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Reporting standards and their importance for investment evaluation

November 2016



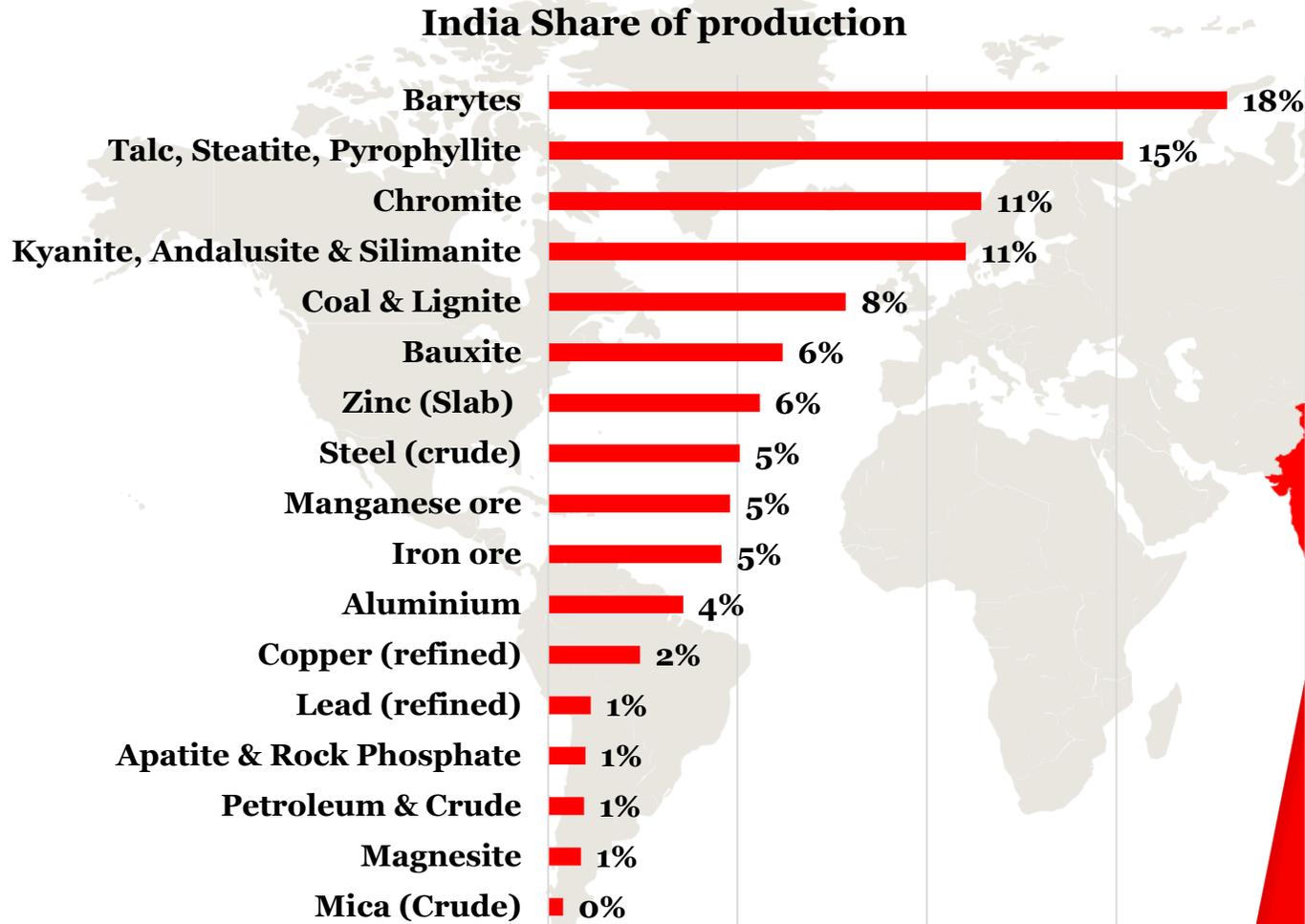
Contents

S No.	Particulars	Slide No.
1	India - One of the leading Mineral Producing Country	3
2	Potential Growth Levers	4
3	Recent initiatives for mineral exploration in India	5
4	Reporting Standards	6
5	India needs to move to a much acceptable Global Mineral Reporting Standard	7
6	Features of CRIRSCO and UNFC reporting standards	8
7	Comparison of CRIRSCO and UNFC Reporting Standards	9
8	CRIRSCO's template of reporting	10
9	CRIRSCO Reporting Standards are more Prevalent	11
10	Valuation Standards code for public reporting	12
11	Challenges Faced In Investment Evaluation	13
12	Way Forward	14

