10th Private Sector Forum on Cooperation in Minerals in ASEAN 2022

TITLE:

Responsible and Sustainable Mining- The ESG Factor

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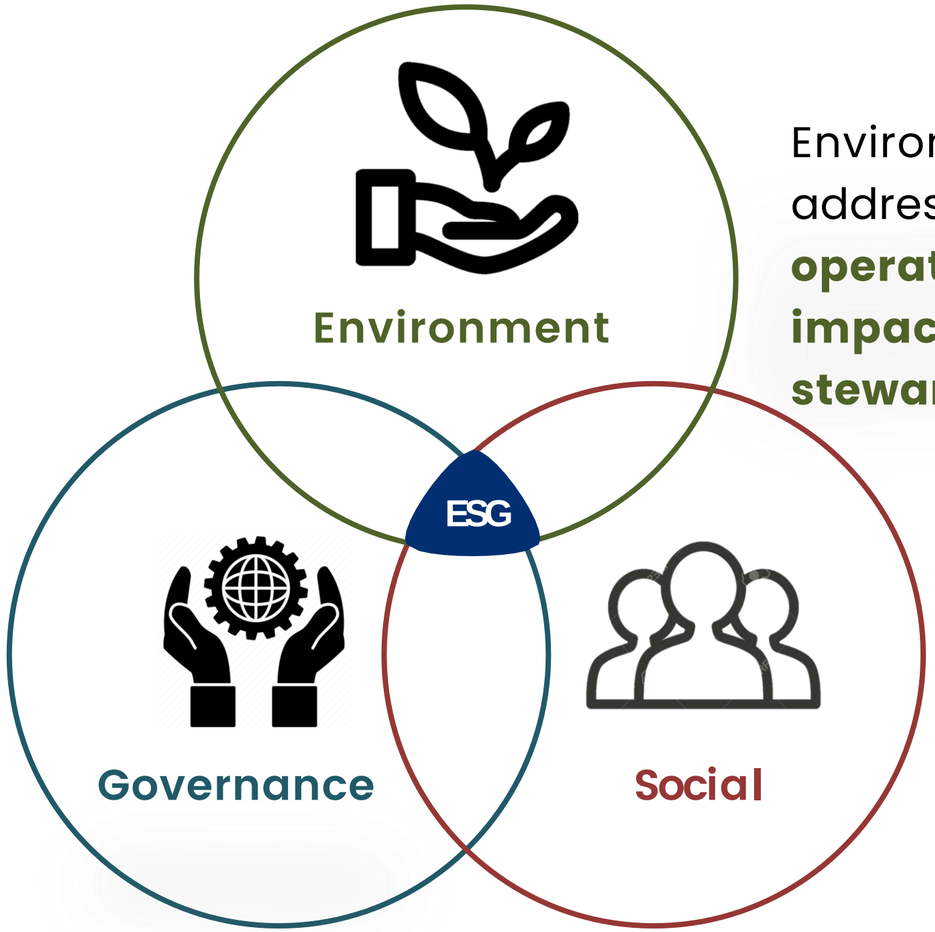
Brumadinho Tailing Dam Collapse

- Brazil, January 2019
- **Killed 270 people**
- Polluted rivers
- Obliterated surroundings
- Vale paid USD7 billion settlement
- Homicide and other criminal charges

WHAT IS ESG?



Environmental criteria addresses a **company's operations environmental impact, and environmental stewardship.**

Governance criteria refers to a **company's leadership & management philosophy, practices, policies, internal controls, and shareholder rights.**

Social criteria refers to **how a company manages relationships with and creates value for stakeholders.**

