Opportunities in managing GHG Emissions and Mine Waste in Indonesia's Critical Minerals Regulations

Jakarta, Indonesia, 21 January 2026

International Energy Agency

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Session 1: Management of GHG Emissions and Mine Waste in Critical Mineral Mine Operations

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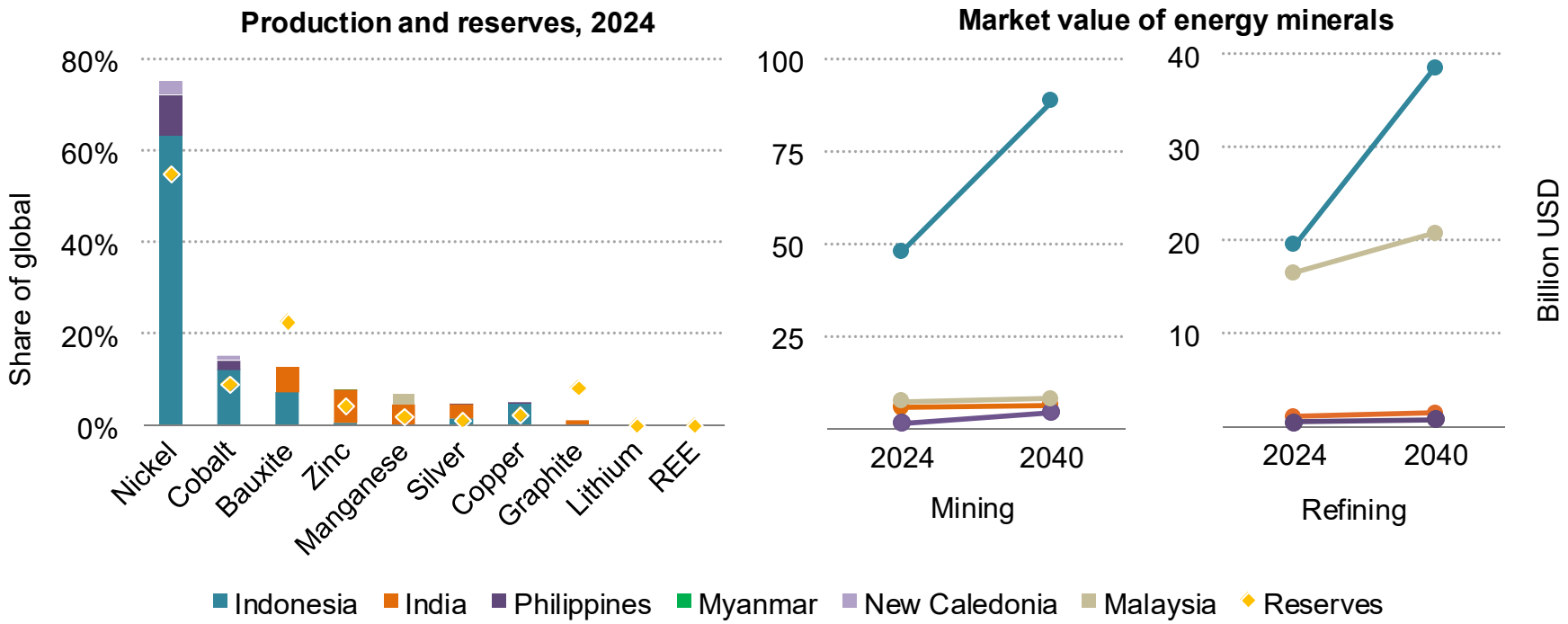
Opportunities for critical minerals in Southeast Asia