India - one of the leading mineral producing country

India ranked 5th in terms of total mineral production (by tonnes) and 10th in terms of mineral value (in USD)*

India Share of production



India ranked in top 10 mineral producers

- 2nd in Barytes production
- 3rd in Chromite Production
- 3rd in Coal Production
- 3rd in Zinc (slab) production
- 4th in Steel Production
- 5th in Iron ore production
- 6th in Bauxite production
- 7th in Manganese ore production
- 8th in Aluminium Production

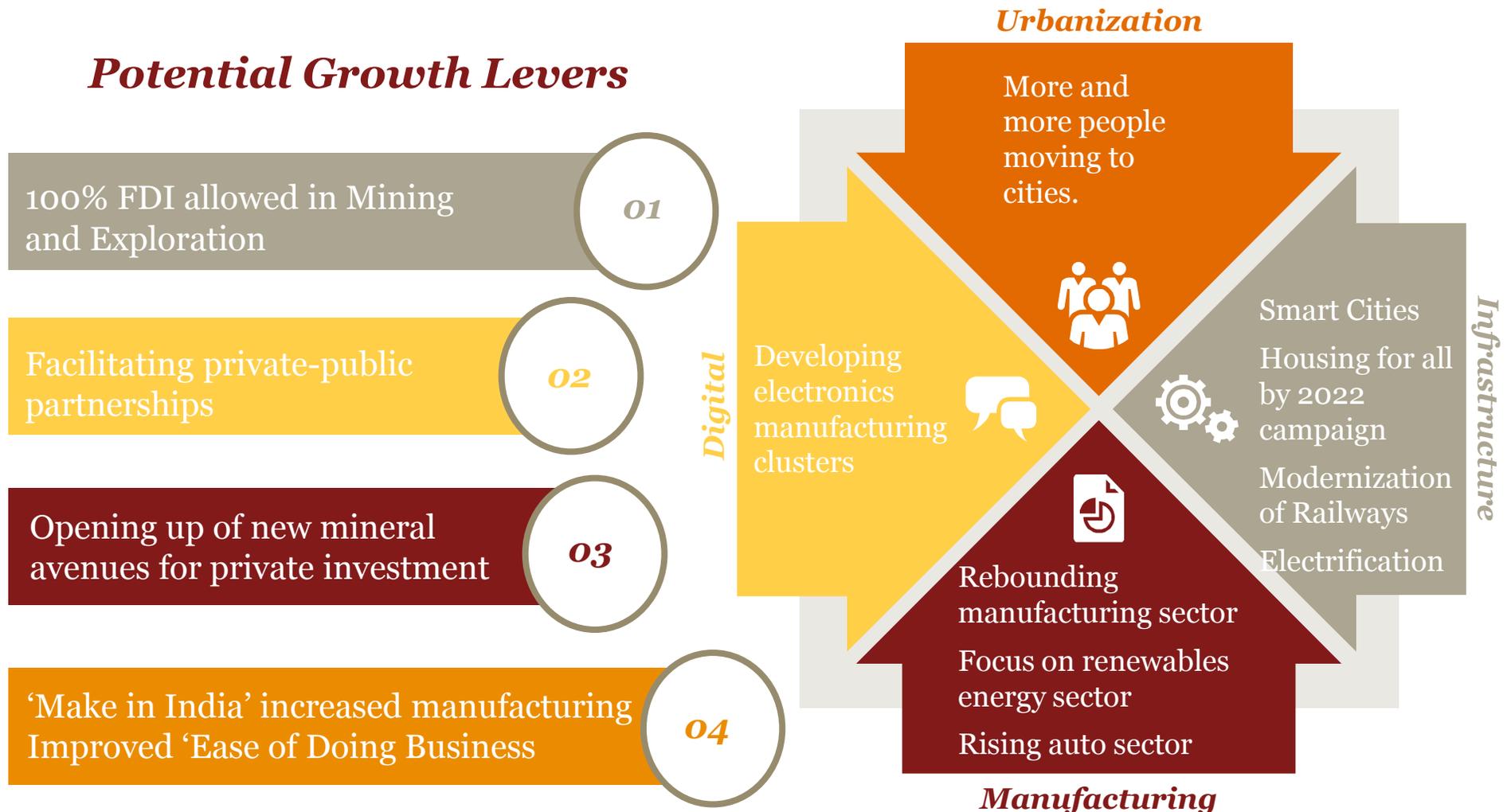
* Source: World Mining Data 2016, Vienna, World Mining Congress