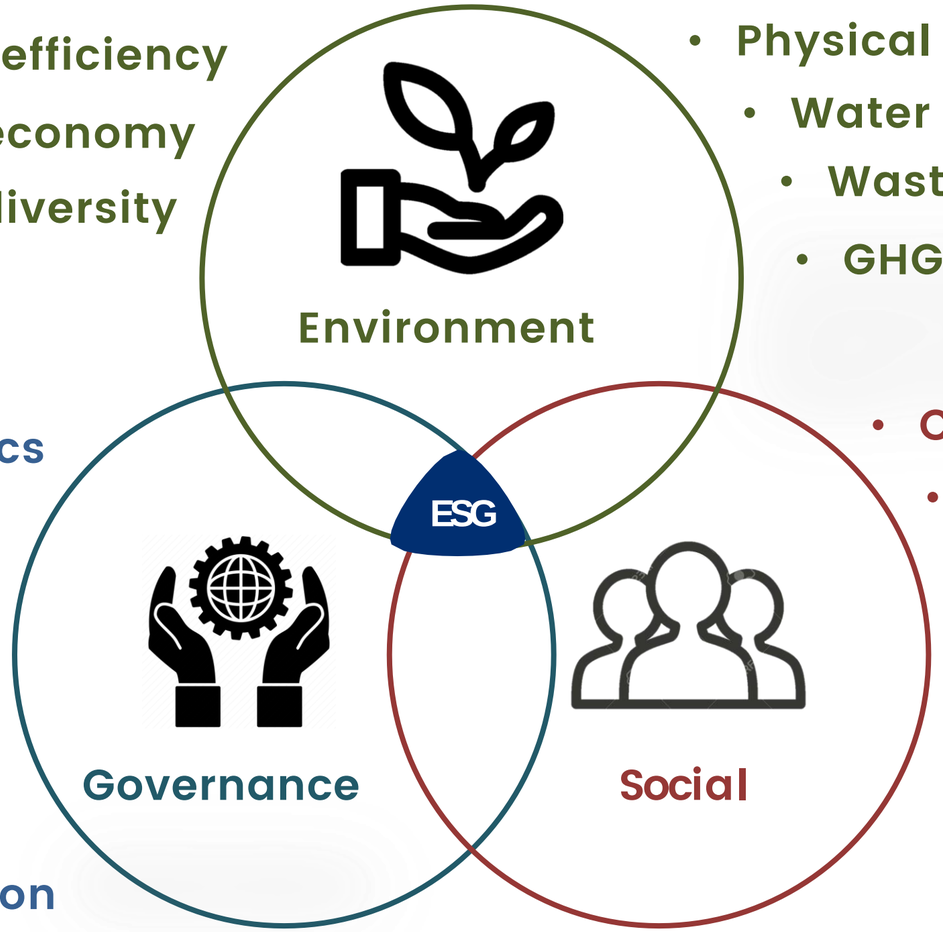
COMMON ESG ISSUES IN MINING

biodiversity, ecosystem services, water management, mine waste / tailings, air, noise, energy, climate change (carbon footprint, greenhouse gas), hazardous substances, mine closure.

human rights, land use, resettlement, vulnerable people, gender, labor practices, worker/community health & safety, security, artisanal miners, mine closure / after use.

legal compliance, ethics, anti-bribery and corruption (ABC), transparency.

ESG topics – in Mining Sector



- Energy efficiency
- Circular economy
- Land use and biodiversity

- Physical climate risks
- Water management
- Waste and pollution
- GHG emissions

- Business ethics
- Compensation and benefits
- Tax transparency
- Cybersecurity
- Procurement practices
- Management structure
- Antibribery and anticorruption

- Community relations
- Customer satisfaction
- Data protection & privacy
- Gender and diversity
- Employee wellbeing
- Impact on local community
- Working conditions

ESG key facts

Term coined by financial industry

ESG criteria and ratings used by responsible investors to evaluate companies

More than 90% of S&P 500 companies now publish ESG reports & 70 % of Russell 1000 companies

Non-financial companies use ESG to communicate performance to other financial and other stakeholders

Midway through 2022, global sustainable assets are about USD2.5 trillion

Importance of ESG in Mining Industry

ESG performance as indicator of sustainable and responsible practices in mining industry

01 Investors, lenders and customers care about ESG

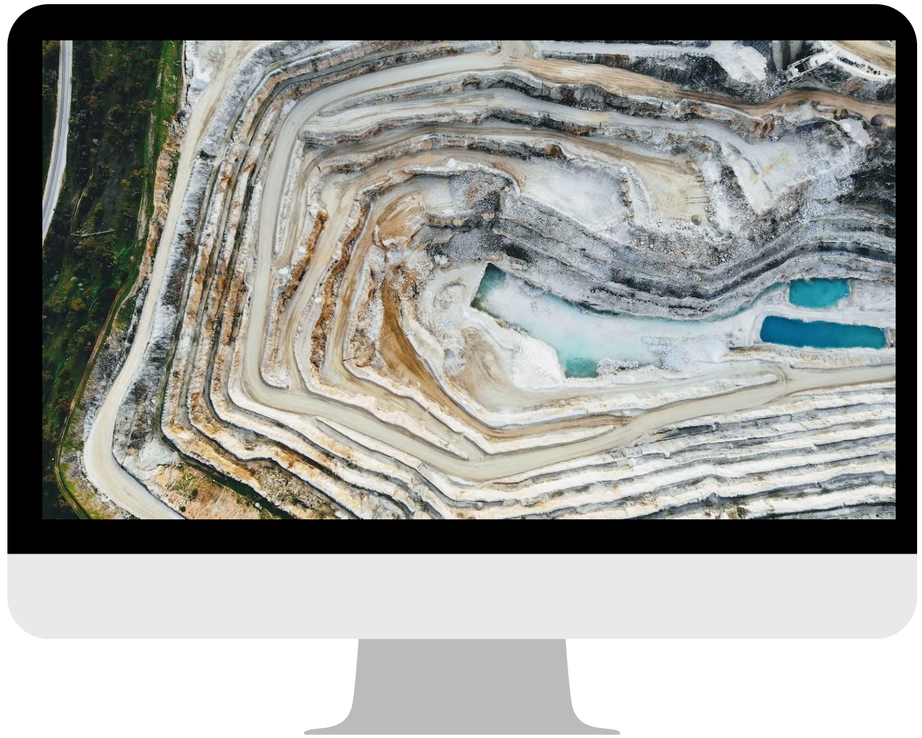
02 Transparency and performance demand by stakeholders

