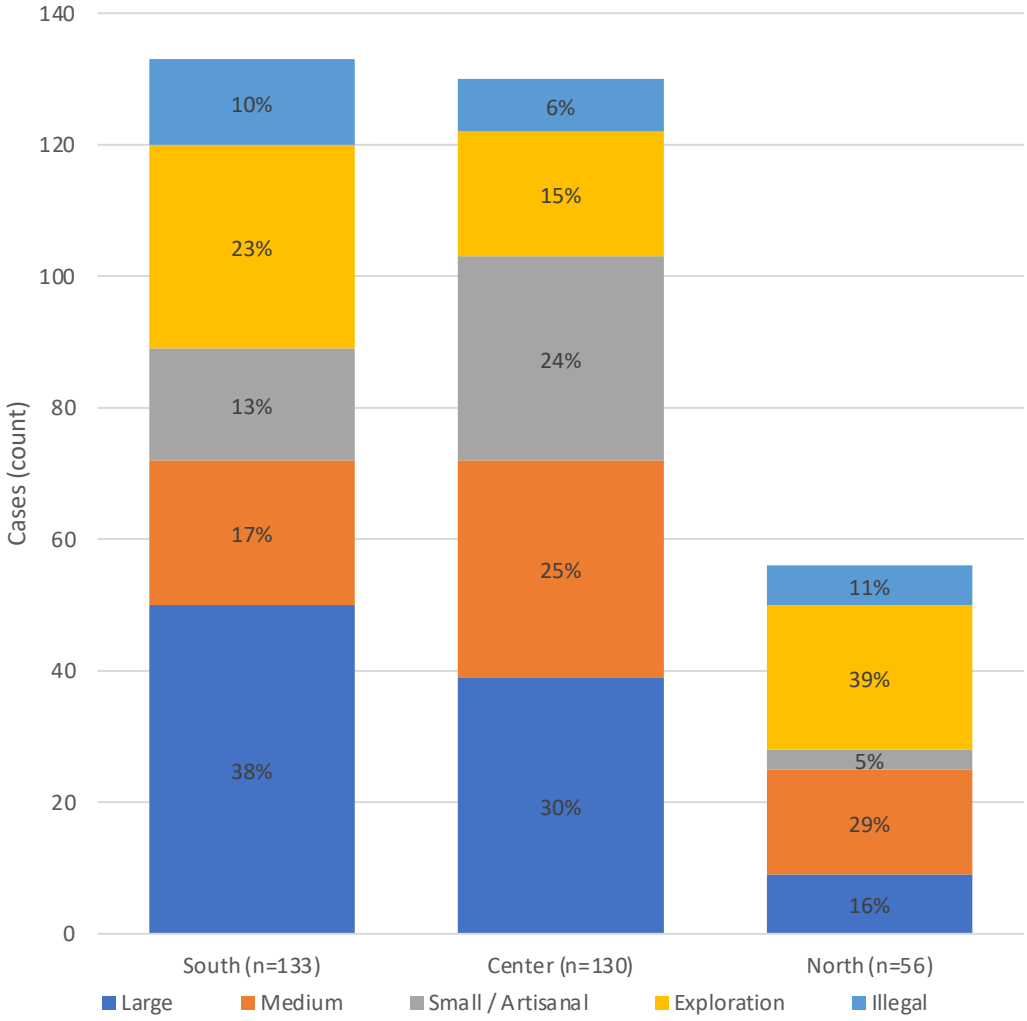
Tamaño de mesa de dialogo (no. de miembros)



Pautas regionales – por fase del proyecto

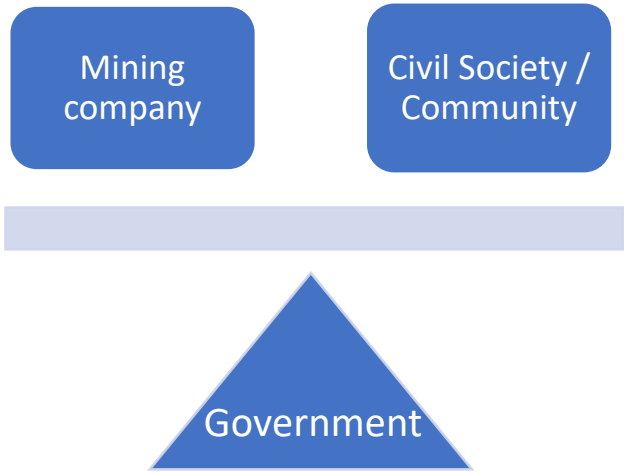


Pautas regionales – por clase/tamaño del proyecto

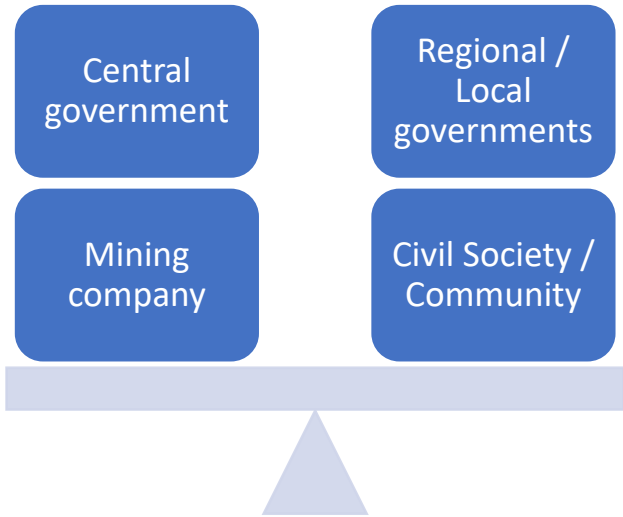


Modelo conceptual de actores en debates sobre la minería en Perú

Modelo tradicional



Modelo revisado



Publicaciones recientes: minería artesanal y en pequeña escala

2023 Transitional dynamics from mercury to cyanide-based processing in artisanal and small-scale gold mining: Social, economic, geochemical, and environmental considerations. *Science of the Total Environment*. https://doi.org/10.1016/j.scitotenv.2023.165492.