Source: Annual report Ministry of Mines 2014-15

...and will continue to lead in future

India holds a fair advantage in cost of production and conversion costs. It's **strategic location** enables convenient exports to developed as well as developing markets.....

Potential Growth Levers



Recent initiatives for Mineral Exploration in India

Initiatives are being taken to improve Mineral Exploration standards and scale, **Reporting Standards** needs to be improved and aligned to Global acceptance to induce **investments**

Recent policies and rules	Specific incentive structure for private sector			
<ul style="list-style-type: none"> • MMDR Amendment Act 2015 • Coal Mines Special Provisions Act 2015 • Minerals Rules, 2015 (Evidence of Mineral Contents) • Mineral Rules, 2015 (Auction & NERP) • National Mineral Exploration Trust Rules, 2015 • National Mineral Exploration Policy • Atomic Mineral Policy • Offshore Mineral Policy 	<ul style="list-style-type: none"> • Free access to pre-competitive geoscience data • The government will auction blocks identified for exploration: <ul style="list-style-type: none"> - if actionable resources are found, revenue will be shared - if no actionable resources are found, exploration expenditure to be reimbursed on a normative cost basis 			
Recent initiatives for exploration by GSI	Distribution of 100 blocks identified by GSI for regional and detailed exploration			Grade of exploration
<ul style="list-style-type: none"> • Online Core Business Integrated System for assimilating and sharing data, information etc. to all the stakeholders • National Geo-science Data Repository • National Centre for Mineral Targeting • 100 mineral blocks identified by GSI for regional and detailed exploration 	G2	G3	G4	
Ferrous minerals	8	17	9	
Industrial and fertiliser minerals	15	12	10	
Non-ferrous and strategic minerals	13	13	29	
Precious minerals	4	4	20	

REPORTING STANDARDS plays an important role in building the Trust and Confidence in potential mining areas

The risks associated with investment in mining sector needs to be effectively and transparently framed and communicated through Reporting standards

Trust & Confidence on Mining Potential

Country's Perspective



Country's Perspective

- Proper assessment of mineral endowment of country
- Enables a country to strategically plan and formulate policies
- Helps in preparing in roadmap for sustainable development
- Attract investments boosting economic growth

