



COMMITTEE FOR MINERAL RESERVES  
INTERNATIONAL REPORTING STANDARDS



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# An overview of the CRIRSCO International Reporting Template and its relationship with UNFC 2009

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Sandton - 10 November 2014



- Overview of CRIRSCO
- CRIRSCO Members
- Potential Members
- International Reporting Template
- UNFC 2009
- Mapping CRIRSCO and NEA/IAEA

To promote best practice in the international public reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves.

CRIRSCO is an international advisory body without legal authority, relying on its constituent members to ensure regulatory and disciplinary oversight at a national level.

It recognises the truly global nature of the minerals industry and the agreed need for international consensus on reporting standards.

Australasia:	JORC
Canada:	CIM
Chile:	COMISIÓN MINERA DE CHILE
Europe and UK:	PERC IMM
Mongolia	MRC
Russia	NAEN
South Africa:	SAMREC
United States:	SME Guide

ASX Australasia:	JORC Code
CSA Toronto Canada:	NI-43101, CIM Standards
Santiago SX Chile:	The Code for the certification of Exploration Prospects, Mineral Resources and Ore Reserves
ESMA W Europe and UK:	All CRIRSCO aligned incl. PERC
AIM:	CIM, IMM, JORC, NAEN, SAMREC, SME

Hong Kong Exchanges (HKE):	JORC, SAMREC NI 43-101
NYSE and NASDAQ:	SEC Industry Guide 7
JSE South Africa:	SAMREC Code
Moscow, Russia:	NAEN Code

# Potential Members

Argentina

Brazil

China

Columbia

Indonesia

Peru

Philippines

Turkey

Scandinavia



# INTERNATIONAL REPORTING TEMPLATE

for the public reporting of

EXPLORATION RESULTS, MINERAL RESOURCES  
AND MINERAL RESERVES

NOVEMBER 2013

- Advisory only
- National Standards/Codes take precedence
- Model for development of new codes

- Reports prepared for investors or potential investors
- Annual Reports
- Quarterly Reports
- Information Memoranda
- Websites
- Public Presentations
- Stock Exchange Information Systems

- Materiality
- Transparency
- Competency

- Member or Fellow of professional body with enforceable code of ethics
- Five (5) years experience *relevant* to type of mineralization and deposit and the activity being undertaken

Team approach allowed but leader signs off.

Satisfied in own mind able to face peers and demonstrate competence in the commodity, type of deposit and situation.

# Disciplinary Procedure

- Responsibility of National Reporting Organization (NRO)
- International agreements through Recognized Professional Organizations (RPO)

<b>Australasian Institute of Mining and Metallurgy</b>	<b>AusIMM</b>
<b>Australian Institute of Geoscientists</b>	<b>AIG</b>
<b>Canadian Council of Professional Geoscientists</b>	<b>CCPG</b>
<b>European Federation of Geologists</b>	<b>EFG</b>
<b>The Geological Society</b>	<b>GS</b>
<b>Institute of Geologists of Ireland</b>	<b>IGI</b>
<b>Institute of Materials Minerals and Mining</b>	<b>IMMM</b>
<b>Mining and Metallurgical Society of America</b>	<b>MMSA</b>
<b>Society for Mining Metallurgy and Exploration</b>	<b>SME</b>