03 Avoid the inevitable risks that come with poor ESG performance

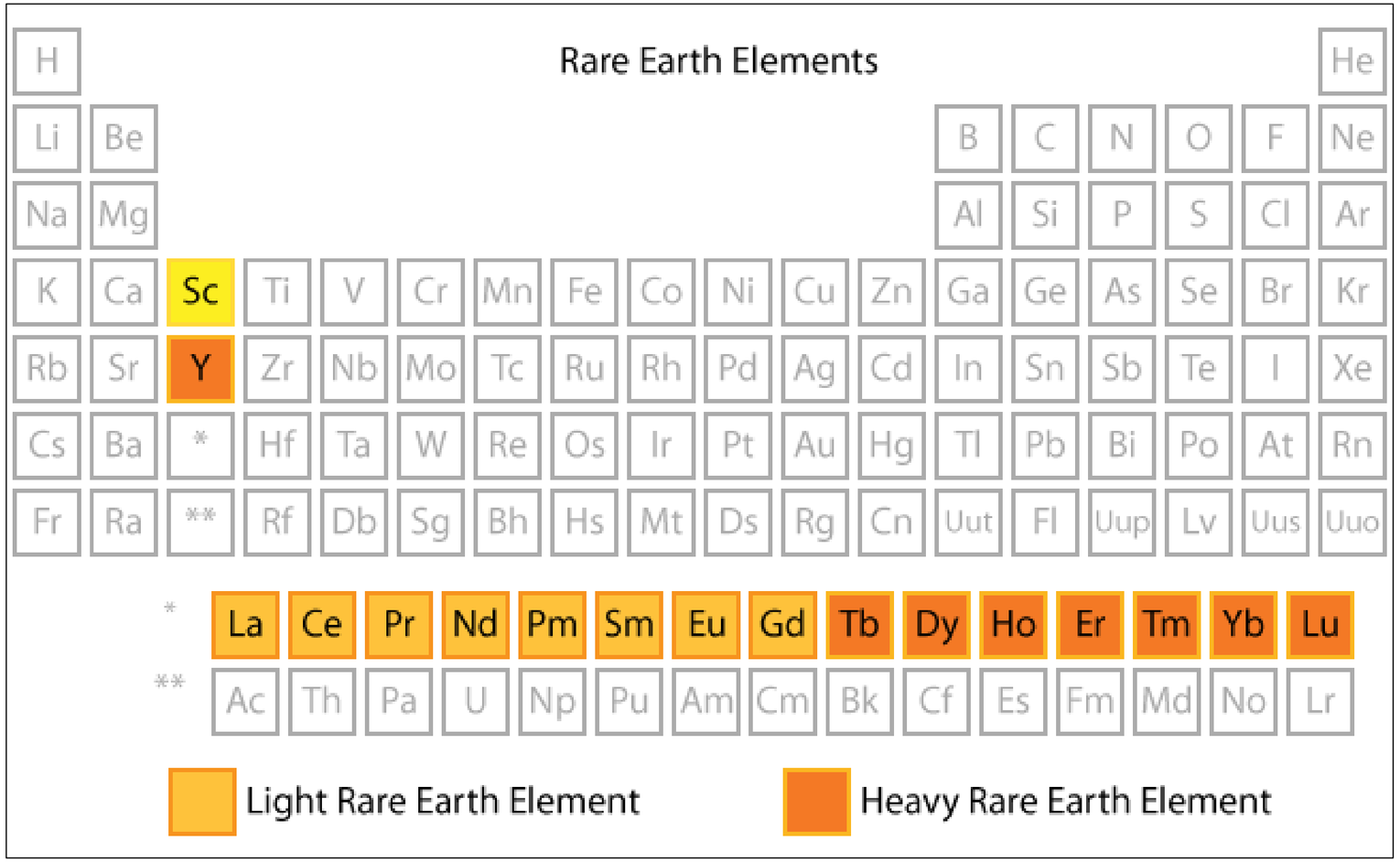
04 Opportunities through strong ESG performance

ESG Factors in Mining Sector

- Growing demand for minerals and metals
  - Annual global extraction of materials tripled from 1970 to 2017
  - Materials essential for renewable energy technologies (example: REE)
- Environmental and social impacts of mining
  - Different impacts of LSM and ASM
- Mining sector and sustainable development
  - Mining sector plays an important role in combating climate change
  - Limiting negative impacts on communities & environment



Rare Earth Elements



Rare earth elements (REE) refer to the 15 lanthanides which include:

1. lanthanum (La),
2. cerium (Ce),
3. praseodymium (Pr),
4. neodymium (Nd),
5. promethium (Pm),
6. samarium (Sm),
7. europium (Eu),
8. gadolinium (Gd),
9. terbium (Tb),
10. dysprosium (Dy),
11. holmium (Ho),
12. erbium (Er),
13. thulium (Tm),
14. ytterbium (Yb)
15. lutetium (Lu).

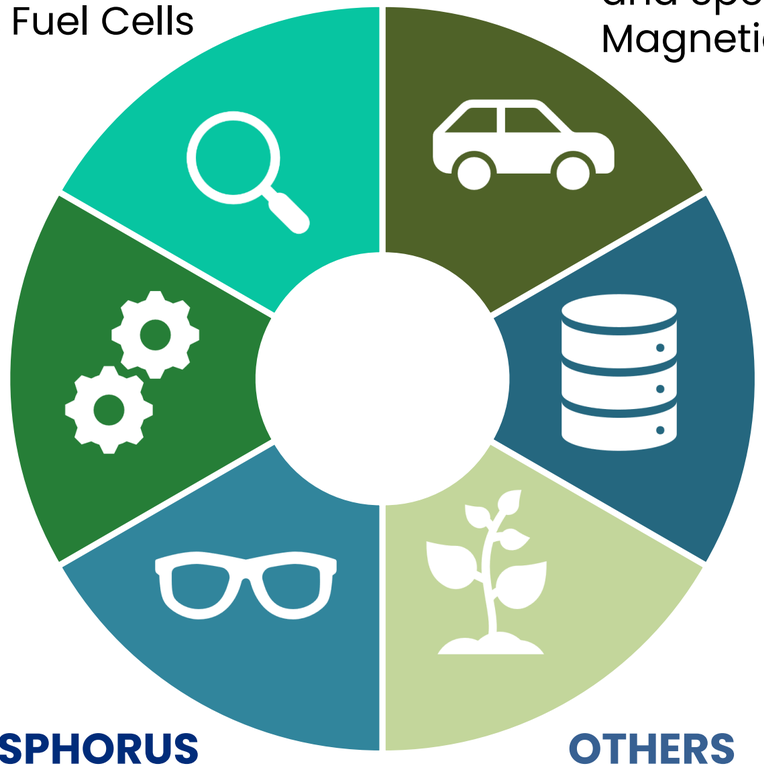
Why Rare Earths?