2023 Analyzing a deadly confrontation to understand the roots of conflict and small-scale mining: A case study from Arequipa, Peru. *The Extractive Industries and Society*. 15, 101274 https://doi.org/10.1016/j.exis.2023.101274

2023 "I am formal, what comes next?": A proposed framework for achieving sustainable artisanal and small-scale mining formalization in Peru. *The Extractive Industries and Society*. 13, 101227. https://doi.org/10.1016/j.exis.2023.101227

2022 Voluntary gold certification programs: A viable mechanism for improving artisanal and small-scale mining in Peru? *Journal of Rural Studies* 94: 54-62. https://doi.org/10.1016/j.jrurstud.2022.05.019

2022 Perceptions and realities of mercury contamination in a Peruvian artisanal and small-scale gold mining (ASGM) community. *Environmental Research*, 214(2): 114092. https://doi.org/10.1016/j.envres.2022.114092

2021 Formalization is just the beginning: Analyzing post-formalization successes and challenges in Peru's small-scale gold mining sector. *Resources Policy* 74, 102390. https://doi.org/10.1016/j.resourpol.2021.102390

2021 Coexistence and conflict between artisanal mining, fishing, and farming in a Peruvian boomtown. *Geoforum*. 120: 142-154. https://doi.org/10.1016/j.geoforum.2021.01.012

Contents lists available at ScienceDirect

The Extractive Industries and Society

journal homepage: www.elsevier.com/locate/exis

Original article

Analyzing a deadly confrontation to understand the roots of conflict in artisanal and small-scale mining: A case study from Arequipa, Peru

Aaron Malone [a,b,*], Nicole M. Smith [a], Eliseo Zeballos Zeballos [c], Rolando Quispe Aquino [d], Ubaldo Tapia Huamaní [d], Jerónimo Miguel Gutiérrez Soncco [e], Guido Salas [f], Zacarias Madariaga Coaquira [g], Jose Herrera Bedoya [e]

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ARTICLE INFO

Keywords:
Artisanal and small-scale mining
Conflict
Mining concession
Formalization
State weakness

ABSTRACT

Conflicts around large-scale mining are common and widely researched, but artisanal and small-scale mining (ASM) features sparingly in the mining conflict literature, despite the prevalence of ASM conflicts. This paper examines ASM conflicts, focusing on a central case study from Arequipa, Peru, where violence between rival ASM groups and a mining company resulted in 15 deaths between 2020 and 2022. We leverage this extraordinary case to illuminate underlying issues. The central research question is: what structural factors around ASM in Peru set the stage for disputes, conflicts, and violence? We focus on three factors, concluding that (1) ASM's near-exclusion from owning mining concessions leads to informal arrangements and/or unauthorized access that catalyse many conflicts; (2) formalization models for ASM have done little to resolve access disputes, instead muddying the waters; and (3) multifaceted state weakness in relation to ASM contributes to perpetuation of might-makes-right dynamics. The research focuses on a single conflict from southern Peru, but the insights derived hold relevance throughout Peru and in other countries with significant ASM sectors and associated conflicts.

Environmental Research 214 (2022) 114092

Contents lists available at ScienceDirect

Environmental Research

journal homepage: www.elsevier.com/locate/envres

Perceptions and realities of mercury contamination in a Peruvian artisanal and small-scale gold mining (ASGM) community

Rolando Quispe Aquino [a], Aaron Malone [b,c,*], Nicole M. Smith [b], Fredy Fortunato García Zúñiga [a]

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ARTICLE INFO

Keywords:
Artisanal and small-scale gold mining (ASGM)
Mercury
Soil sampling
Perception surveys
Peru