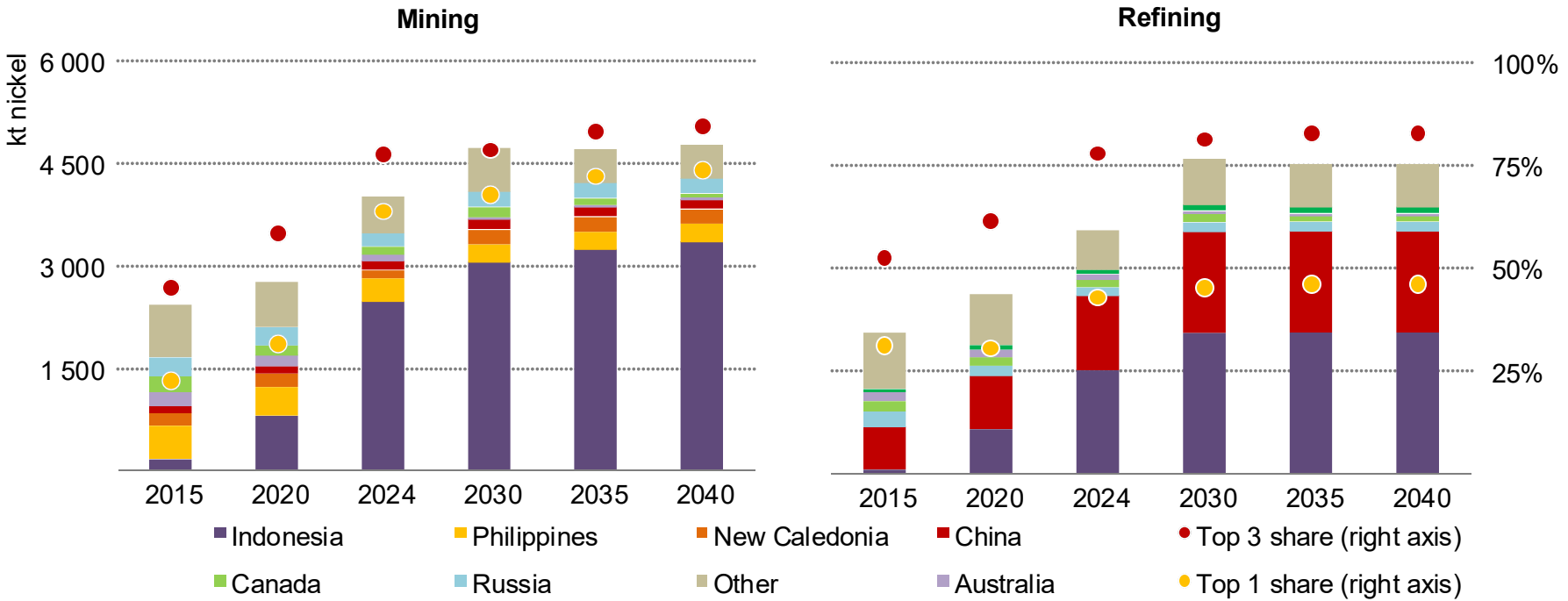
Asia (except China)'s share of global mined production and reserves and market value of key energy minerals



Critical minerals offer Southeast Asia opportunities to be a major contributor to global supply chain diversification. The region also has scope to emerge as a regional processing hub.

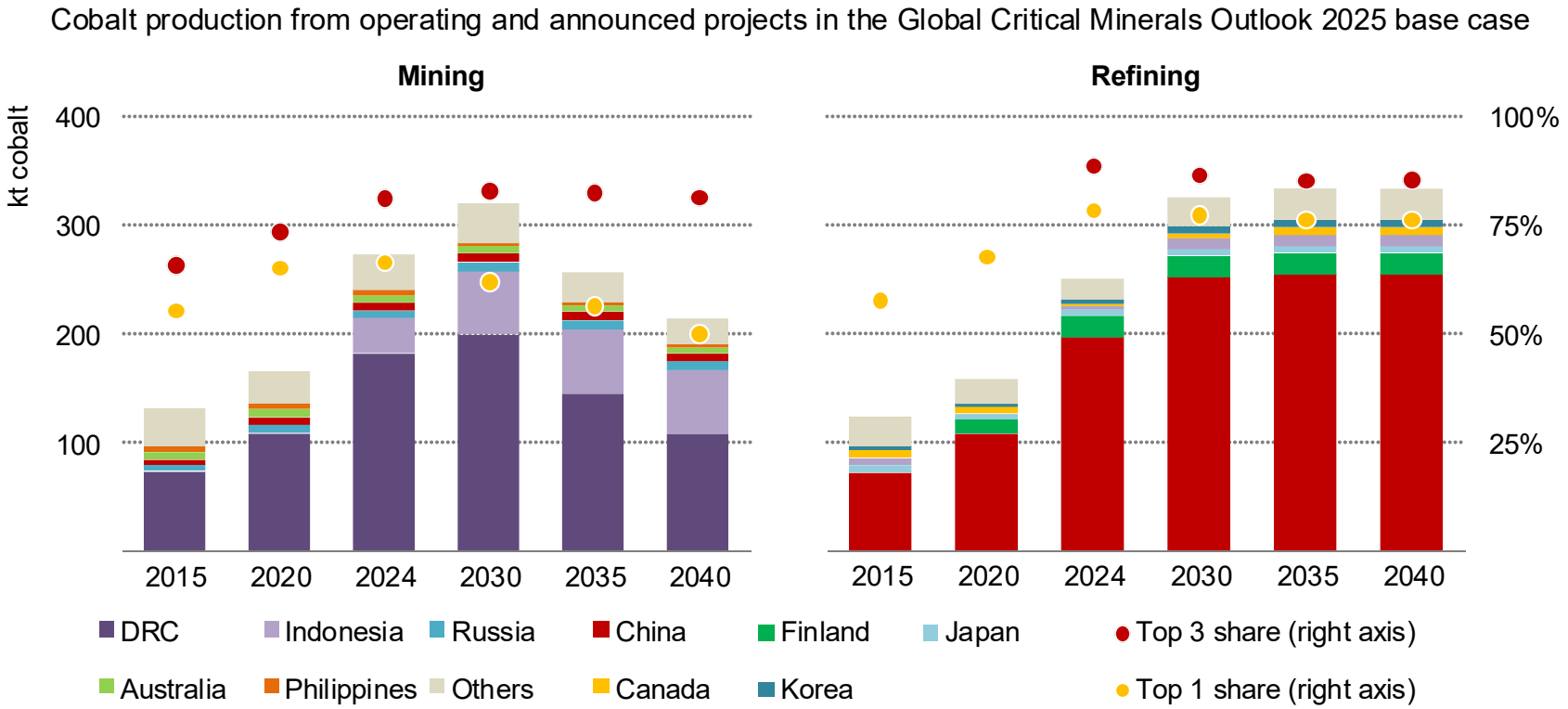
Indonesia’s importance in critical minerals supply: Nickel