CERAMICS & GLASS
Ce, La, Pr, Nd, Gd, Er, Ho
Polishing media, UV resistant glass, Thermal glass, Capasitors, Sensors, Colorant, Refractories, Fuel Cells

MAGNETS
Nd, Pr, Sm (Tb, Dy)
Motors and generators, HD Drives, Microphones and Speakers, MRI, Defense applications, Magnetic refrigerant

Oxidized State

CATALYST & CHEMICAL PROCESSES
La, Ce
Petroleum refining, Automotive catalyst, Diesel additives, Water treatment



METAL ALLOYS
La, Ce, Pr, Nd, Y
NimH **batteries**, Superalloys, Al – Mg Alloys, Steel

Metallic State

PHOSPHORUS
Eu, Y, Tb, Nd, Er, Gd, (Ce, Pr)
LED, Laser, Flat Panel Display, Fluorescent lamps, Xray Imagining, Optical sensors

OTHERS
Fertilizer, Pigments, Nuclear, Medical Tracer

Can’t we just mine for more rare metals?

- **Costly** and inefficient because extracting even a very small amount of rare earth metals requires large areas to be mined.

- The process can have enormous **environmental impacts**. Mining for rare earth minerals generates large volumes of toxic and radioactive material, due to the co-extraction of thorium and uranium — radioactive metals which can cause problems for the environment and human health.

- Most rare-earth metals mining occurs in **China** (>70% of global supply producer). This concerns long-term availability, particularly after China threatened to restrict its supply in 2019 during its trade war with the US.

Bayan Obo, Baotou, Inner Mongo

Bayan Obo Mining District

白云鄂博矿区
Baotou, Inner Mongolia
China
014080

Directions | Save | Nearby | Send to phone | Share

Quick facts

Bayan'obo Mining District, or Baiyun-Obo or Baiyun'ebo, is a mining town in the west of Inner Mongolia, People's Republic of China. It is under the administration of Baotou City, the downtown of which is more than 120 kilometres to the south. Wikipedia

Photos

Restaurants | Hotels | Things to do | Museums | Transit | Pharmacies | ATMs

10.00 km 8.00 km 6.00 km 4.00 km 2.00 km 0

BAYAN OBO MINING DISTRICT
白云鄂博矿区
Anda Mengcan
安达蒙餐
Baiyun ebo Ave
S104
Dr1M Ave
WUBURI WULAN HUDUGE
乌布日乌兰呼都格
S104
S104

Measure distance
Click on the map to add to your path
Total distance: 10.00 km (6.22 mi)

Layers

US Fighter Jets And Missiles Are In China's Rare-Earth Firing Line

Everything from Lockheed Martin Corp.'s F-35 Joint Strike Fighter jet to guided missiles and lasers used to determine targets rely on Chinese rare earth minerals to perform key functions.

World | (c) 2019, Bloomberg | Pratish Narayanan, Joe Deaux, Bloomberg | Updated: May 30, 2019 4:20 pm IST

TRENDING


"I Carry India With Me Wherever I Go": Google CEO Sundar Pichai


Cristiano Ronaldo In Spat With South Korean Player During World Cup Loss


Goldy Brar, Moose Wala Murder Mastermind Caught In US, Was Fleeing Rivals


Entertainment
10 Iconic Bollywood Costumes
12 Slides

Image credit: SeongJoon Cho — Bloomberg

A US Air Force F-35A stealth fighter jet manufactured by Lockheed Martin at Seoul Airport, South Korea.

China's grip on the global market for rare-earth metals gives it the ability to target American weaponry in its trade war with the U.S.