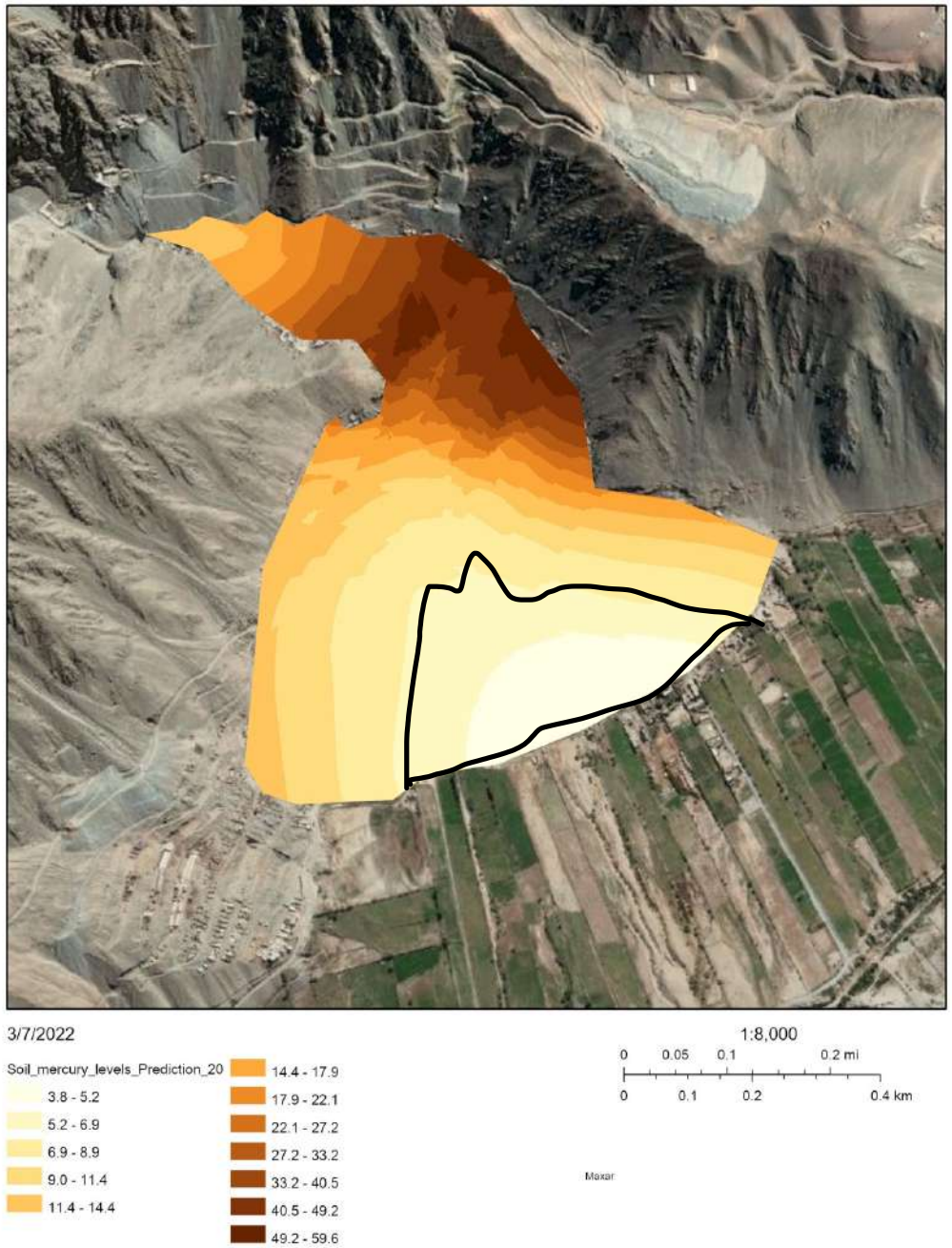
ABSTRACT

Artisanal and small-scale gold mining (ASGM) is the leading global source of mercury pollution. Efforts to reduce or eliminate mercury use in ASGM have produced limited results, in part because they do not engage the complex socio-technical nature of mercury issues in ASGM. The paper takes a multidisciplinary approach to understand the mercury issue with a socio-technical lens, pairing sampling of mercury in soils with surveys of miners' and residents' perceptions of mercury pollution and its dispersion. The research was conducted in Secocha, an ASGM boomtown in southern Peru. Mercury levels in soils exceeded relevant standards in both industrial zones (average of 72.6 mg/kg, versus the Peruvian standard of 24 mg/kg) and residential/urban zones (average of 9.5 mg/kg, versus the Peruvian standard of 6.6 mg/kg). Mercury levels were highest where processing and gold buying activity were concentrated. Surveys revealed that miners and residents correctly assumed mercury pollution to be highest in those areas. However, respondents seemed to underestimate the extent of mercury pollution in other parts of town, and many believed that only those who handle mercury directly were affected by it. Respondents also placed low priority on reducing mercury pollution. Miners' and residents' partial knowledge about mercury contamination and the low priority accorded to the issue suggest that mercury reduction efforts would likely be met with indifference and potentially resistance.

MAPE <Minería artesanal y en pequeña escala>

Author photos, 2019

	Mercurio en suelos, promedio (mg/kg)	Estándar Peruano (máx.) (mg/kg)	% muestras por encima del estándar	Máximo (mg/kg)	Mínimo (mg/kg)
Zonas Industriales (n=19)	72.6	24	89%	182.1	6.3
Zonas Urbanas (n=26)	9.5	6.6	54%	32.3	1.1



Distribución

9.- ¿El mercurio impacta solamente a los que lo manipulan, o su impacto también afecta a su entorno?	
- Persona que trabaja y manipula mercurio directamente	**100%**
- Comprador de oro, quien quema la amalgama de oro / mercurio	**98%**
- Miembros de familia con quimbaletes en su vivienda / patio	**89%**
- Vecino de al lado (próxima puerta) de un quimbalete	**23%**
- Vecino de a 10 casas de un quimbalete	**17%**
- Residentes de Secocha que no trabajan en la minería	**18%**

Q11. ¿Cree usted que en Secocha existe contaminación de mercurio que sobrepasa los límites máximos permisibles para la salud humana?	
- Si	**73%**
- No	**27%**

Q11.A. En caso que si, ¿Cómo está distribuida la contaminación?	
- Por zonas	**63%**
- General	**37%**

Puede indicar una falsa sensación de seguridad, de contaminación por mercurio *solamente* en las zonas industriales.

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Supply Chain Transparency Initiative

1. Material Foundations
2. Emissions & ESG
3. Illicit Supply Chain and ASM

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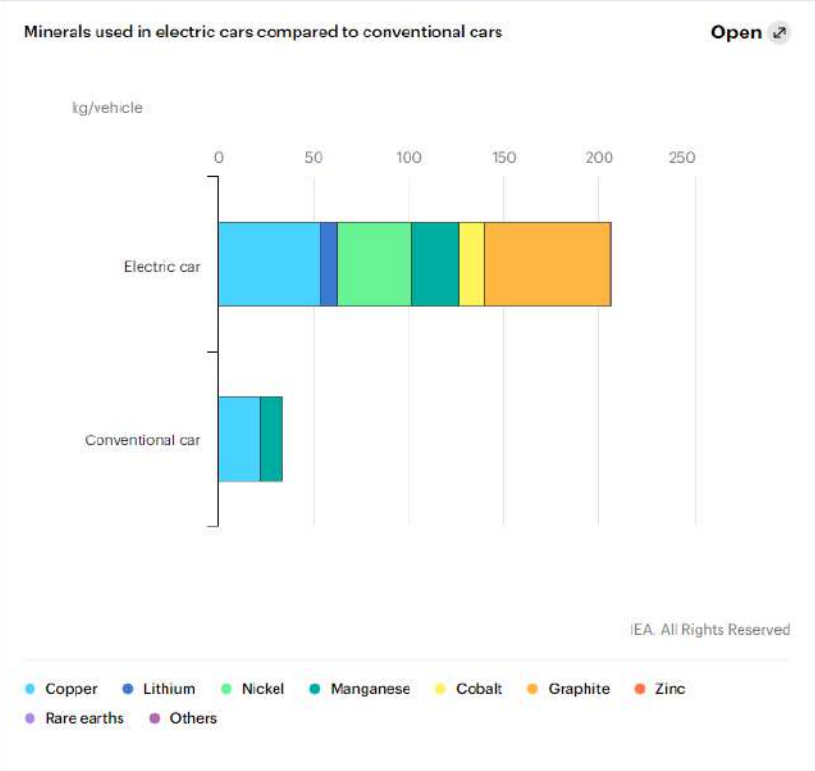
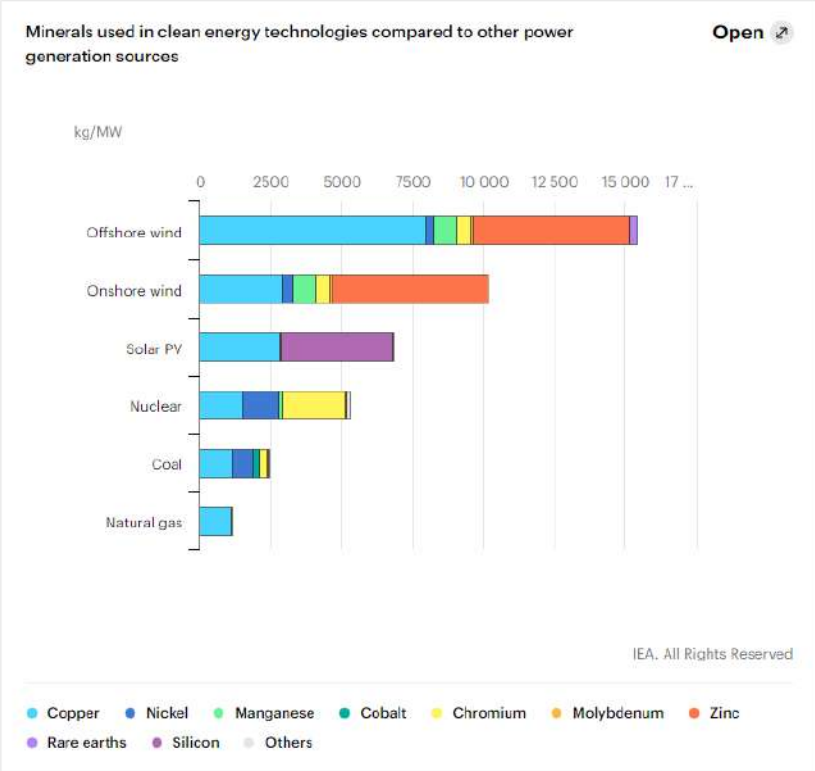
Material Foundations