Nickel production from operating and announced projects in the Global Critical Minerals Outlook 2025 base case



Mined and refined output of nickel from Indonesia is expected to continue to grow, with Indonesia maintaining its role as the largest producer

Indonesia's importance in critical minerals supply: Cobalt



Mined and refined cobalt production in Indonesia is also set to rise, diminishing the DRC's market share to 50% by 2040

Overview of 2025 IEA report for the Indonesian government

Q4 2024 – Q1 2025

Research and Analysis

Conducted desktop research on the Indonesian mining regime, with a focus on GHG emissions and mine waste, and developed analysis based on global best practices.

April 2025

Internal Consultation

Conducted an internal consultation with **MEMR** and the **Ministry of Environment** to inform the IEA's preliminary legal and regulatory assessment of Indonesia's mining regulations relevant to GHG emissions and mine waste.

August 2025

Report

Finalised and shared the report on ***Management of GHG Emissions and Mine Waste within Critical Mineral Mine Operations in Indonesia.***

Indonesia’s regulatory framework for mining operations

GR 39/2025	• Downstreaming, local job creation, & profit-sharing with universities • Strict administrative, technical, and commitment criteria, verified via the OSS system
Integrated Licensing (OSS RBA)	• Centralised Risk-Based Business Licensing system under Law 11/2020 • Consolidates environmental and other approvals into one workflow
Environmental Management Framework	• Requirements under Law 4/2009 and MEMR Decree 69/2024 • High-risk critical mineral projects must conduct full AMDAL assessments
Downstreaming Strategy for Value Addition	• Aims to capture more value from local mineral resources and stimulate industrialisation • Requires 90% smelter completion before export approval

Opportunities and global practices for mining frameworks (1)

Clarify institutional roles

- Ensure that stakeholders understand the role of each agency so that that oversight can be robust
- Could be initiated through a regulation, decree, memorandum of understanding, or another mechanism
- Examples: Australia's formal memoranda of understanding and Canada's federal-provincial coordination mechanisms

Leverage digital infrastructure for supply chain traceability

- International community increasingly expecting traceability data
- Existing systems could be a good basis on which to build a comprehensive traceability framework linking permits, production data and export activities
- Opportunities to link environmental and other indicators into such a system, which could facilitate exports

Opportunities and global practices for mining frameworks (2)

Enhance environmental and other standards in downstreaming industries

- Build upon robust environmental assessment and risk-based licensing requirements that already exist for mining
- Ensure that entire value chain is held to similar standards, creating a level playing field

Incentivise companies to participate in voluntary standards

- Downstream purchasers, such as the EU, are increasingly expecting demonstrated environmental and social performance (e.g. EU Critical Raw Materials Act)
- Greater participation by Indonesian companies could facilitate market access

Regulation of GHG Emissions in the Indonesia's mining sector

PR 98/2021 (Carbon Economic Value Regulation)	• Applies to sectors such as power, transport, agriculture, forestry, waste — but excludes the mining sector. • As a result, mining companies cannot participate in carbon markets under this mechanism.
Climate targets	• Indonesia has committed to achieve net-zero emissions by 2060 (Long-Term Strategy for Low Carbon and Climate Resilience 2050) • For the energy sector: reduction target of 0.7 MtCO2e (unconditional)/0.9 MtCO2e (conditional) compared to a Business-As-Usual scenario
GHG inventory	• MEMR Reg 22/2019 enables inventorying of GHG emissions in the mining sector • Enables a flexible calculation scheme that reflects technological progress and MEMR's evolving capacity to determine more accurate emissions factors

Opportunities and global practices for greenhouse gas emissions (1)

Expand MEMR GHG emissions regulations to cover mineral mining

- Emissions reporting would boost visibility into the emissions profiles of mining operations
- Canada's GHG reporting program requires operators to provide data and use specific quantification methods
- Australia's GHG reporting framework requires facilities to report on annual GHG emissions, energy production and consumption