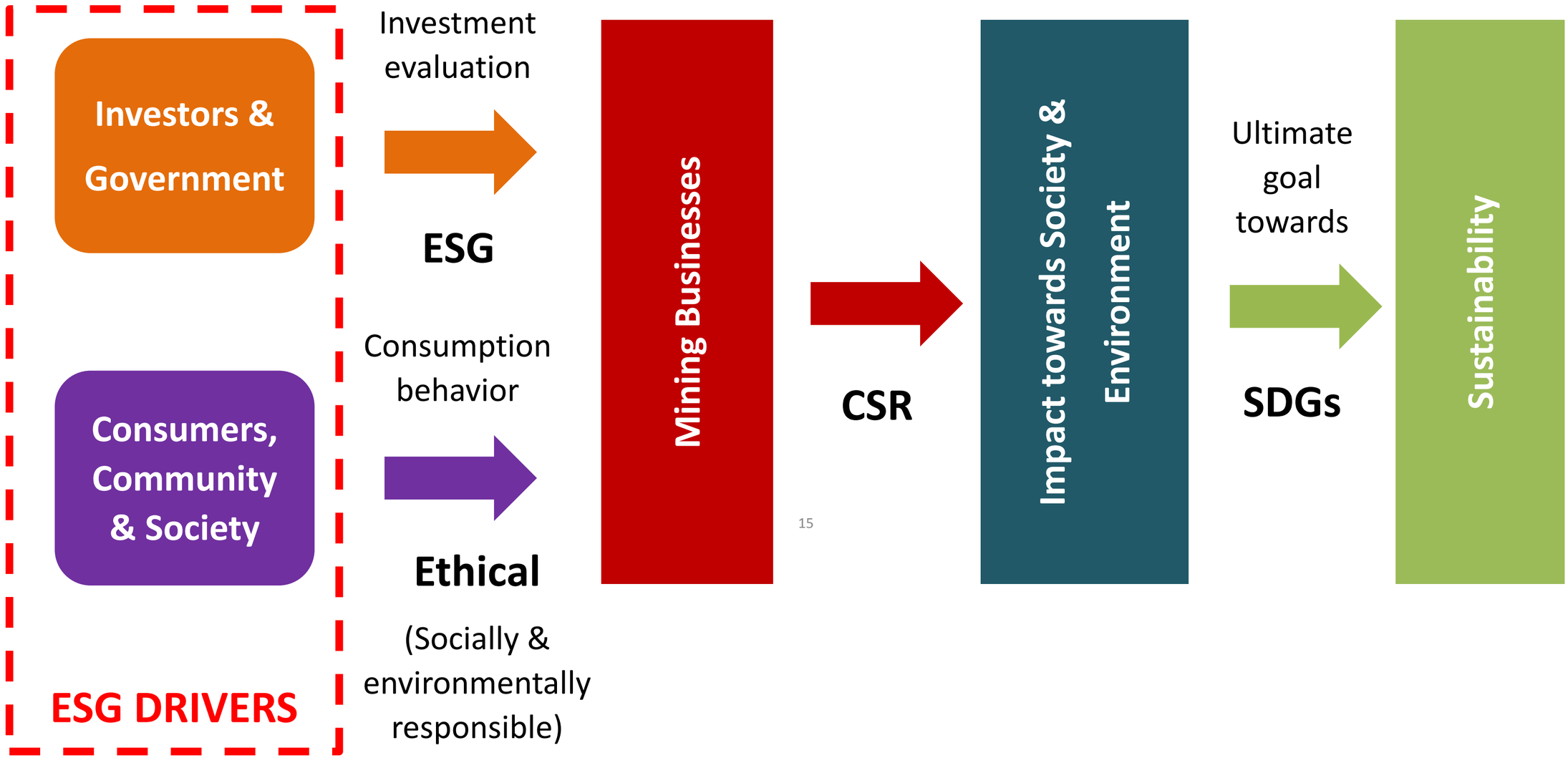
Rare-Earth Elements Crucial to Defense

The U.S. has identified 35 metals or minerals crucial for its industrial base. Among them are:

Name	Properties	Aerospace Uses
Gallium	Superconductivity	Computer chips, light-emitting diodes
Neodymium	Extremely powerful, durable magnets	Missile guidance systems
Samarium	High-temperature magnetism, absorbs neutrons	Nuclear reactor control rods, lasers
Praesodymium	Makes stronger, more heat-tolerant alloys, permanent magnets	Aircraft engines, satellite components
Yttrium	Alloy strengthener, glass clarifier	Microwave emitters, optical coatings, LEDs
Promethium	Low radioactivity	Long-lived batteries for missiles
Lanthanum	Glass clarifier, reacts with hydrogen	Optics and lenses, night-vision goggles, fuel cells
Europium	Phosphorescence	LEDs, plasma displays

Each F-35 jet contains some 920 pounds of yttrium, terbium, and other rare-earth elements, particularly for their advanced targeting systems, according to a Congressional Research Service report from 2013.

Where does ESG fit in the Mining sector?



Source: Relationship between SDGs, CSR and ESG (Created by Raja Ehsan Shah, R.S.S. June 2022)

WHAT ARE THE ESG DRIVERS?

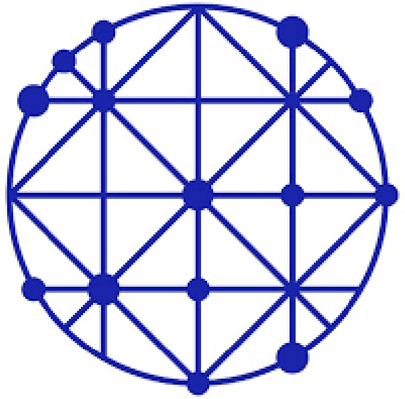
GLOBAL

- UN SDGs
- Paris Agreement
- UN Global Compact
- UN Principles for Responsible Investment