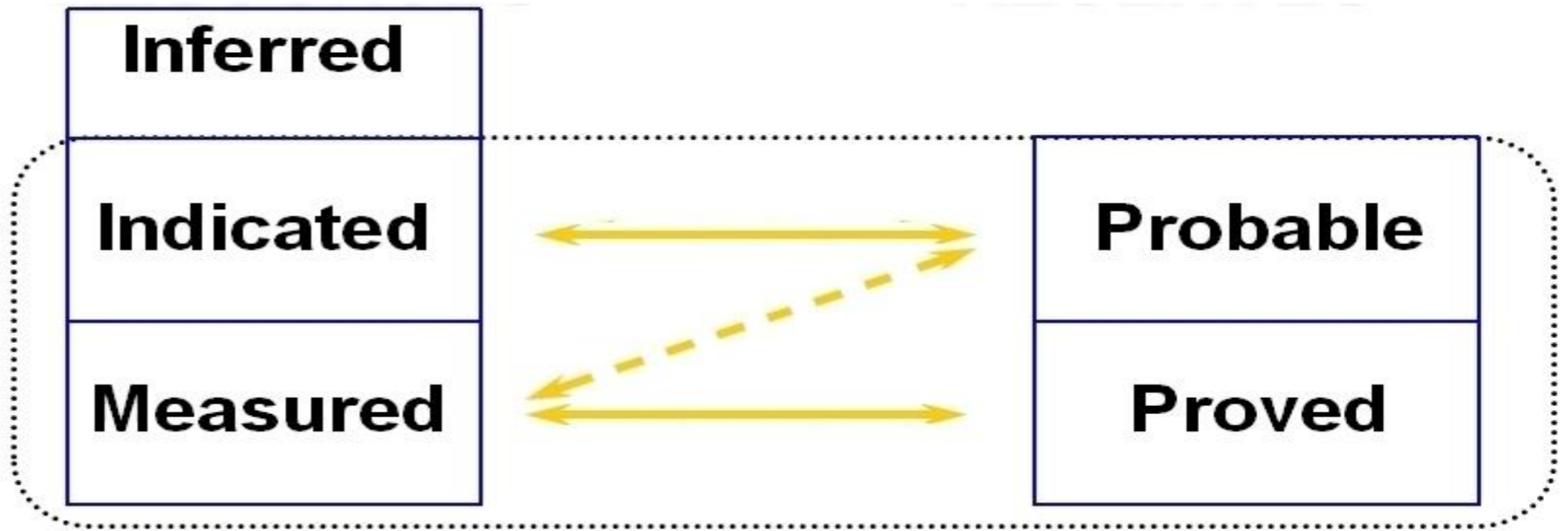


## Exploration Results

### MINERAL RESOURCES

### MINERAL RESERVES

Increasing level of geological knowledge and confidence

Consideration of mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors").



# Modifying Factors

- Mining
- **Processing**
- Metallurgical
- Economic
- Marketing
- Legal
- **Environmental**
- **Social**
- **Infrastructure**
- Governmental

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust **in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.**

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

A Mineral Reserve is the **economically mineable** part of a Measured and/or Indicated Mineral Resource.

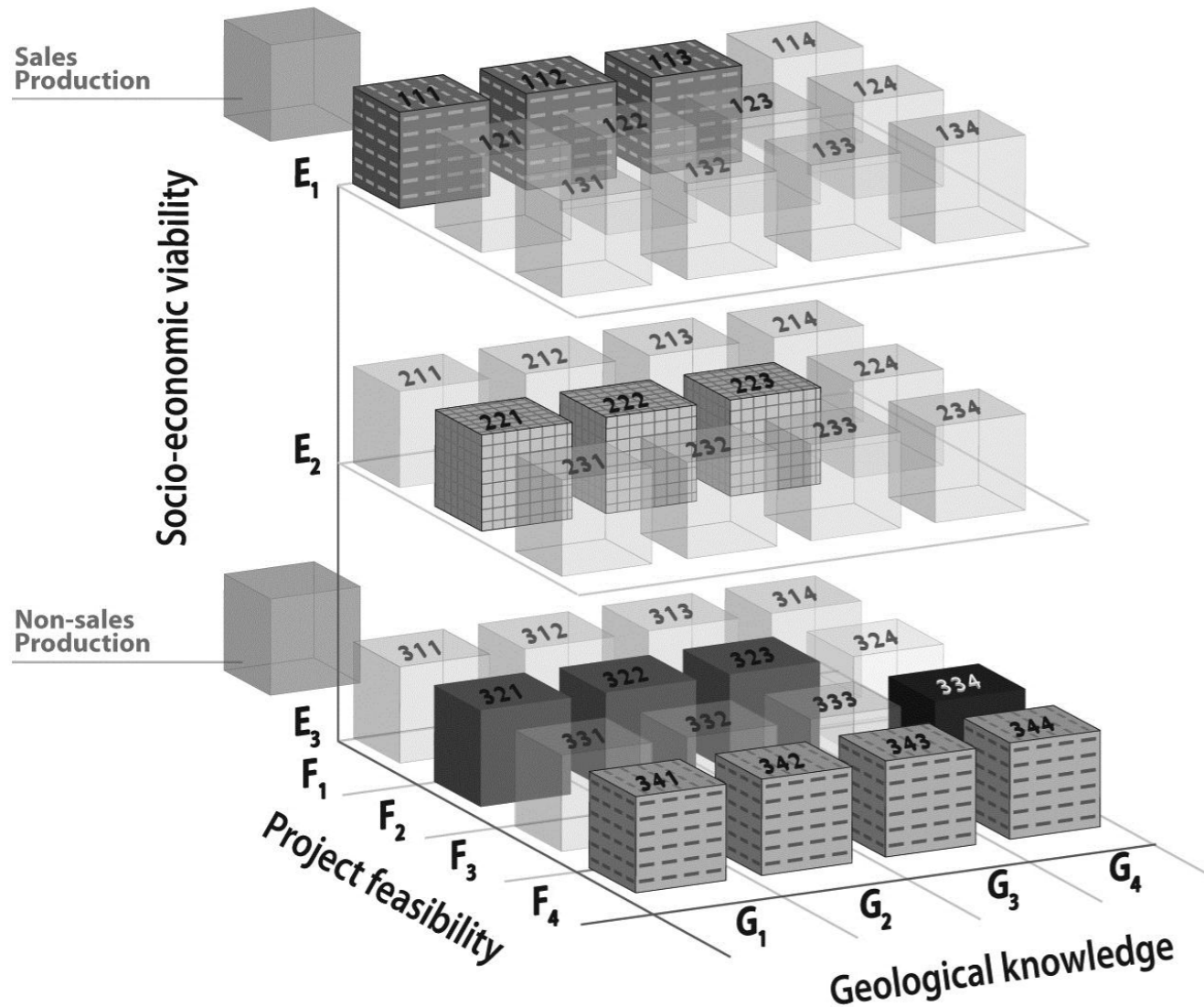
It **includes diluting materials** and allowances for losses, which may occur when the material is mined or extracted and is **defined by studies at Pre-Feasibility or Feasibility level** as appropriate that include application of Modifying Factors.