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Supply Chain Emissions

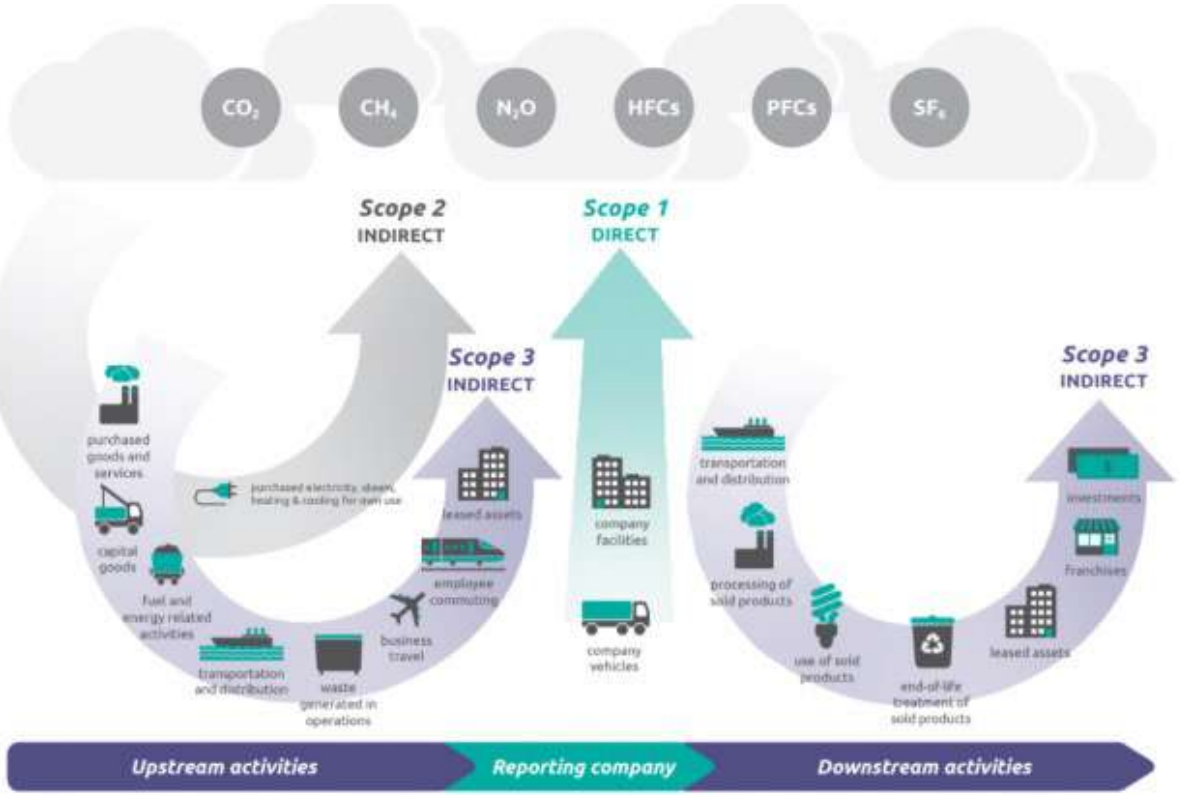

Figure 1: Scope 3 emissions as defined by the Greenhouse Gas Protocol

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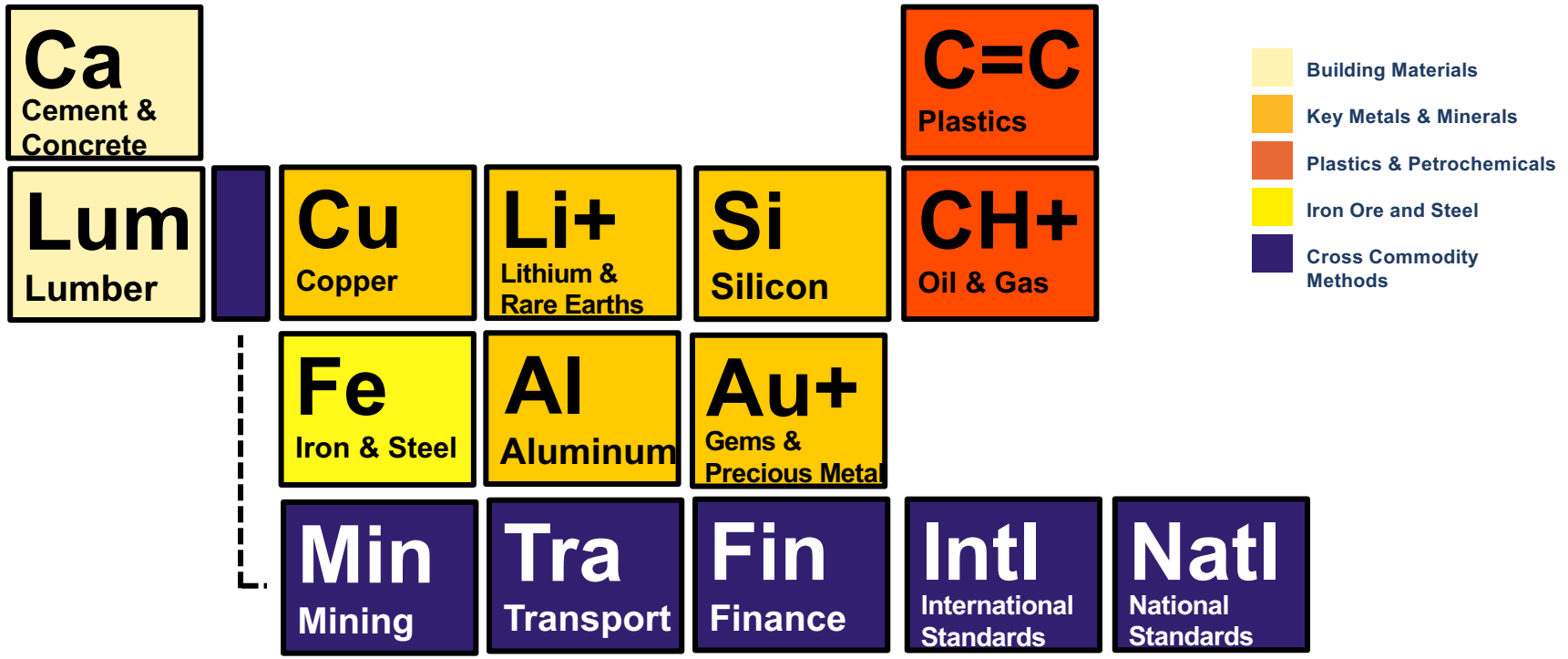
Coalition on Materials Emissions Transparency (COMET)