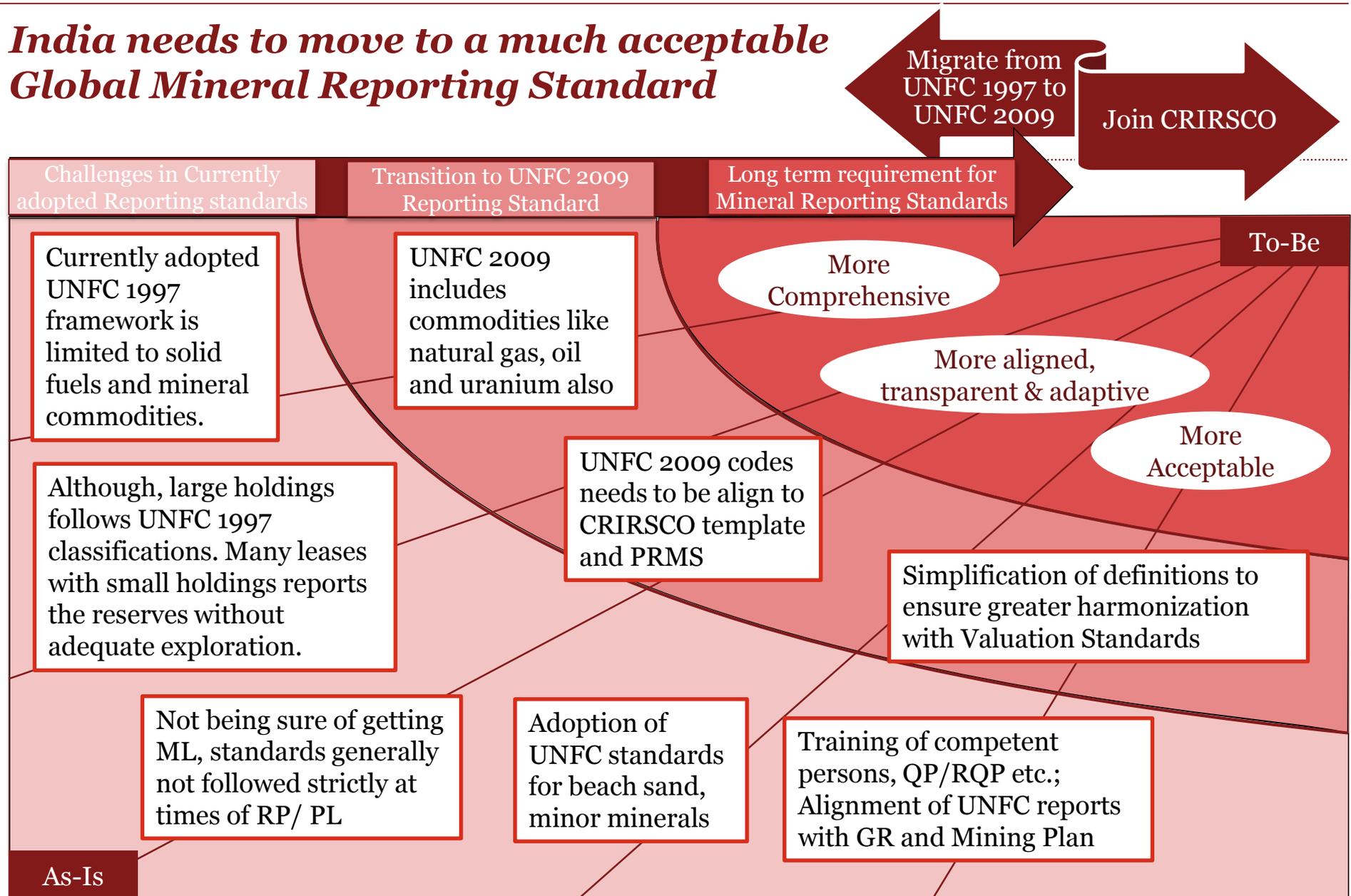
Investor's Perspective



Investor's Perspective

- Mine planning and project feasibility
- Asset and company valuations
- Acquisitions and disposals of properties
- Fund raising

India needs to move to a much acceptable Global Mineral Reporting Standard



Features of CRIRSCO and UNFC reporting standards

As India is moving towards incentivising private/global investments in Mining Sector, it needs to adapt to a much accepted Mineral Reporting and Valuation Standards

	CRIRSCO	UNFC	
	<p>Adopted by major mining nation (except the Centralized Economies) who are also the main investors in developing nations in mineral sector. However, accepted by most of Valuation Standards</p>	<p>Adopted by countries like India and China, Centralized Economy and developing nations where Government plays larger role in mineral sector governance and extraction.</p>	
	<p>Provides definitions for mineral resource and ore reserve classes compatible with international agreements; Helps in protecting investors interests;</p>	<p>Versatile for monitoring resource assets for public entities and national planning purposes and act as useful sustainable development planning tool; Includes the Socio-economic and Environmental aspects</p>	
	<p>Highly dependent on Competent Persons defined and therefore sometimes can attach subjectivity in assessment. Does not regulate companies' internal classification or reporting systems.</p>	<p>Referred as complex and difficult to adept; not designed specifically for stock market reporting: not accepted by security exchanges for listing purposes in major mining nations.</p>	
	<p>CRIRSCO Codes are more relevant to Investors and preferred by the accounting standards; Aligned to corporate reporting and most of the national codes</p>	<p>Mostly aligned with Regulatory requirements but difficult to align with prevalent CRISCO codes, corporate reporting and Valuation Standards</p>	