Such studies demonstrate that, **at the time of reporting**, extraction could reasonably be justified.

The **reference point** at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

- Must be clearly stated Mineral Resources are ***inclusive or exclusive*** of Mineral Reserves
- Two should never be added together
- If inclusive relevant details of unmodified resources should be reported

- 1999 Geneva accord solid minerals only (CMMI)
- 2004 UNFC common definitions modified-oil and gas added
- 2004 CRIRSCO re-constituted
- Member ad hoc group of experts - Mapping UNFC 2004, PRMS
- Member EGRC - UNFC 2009 and Specifications Task Force II
- Member of Technical Advisory Group (TAG)



Generic, Principle based

3 Axis

**E**conomic,

**F**easibility,

**G**eological

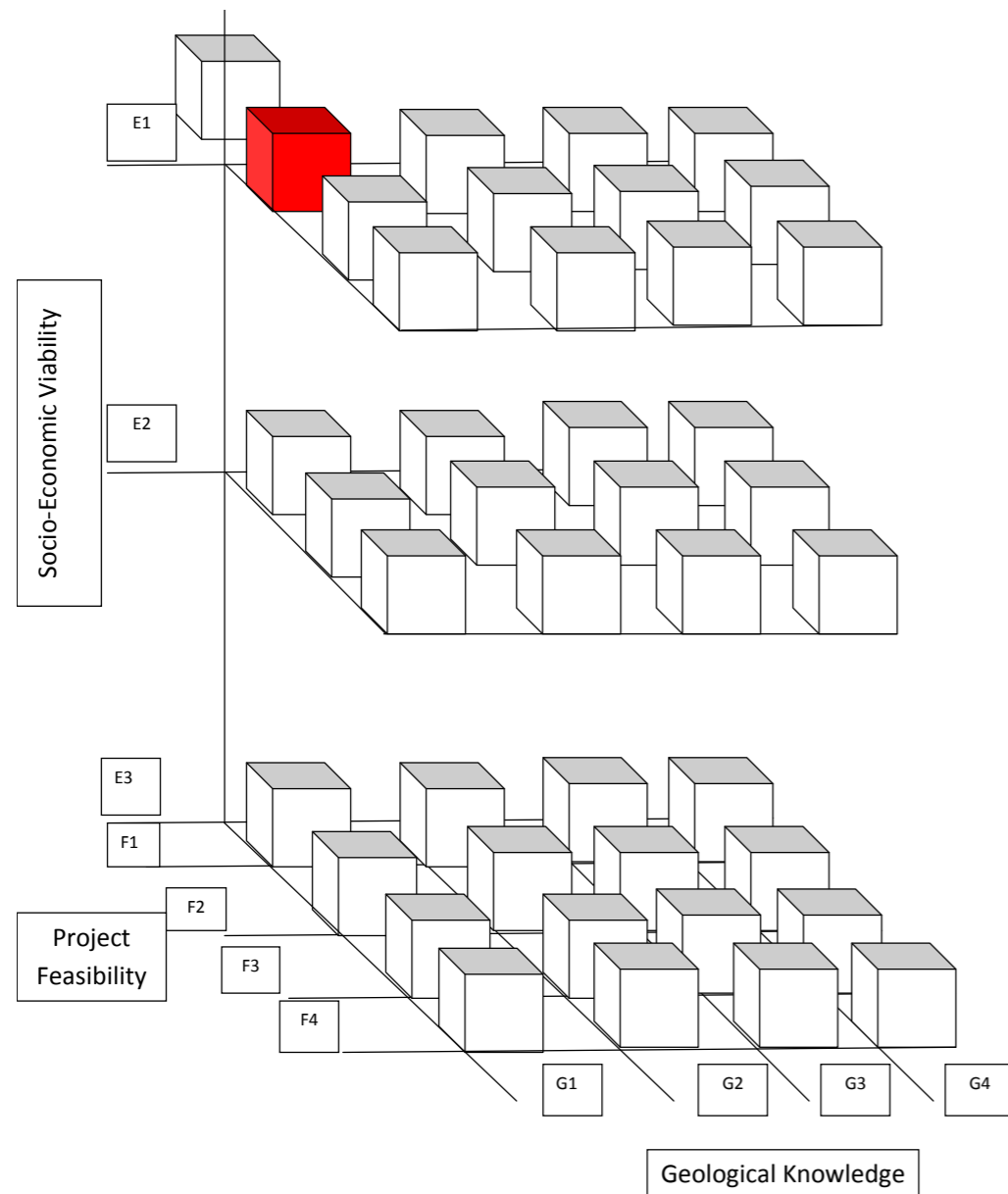
Numerical code

Applied directly or as harmonizing tool

CRIRSCO Template		UNFC-2009 “minimum” Categories			UNFC-2009 Class
Mineral Reserve	Proved	E1	F1	G1	Commercial Projects
	Probable			G2	
Mineral Resource	Measured	E2	F2	G1	Potentially Commercial Projects
	Indicated			G2	
	Inferred			G3	
Exploration Results		E3	F3	G4	Exploration Projects



Total commodity initially in place	Production	Sales Production			
		Non-sales Production			
		Class	Categories		
			E	F	G
	Future recovery by commercial development projects of mining operations	Mineral Reserves	1	1	1,2
	Potential future recovery by contingent development projects or mining operations	Mineral Resources	2	2	1,2,3
		Discovered Not Economic	3	2	1,2,3
	Discovered Unrecoverable		3	4	1,2,3