The COMET Framework Will Harmonize Carbon Accounting Methods Across Materials

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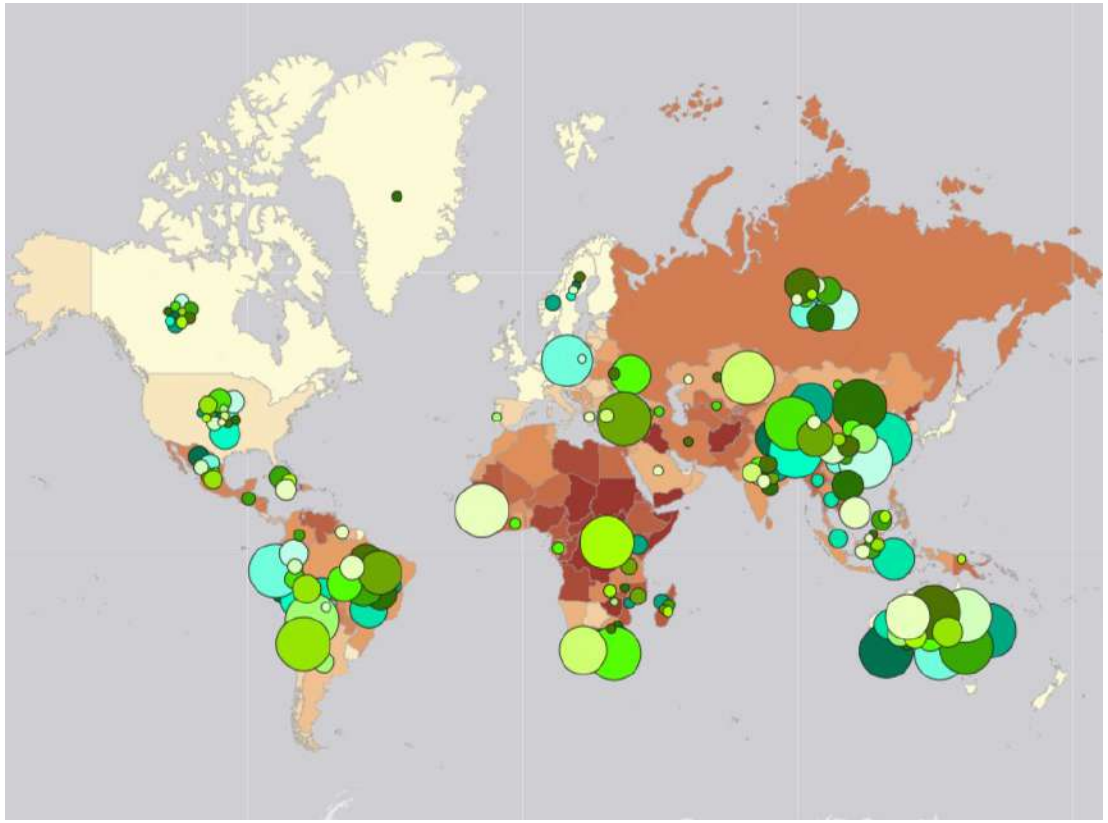
Illicit Supply Chain and ASM

Global reserves of minerals required for green energy technologies overlaid with fragility and corruption measures. Source: Fund for Peace, 2018; Transparency International, 2017; U.S. Geological Survey, 2018.



International Institute for Sustainable Development

Supply Chain Governance

MINING CONTRIBUTION INDEX (MCI)

1	2	3	4	5	6	7	8	9
5th edition rank	Country	5th edition MCI score	Metallic mineral, metals and coal export contribution 2018	Change in min. exp. contr. 2013-18 (perc. points)	Metallic mineral and coal production value 2018 (as % of GDP)	Mineral rent (as % of GDP)	4th edition rank	Difference in rank between 5th and 4th editions
1	Suriname	98.1	80.1%	39.2 pp	45.28%	19.92	1	0
2	Congo, Dem. Rep.	97.6	91.1%	17.5 pp	32.97%	16.17	2	0
3	Mongolia	95.7	85.6%	5.7 pp	37.61%	28.88	16	13
4	Zambia	95.5	76.1%	8.4 pp	20.64%	14.62	24	20
5	Guinea	94.6	82.6%	15.3 pp	14.30%	9.68	3	-2
6	Burkina Faso	94.4	76.6%	14.5 pp	16.06%	9.64	4	-2
7	Kyrgyz Republic	91.3	54.4%	8.0 pp	11.89%	11.18	5	-2
8	Sudan	91.3	40.6%	15.6 pp	12.15%	12.70	22	14
9	Mali	90.0	75.6%	2.7 pp	16.03%	8.19	6	-3
10	Zimbabwe	88.2	44.5%	4.6 pp	17.00%	3.74	19	9
11	Peru	88.0	60.5%	2.0 pp	13.04%	8.21	21	10
12	Bolivia	87.8	43.3%	19.7 pp	6.66%	4.11	17	5
13	Mozambique	87.6	67.2%	20.3 pp	11.13%	0.62	39	26
14	Namibia	86.7	50.6%	6.4 pp	6.61%	4.19	11	-3
15	Ghana	85.5	38.3%	5.7 pp	8.48%	5.65	9	-6
16	Uzbekistan	82.7	27.1%	2.0 pp	9.50%	7.37	10	-6