Comparison of CRIRSCO and UNFC Reporting Standards

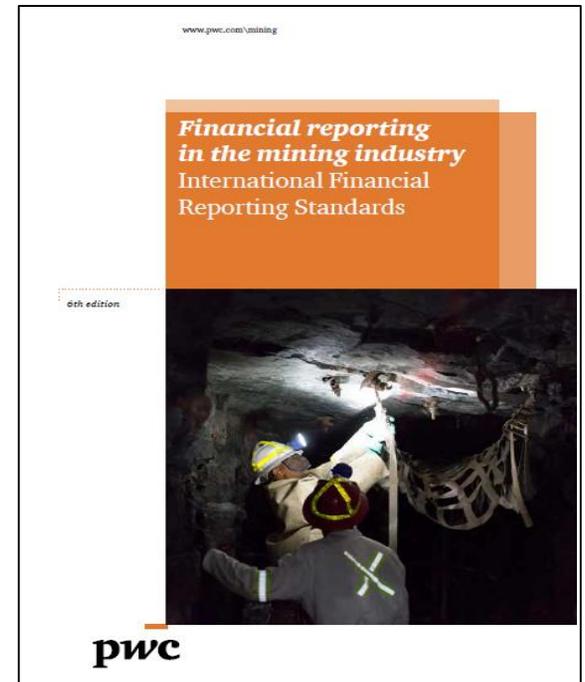
CRIRSCO codes are more prevalent while UNFC codes are more comprehensive

Although, UNFC codes are more comprehensive but needs to be adaptive and requires Bridging Documents so as to align with CRIRSCO Templates and Valuation Standards generally accepted by the investors stakeholders and Valuation Experts

Parameters	CRIRSCO Style Code	UNFC System
General guidelines for classification	is systematic and methodical but devoid of rules	systematic, methodical and rule based; but are rigid
Dimensional Framework	Two dimensional framework (Geological and Technical/ Economic axes)	Three dimensional framework (Economic, Feasibility (technical) and Geological axes)
Categories	Five possible categories of resources and reserves	Theoretically 36 possible categories of mineral resources, though many might not be used
Government/ Market Reporting	Market- related reporting only	Government and market-related reporting
Competent Person	Competent Person requirement	Studies must be undertaken by a person with appropriate (but not specified) qualifications
Investor Relations	Commonly used by Western banks, International mining companies, etc.	Used by Government institutions to report National Mineral Inventory

CRIRSCO's template of reporting of Mineral Reserves and Resources is preferred by IASB

- Currently, there is no specified global reporting standard for the measurement and classification of mineral potential.
- The IASB's Extractive Activities discussion paper released in **April 2010** assessed whether one framework could serve as a consistent set of rules for the mining industry.
- It concluded that CRIRSCO's appropriate international reporting template that could be used to promote greater consistency under IFRS. The CRIRSCO template was considered the preferred option by IASB as it:
 - ❑ **is a comprehensive classification system that is broad in scope to cover all types of minerals;**
 - ❑ **has kept pace with industry developments and generally accepted current practices;**
 - ❑ **has wide acceptance and consistency with a number of national codes.**
 - ❑ **presents information to investors, advisors and satisfy the regulatory requirements**



PwC in its Thought Publication namely **Financial Reporting in the Mining Industry** pointed out the specific needs of global standards for reporting in mining sector for more transparent and efficient estimates of reserves and resources

CRIRSCO Reporting Standards are most prevalent

The combined value of mining companies listed on the stock exchanges of these countries accounts for more than 80% of the listed capital of the mining industry.