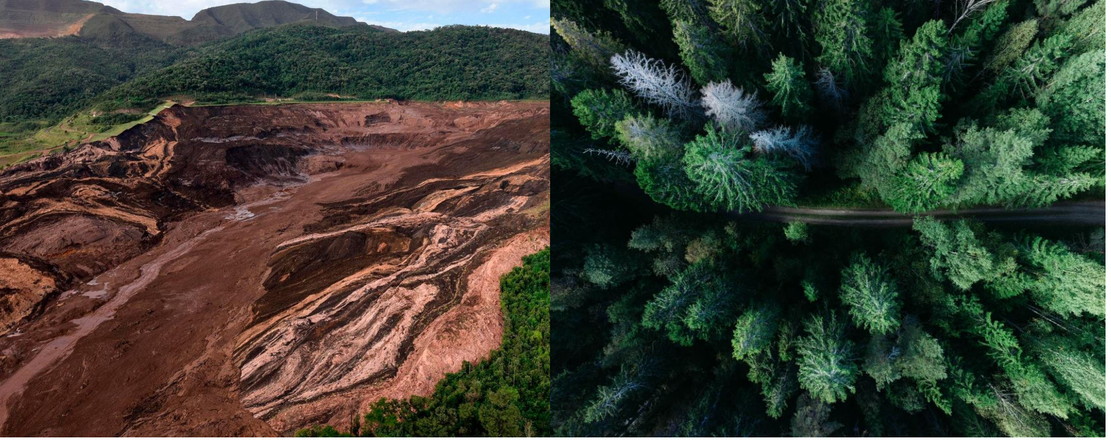
NATIONAL

- 12th Malaysia Plan
- Malaysia Nationally Determined Contribution
- Bursa Malaysia Sustainability Requirements
- Bank Negara Malaysia's Climate Change and Principle-based Taxonomy

CORPORATE



- Total value generation
- Access to finance
- Risk management
- Stranded assets
- Business resilience
- Social license to operate



Mining Industry

General State of ESG Reporting

1

93% or world's largest companies disclose environmental & social performance

2

Investors increasingly demand sustainability information

3

The pressure for SMEs to disclose sustainability performance grows

4

Challenge remain to be diverse reporting frameworks and standards

ESG Reporting in Mining Sector

01 Demand for disclosures are increasing

02 Frequently reported environmental and social issues

Environmental

- Impact on biodiversity
- GHG emissions
- Energy use
- Water management
- Waste & hazardous materials

Environmental

- Health & safety
- Security/human rights
- Rights of indigenous peoples
- Impact on local communities
- Local community engagement

Key Drivers, Frameworks & Standards for ESG Reporting

01 International and national regulation

02 NGO and community pressure driving increased transparency of mining companies

03 Stock exchanges requiring ESG information

04 Growing investor demand for sustainability information

05 Key ESG reporting frameworks and standards used by mining companies

Reporting frameworks and standards for mining companies

- an international organization which aims to strengthen the environmental and social performance of the mining and metals industry and enhance mining's contribution to society.
- ICMM Principle 10.3 requires ICMM members to "Report annually on economic, social and environmental performance at the corporate level using the GRI Sustainability Reporting Standards."

- The (Global Reporting Initiative) GRI Standards is the leading framework for corporate sustainability reporting of large companies.
- A special guidance document for companies in the mining and metals sector, 'GRI's Mining and Metals Sector Disclosures' document.
- Mining has been identified as a priority 1 Sector for the GRI Sector

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- SASB developed 77 industry specific sustainability reporting standards, published in 2018.
- The Metals and Mining Sustainability Accounting Standard captures the risks associated with company management of tailings storage facilities.

The Mining Association of Canada
ADVOCACY STEWARDSHIP COLLABORATION

- The Towards Sustainable Mining (TSM) program to encourage sustainable mining practices of Canadian mining companies.
- MAC members commit to a set of guiding principles and are required to report on their performance annually through 30 environmental and social performance indicators

IFC
International Finance Corporation
WORLD BANK GROUP

- The eight IFC's Performance standards (PS) concern environmental and social risk management of projects, notably large (including mining) projects.
- PS 1 covers reporting obligations at project level and encourages sustainability reporting of the company.
- PS 2-8 covers specific environmental and social impact areas.
- PS can be used by any company and their use is a precondition for IFC financing.

Responsible Mining Foundation

- The Responsible Mining Index Framework of RMF sets out the core content of the Responsible Mining Index (RMI).
- The framework provides a comprehensive reference of the major aspects of responsible mining which is based on society expectations of large-scale mining companies.
- The framework includes information on 43 topics and provides indicators and metrics that are used in the RMI assessment to measure mining company policies and practices on these topics.

- The IIRC Reporting Framework assists organizations report their financial, and nonfinancial performance, with an emphasis on how the organization creates value over time. T
- The Framework emphasize value creation for all organization's stakeholders, including employees, customers, suppliers, local communities and policy-makers.
- Framework is relevant for all business sectors, including the mining sector.

- The OECD Guidelines for Multinational Enterprises (MNEs), and associated Due Diligence Guidance for Responsible Business Conduct (RBC) set out principles of environmental and social due diligence and reporting.
- Highly relevant to the mining sector due to the sector's dominance by MNEs.
- The OECD Guidelines for MNEs are referenced in various other guidelines and reporting frameworks such as the GRI Standards.

Sustainable Procurement & Responsible Sourcing

01

Core elements of mining company procurement:

- Sustainable procurement
- Responsible Supply

02

Social and economic benefits of transparent local procurement in mining

03

Responsible mineral sourcing – implications for transparency in mining

- SDG 12 responsible consumption and production
- OECD Due Diligence Guidance
- Conflict Minerals
- VSI programs

What about Governance?

Minimizing impacts of environmental and social issues can only happen with good governance.