International Council on Mining & Metals

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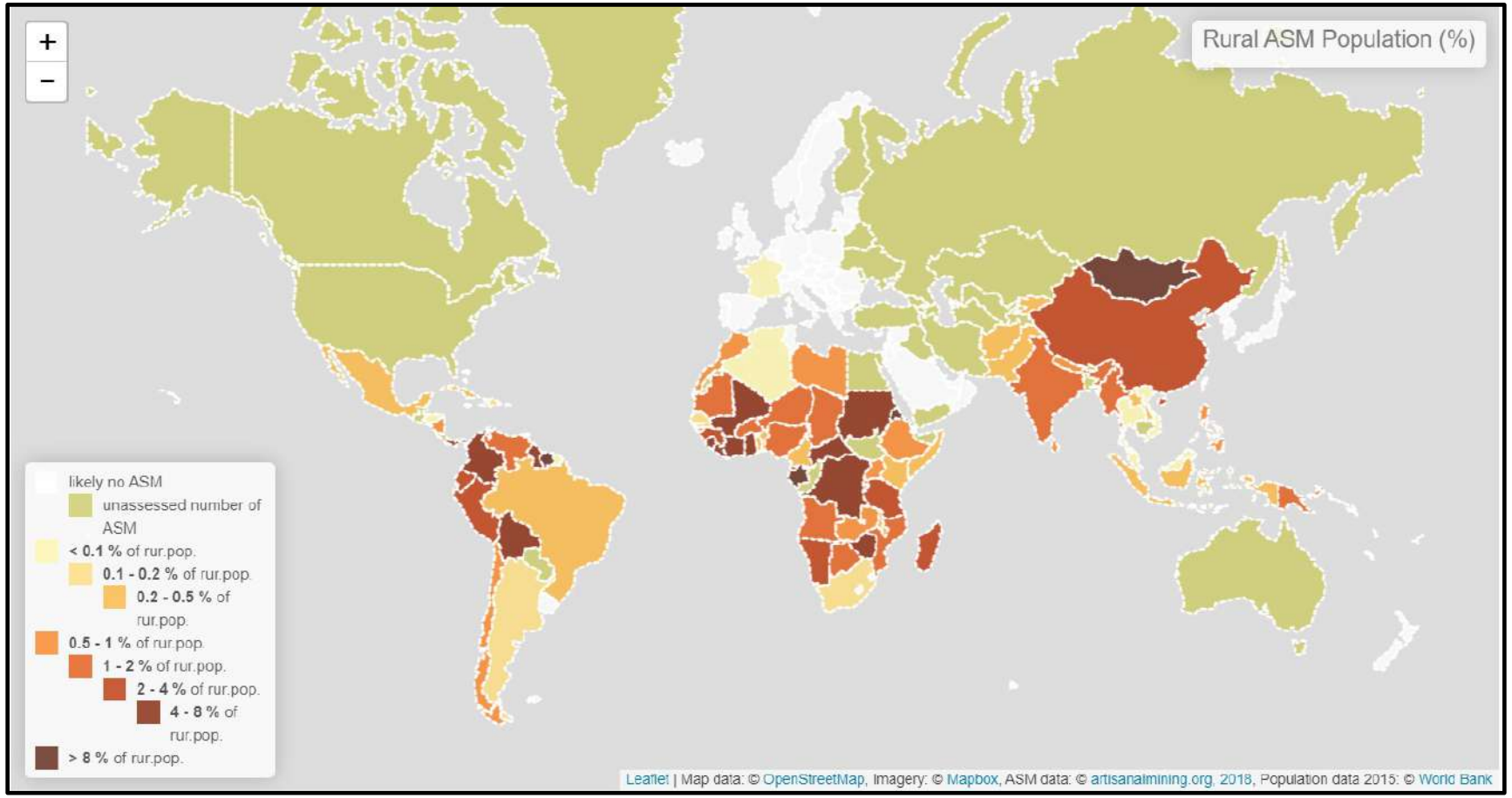
Artisanal Mining



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Illicit Supply Chain

New focus on working with NSF and larger public government entities

NSF: Sustainable Communities and Gold Supply Chains in Peru and Colombia

NSF: Mapping, Modeling, and Optimizing the Disruption of Illicit Gold Supply Chains in Peru

UNSA: Capacity Building and Management for Conflict Resolution over Natural Resources

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Mineral Security Partnership

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Mineral Security Partnership

- The Minerals Security Partnership (MSP) aims to accelerate the development of diverse and sustainable critical energy minerals supply chains through working with host governments and industry to facilitate targeted financial and diplomatic support for strategic projects along the value chain.

Meetings

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U.S. Department of State

- **Critical Minerals Training and Learning Opportunities for African Ministries of Mines Project**

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Cities Summit

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Critical Minerals Symposium

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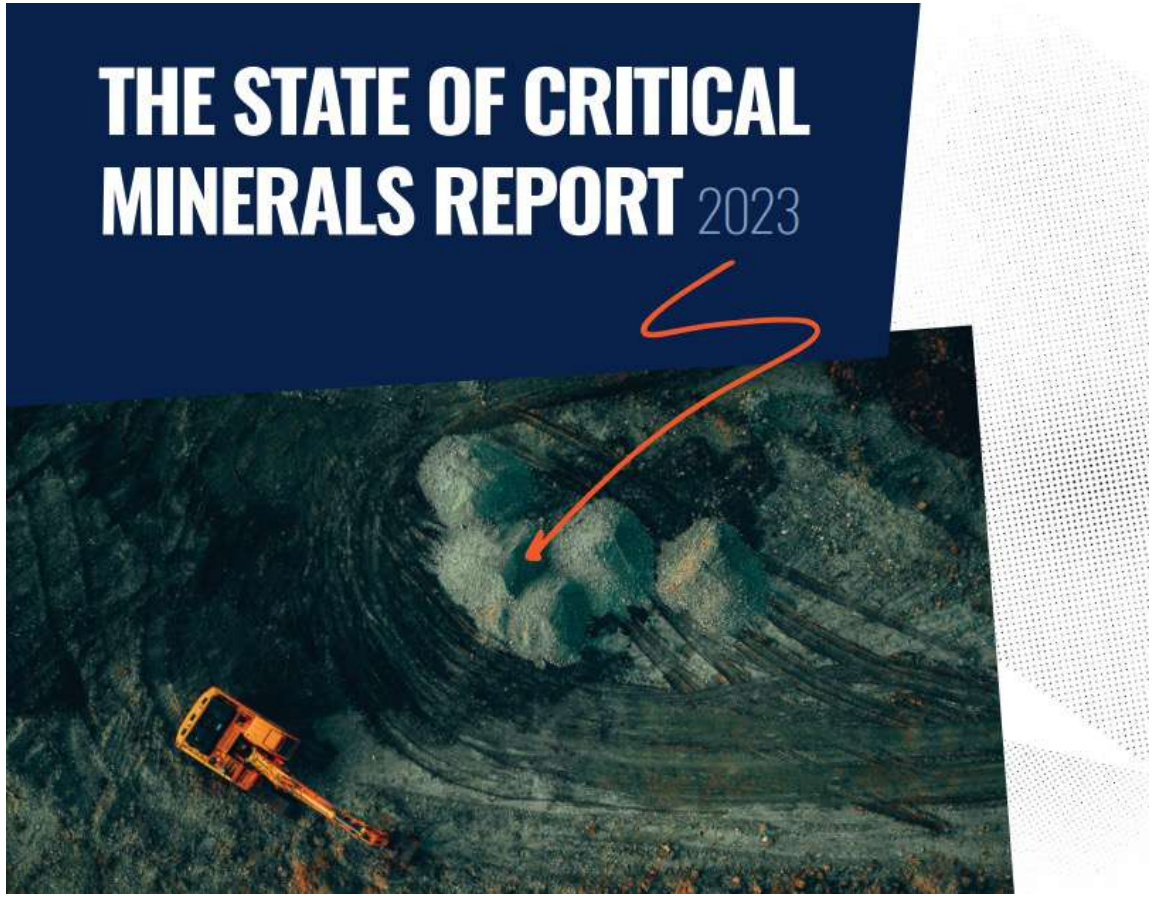
State of Critical Minerals Report