Develop sectoral targets for GHG emissions reductions

- Consider nationwide sectoral targets for mining operations as a foundational step
- Encourage companies to develop site-specific emissions reduction targets that align with and contribute to the broader sectoral objectives
- Chile's National Mining Policy 2050 calls for the mining sector to achieve carbon neutrality by 2040

Opportunities and global practices for greenhouse gas emissions (2)

Build groundwork for integration in carbon pricing frameworks

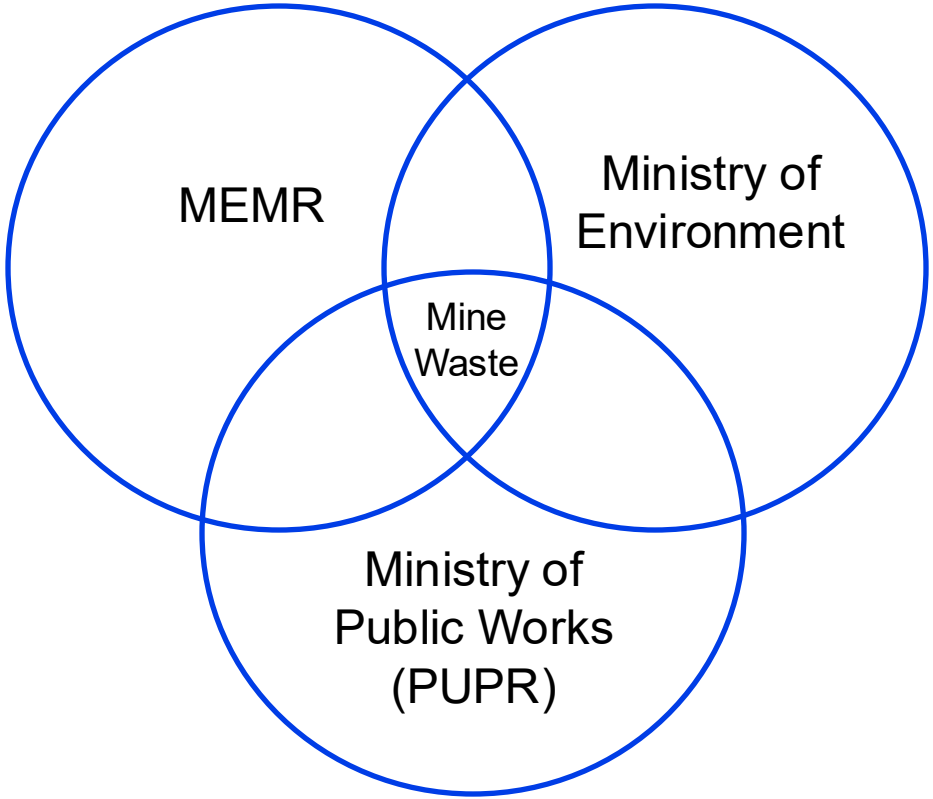
- Ensure that GHG accounting and reporting systems for mining could be compatible with carbon pricing framework
- Would enable the sector to participate in any future system and “future-proof” the reporting framework
- Most countries have opted to initially provide emission units allowance in mining operations for free

Develop comprehensive data accuracy and transparency mechanisms

- Seek to move from Tier 1 to Tier 2 reporting emissions factors, which can provide greater precision over emissions
- Improved transparency can facilitate access and use by government stakeholders or others of company data

Regulation of mine waste in Indonesia

- MEMR Decree 1827
- Govt. Regulation No. 78/2010



- Law No. 32/2009
- Govt. Regulation No. 22/2021
- MoEF Regulation No. 6/2021

Governs B3 Waste Utilisation (recycling)

- PUPR Regulation No. 27/PRT/M/2015

Opportunities and global practices for mine waste management (1)

Inter-agency coordination: one-stop shop for applications

- "Project Accelerator Unit/Unidad Aceleradora de Proyectos" in Andalusia, Spain for strategic projects;
- "National competent authorities" in the EU for critical raw material projects;
- One stop shop in the Philippines for mining projects

Contextualised guidance on best practices

- Integrate international best practices into licensing requirements and internal approval processes
- Develop standardised guidelines for operators applying for licenses
- Provide access to support for operators (e.g., Ontario, Canada's option for a pre-application submission meeting)

Opportunities and global practices for mine waste management (2)

Establish comprehensive mine waste mapping

- Integrate mine waste mapping into the MEMR One Map platform
- E.g., Geoscience Australia's Atlas of Australian Re-mining Potential
- Chile's public tailings platform

Economic incentives and support for mine waste recovery

- India's Incentive Scheme for Recycling of Critical Minerals
- Queensland, Australia's funding programme for critical mineral discoveries in mine waste