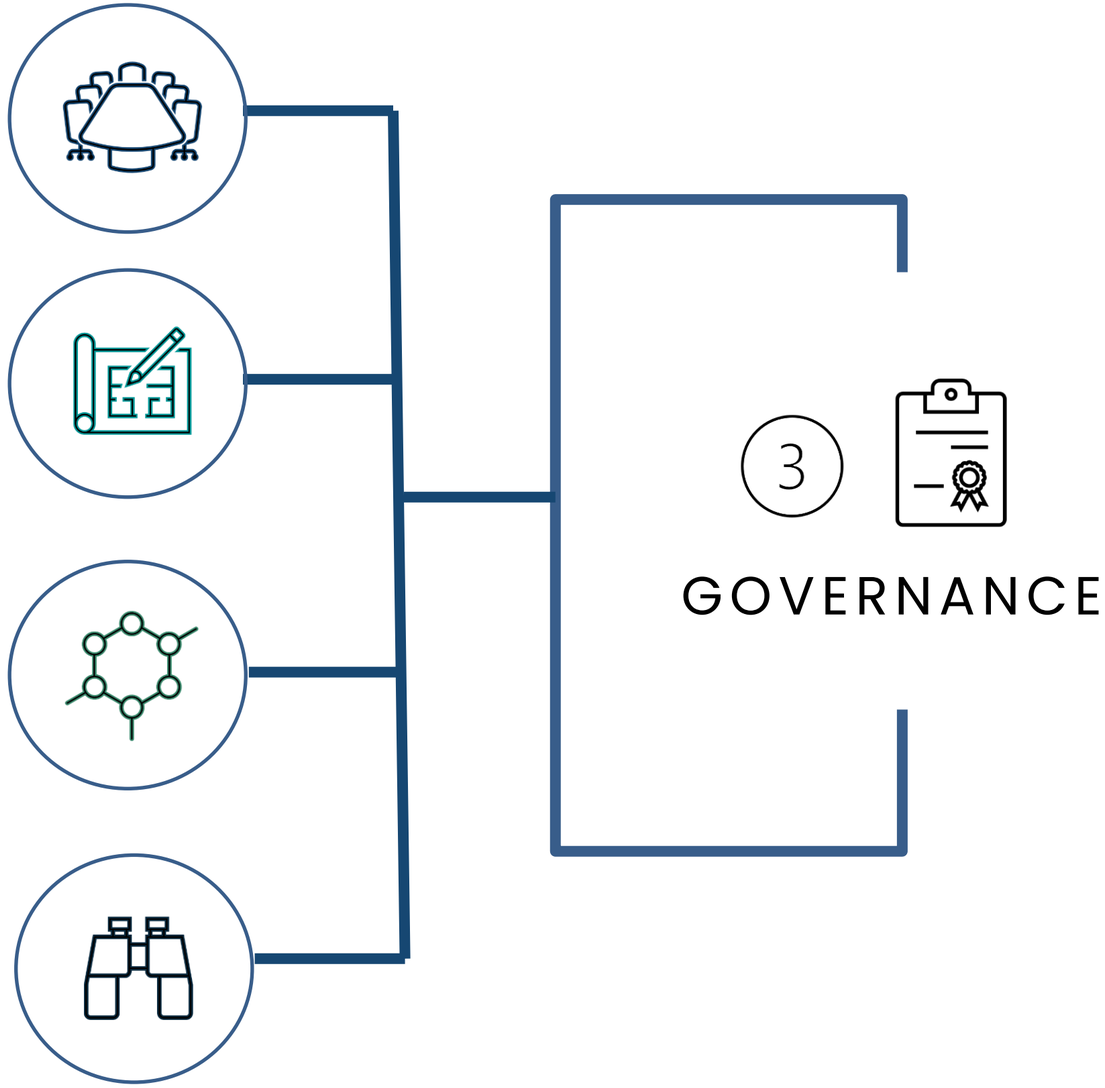
Governance

Corporate board composition and structure

Strategic sustainability oversight and compliance

Mitigation of conflicts and interest

Shareholder engagement & transparency



Mining Industry

EIAs as Part of Govt. Approval Process for Mining Projects

1

Point of entry for govt. to approve a project

2

Public consultation

3

Role of EIA compliance

4

Environmental and economic returns are assessed separately – cost of rehabilitation