CRIRSCO Member Nations

Australia

Brazil

Canada

Chile

Europe

Kazakhstan

Mongolia

Russia

South Africa

USA



India follows UNFC 1997 classifications and Reporting standards for mineral resource estimations.

Philippines, Indonesia, Peru have CRIRSCO compatible Codes but not members of CRIRSCO

Source: www.criirSCO.com

Valuation Standards code for public reporting of technical assessments and valuations of mineral assets

Typical Issues related to Mineral Valuation

- ✓ Should the focus just be on the valuation of reserves and resources or should to entire business & other aspects?
- ✓ Understanding the Codes used for identifying minerals is fundamental to the valuation of those assets. Which code to be rely upon?
- ✓ Which Valuation method to be preferred viz.
 - **Market Based**- comparing with other asset value
 - **DCF** – forecasting of cash flow from project
 - **Cost Based** – identification of cost equivalents

Typical Valuation comprises of

- **Technical Assessment Report** – elements that may affect the economic benefit of a Mineral Asset.
- **Valuation Report** - expresses an opinion as to monetary Value of a Mineral Asset
- **Independent Expert Report**– as required by Applicable Acts, Corporation Laws, Listing rules of Stock Exchanges

Parameters for valuation of mineral assets



- ✓ **DCF based approach is most commonly used in extractive industry**
- ✓ **Mineral reporting standards improvement will lead to better assessment and valuation.**

Challenges faced in investment evaluation

- Valuation of mining assets linked to resources or reserves potential (e.g. EV/tonne) and evaluators face challenges like:
 - If to consider total resources or only reserves?
 - Resources and reserves category should not be treated equally during valuation due to difference in level of confidence.
 - Subjectivity in assigning probability to probable reserves or different category of resources
 - Buy side and sell side may have significantly different perspective
- As different bidders see different value (some of which may not be practical), bidders may push bids to extremes making project unviable.
- G2, G3 level exploration may not attract foreign investors to associate with development and operations of mining assets in India

□ *The International Mineral Valuation Committee (IMVAL) was formed in July 2012, with its goal being to develop a CRIRSCO-equivalent template for mineral property valuation.*

□ *The IMVAL template was released in May-July 2015 for global exposure and initial harmonization*

Source: www.smenet.org

Way forward

- Selecting the appropriate reporting standards considering:
 - ❑ Ease of adopting : Typical investments and other requirements such as competency, changes required in exploration methodology etc.
 - ❑ Type of commodity
 - ❑ Mapping with potential investors profile.
- Adopting to the reporting standards and its implementation:
 - ❑ Framework for selection of competent/qualified persons who will be responsible for Reporting
 - ❑ Aligning the mineral reporting standards with Valuation principles such as IMVL.
- For classification of mineral reserve may also consider factors such as used in SME guidelines e.g.:
 - ❑ Ease of obtaining permits, licenses etc. in a timely fashion
 - ❑ Cost to markets, location and quality of competing reserves, and ability to compete with such reserves to access the market

Mining investor have only published information to rely on for formulating first point of view to further proceed with detailed investigation of the asset and approve investment plan

Thank You



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Definitions and codes drawn mainly from UNFC (1997) and CRIRSCO

Category	Exploration requirement	Definition
Auction of Mining Lease	<ul style="list-style-type: none"> At least General Exploration (G2) has been completed to establish Indicated Mineral Resource (332) 	<ul style="list-style-type: none"> G2 involves the initial delineation of an identified deposit. reasonable indication of continuity and providing an initial estimate of size, shape, structure and Grade Indicated Mineral Resources may only be converted to Probable Mineral Reserve
Grant of composite licence	<ul style="list-style-type: none"> Preliminary Exploration (G3) has been completed to establish Inferred Mineral Resource (333); 	<ul style="list-style-type: none"> Estimates of quantities are inferred and shall not be converted to a Mineral Reserve. Can be upgraded to Indicated Mineral Resources with continued exploration

Limited exploration requirement: Detailed exploration is not made mandatory before offering blocks on auction.