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Critical Mineral Demand

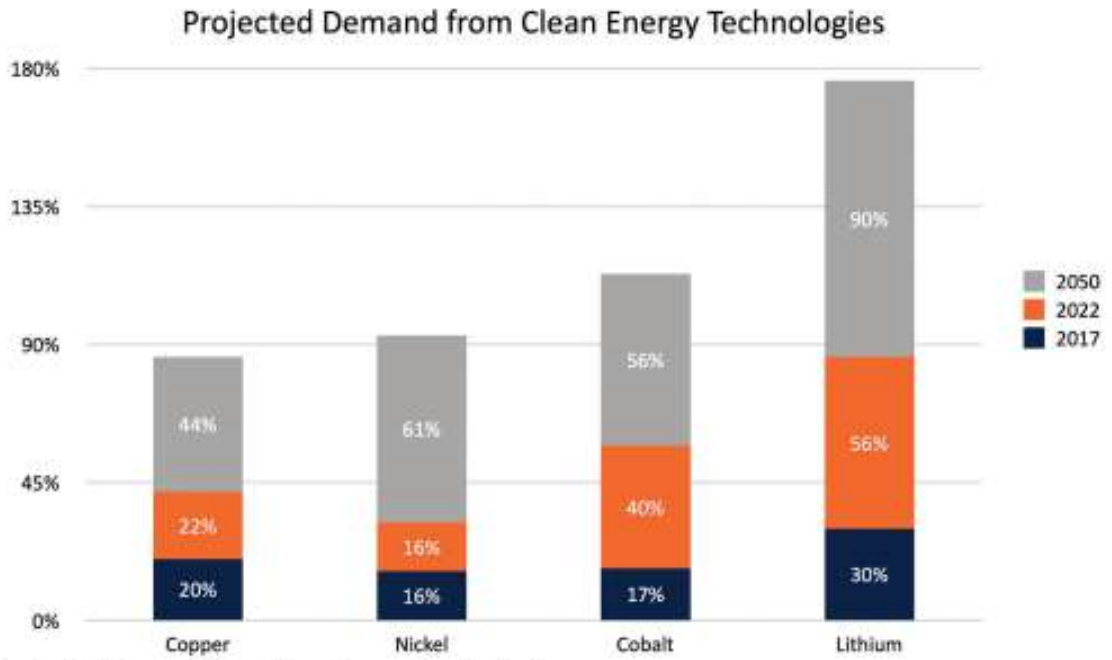

Figure 4: Projected Demand from Clean Energy Technologies
Source: Payne Institute based on data from the IEA