Sustainability Reporting Trends for Mining Industry in Selected Countries

Canada

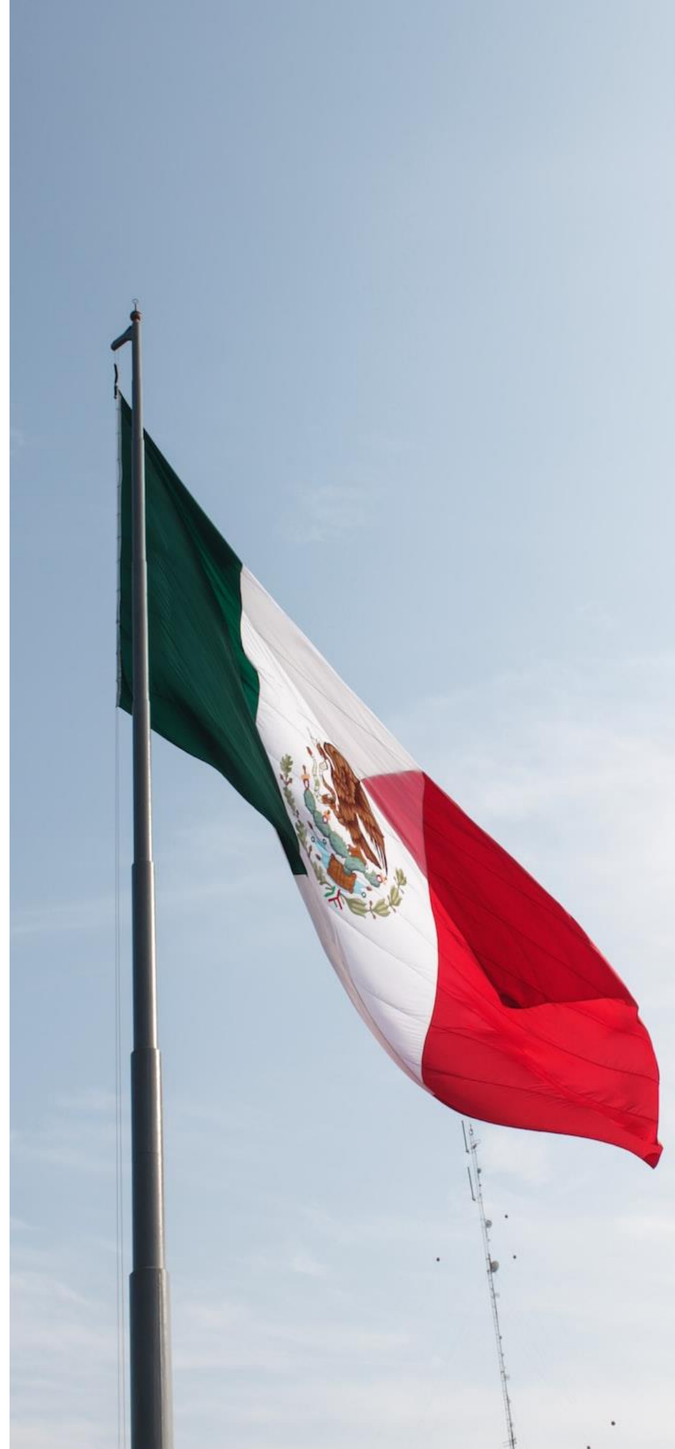
Leading mining country and one of the largest producers of minerals and metals

- The Canadian mining sector is a leader in sustainability reporting with 27% of companies reporting on their environmental and social performance.
- Key drivers for sustainability reporting of the Canadian mining sector is the Mining Association of Canada's Towards Sustainable Mining (TSM) program and the Responsible Business Conduct program, both supported by the Canadian government.
- Under the TSM program, Mining Association of Canada member companies commit to reporting on a set of TSM Guiding Principles through annual TSM Progress Reports.
- Results of each of the mining facilities under the program are publicly available and externally verified every three years.

Mexico

Largest producer of silver, and also a top-10 world producer of other minerals

- Sustainability reporting in Mexico has surged in recent years due to a mix of government regulation, stock exchange innovation and investor pressure.
- 1996 → as part of the North American Agreement on Environmental Cooperation within Mexico, US, and Canada, facilities must annually report their pollutants released to the air, water and land to the national Pollutant Release and Transfer Register (PRTR).
- General Law for Prevention and Comprehensive Management of Waste → mining companies must present their waste management plans.
- National Water Law → companies must provide information on quality of wastewater discharges.
- General Law on Climate Change → companies to report on their carbon emissions.
- Mexico's stock exchange Bolsa Mexicana de Valores (BMV) introduction of Mexico's first sustainability index → To be listed on the index to attract investments, companies need to publish sustainability reports. There are 111 companies listed under the materials sector covering mining and metals companies.
- Integrated Reporting Framework → popular amongst Mexican companies as it focus on meeting the information needs of investors.



India

Abundant in natural mineral resources and is one of the world's main producers of iron ore and bauxite.

- Top 500 listed companies on the National and the Bombay Stock Exchanges → required to produce Business Responsibility (BR) Reports.
- Securities and Exchange Board of India (SEBI)→ prescribes a template for the information that should be included in BR Reports for all entities listed on India's stock exchanges
- If companies are already publishing their sustainability information, the company does not need to submit another BR report but needs to specify where the nine BR principles are covered in their reporting.
- The regulation calls for reporting on a range of sustainability areas → GHG emissions, energy use, stakeholder engagement and labor and human rights.
- Although not directly aimed at companies in the mining and metals sector, the regulation on business responsibility reporting affects many of India's largest mining and metals groups are listed on India's stock exchanges.

China

The world’s largest producer of coal, gold and most rare earth minerals. China is also the world’s leading consumer of most mining products.

- China’s mining companies are quick at meeting requirements for sustainability reporting → regulation from government and stock exchanges to maintain legitimacy.
- Regulation → key to enhance sustainability reporting in the mining industry although there is no specific regulatory focus on sustainability reporting of the industry.
- Rather, mining companies are covered by reporting regulations such as for listed companies and SOEs.
- There has been growing use of international voluntary guidelines→ GRI reporting guidelines.
- This increased emphasis on international standards has largely been the demand of the international market which Chinese mining companies respond to growing global resource and energy demand.
- Survival in the international market means adhering to stricter sustainability standards and providing information on key environmental and social indicators.

Key Messages

- ESG reporting in mining is currently not meeting stakeholders' expectations.
- Governments have not specifically targeted mining sector for ESG reporting (but it falls under wider policies).
- Governments have an important role to place – to enhance ESG reporting in mining.
- Mining companies (and govt.) can consider modern technologies for real time monitoring around mining operations – to get site specific data.
- Voluntary Sustainability Initiatives (VSI) enhance sustainability and transparency.
- Need for integration of ESG reporting and SDG attainment in mining sector.
- Government role – EIA and information within.
- Integrated ESG reporting – economic, environmental, and social impacts of mining.

THANK YOU

By: Nik Meriam Sulaiman, Goh Hong Ching, and Raja Shazrin Shah

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