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Native/Indigenous People

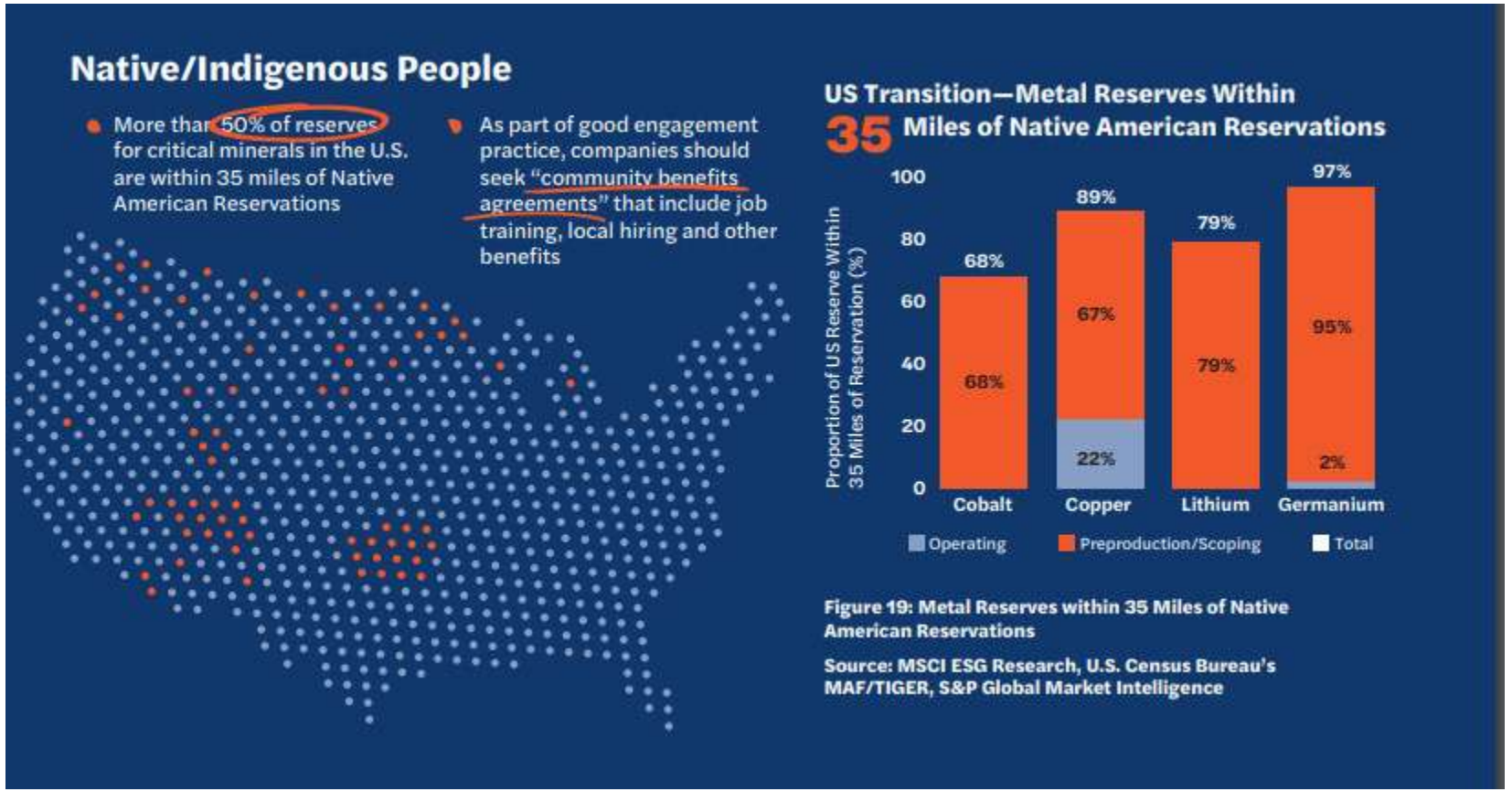

Figure 19: Metal Reserves within 35 Miles of Native American Reservations

Source: MSCI ESG Research, U.S. Census Bureau's MAF/TIGER, S&P Global Market Intelligence

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Artisanal Mining

ASM accounts for:

26% of global tantalum production

25% of global tin production

25% of global gold production

6-8% estimate of global cobalt production

40 million people are estimated to be employed in ASM worldwide

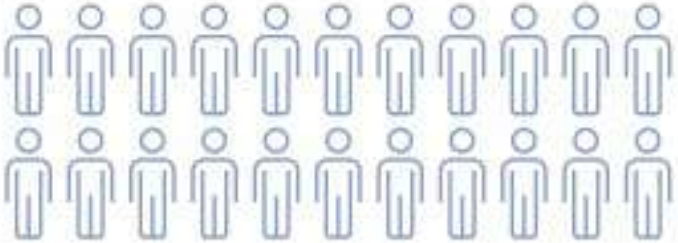

Figure 20: Artisanal and Small-scale Mining Contribution

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Workforce

There has been a decline in Mining Engineering Programs and Faculty in the U.S.

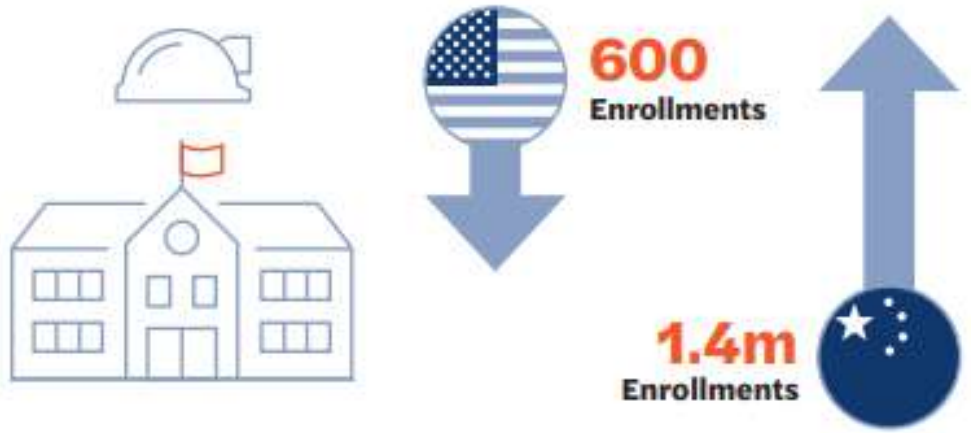

Figure 21: Mining Enrollments in the U.S. and China

Permitting

Figure 23: Permitting Times in the U.S. vs. Canada and Australia
Source: Payne Institute, based on data from the National Mining Association

Research

Responsible Critical Elements

- How do we determine the most efficient, equitable, and sustainable approaches to obtain the metals needed for the energy transition?

Elizabeth Holley *Ore Geology* | Sebnem Duzgun. *Mining Eng.* | Priscilla Nelson *Geotech. Eng.* | Erik Spiller *Metallurg. Eng.* | Robin Bullock *Env. Eng*

Rod Eggert *Mineral Econ.* | Nicole Smith *Anthropology* | Kathy Hilimire *Sustainability* | Rebecca Clausen *Env. Sociology* | Sara Hastings-Simon *Public Policy*

- Integrated socio-technical evaluation of three possible modes of critical element supply
  - New main product operations
  - Byproducts from existing mines
  - Recovery from historic wastes

Top: Mines students at a large gold mine in Nevada that hosts low-grade cobalt. Could it be recovered?

Bottom: Cobalt mining from tailings in Missouri (V. Kemper, Daily Journal)

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Original research article

Prospects for American cobalt: Reactions to mine proposals in Minnesota and Idaho

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ABSTRACT

Cobalt is a critical mineral for electric vehicles and the transition to renewable energy. There is increasing interest in developing U.S. production of cobalt, given that 70 % of mine production is in the Democratic Republic of Congo and 76 % of refinery production is in China, provoking geopolitical, supply chain, and environmental, social, and governance concerns. This paper focuses on the two leading prospective regions for U.S. cobalt production, in Minnesota and Idaho. Our central aim is to understand why reactions to mining proposals have been divergent, with polarized, intractable debates that have stalled projects in Minnesota while proposed mines in Idaho have advanced with minimal controversy. We summarize the geology and mining methods of each project before analyzing similarities and differences in responses, organizing our analysis around facets of environment, identity and legitimacy, politics, and economy. We find that many of the same dynamics are at play, differing in intensity and extent rather than being fundamentally distinct. The sites share many characteristics, including history of mining, proximity to wilderness, and economies rooted in both mining and recreation. Differentiating factors include the proximity of a large urban constituency in Minnesota with no parallel in Idaho, and smaller scale of mining proposals in Idaho.

Idaho

Minnesota

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