	Potential future recovery by successful exploration activities	Exploration Results	3	3	4
	Undiscovered Unrecoverable		3	4	4



UNFC (2009)

E1; F1; G1

111

- Mapped to CRIRSCO Template
- Mapped to UNFC 2009

UNFC-2009 CLASSIFICATION					CRIRSCO TEMPLATE		NEA/IAEA CLASSIFICATION		
UNFC CLASSES AND SUB-CLASSES		UNFC CATEGORIES			CRIRSCO CLASSES AND SUB-CLASSES				
CLASS	SUB-CLASS	E	F	G	CLASS	SUB-CLASS	IAEA-NEA CATEGORIES		STATUS
COMMERCIAL PROJECTS	ON PRODUCTION	1	1.1	1	MINERAL RESERVES	PROVED	IDENTIFIED RESOURCES	RAR**	EXISTING
				2		PROBABLE			
	APPROVED FOR DEVELOPMENT	1	1.2	1		PROVED			COMMITTED
				2		PROBABLE			
	JUSTIFIED FOR DEVELOPMENT	1	1.3	1		PROVED			
				2		PROBABLE			
POTENTIALLY COMMERCIAL PROJECTS	DEVELOPMENT PENDING	2	2.1	1	MINERAL RESOURCES	MEASURED	IDENTIFIED RESOURCES	RAR**	PROSPECTIVE
				2		INDICATED			
				3		INFERRED			
	DEVELOPMENT ON HOLD	2	2.2	1		MEASURED			
				2		INDICATED			
				3		INFERRED			
NON-COMMERCIAL PROJECTS	DEVELOPMENT UNCLARIFIED	3.2	2.2	1	INVENTORY (NOT DEFINED IN TEMPLATE)	DEVELOPMENT UNCLARIFIED	IDENTIFIED RESOURCES	RAR**	UNCLARIFIED
				2		(NOT DEFINED IN TEMPLATE)			
				3					
	DEVELOPMENT NOT VIABLE	3.3	2.3	1		NOT VIABLE (NOT DEFINED IN TEMPLATE)			NOT VIABLE
				2					
				3					
EXPLORATION PROJECTS		3.2	3.1	4	EXPLORATION RESULTS		UNDISCOVERED RESOURCES	PROGNOSTICATED RESOURCES	
		3.2	3.2, 3.3	4				SPECULATIVE RESOURCES	

- Generic system - solid minerals, nuclear fuel and fossil energy
- Framework classification not a reporting standard
- Allows for non economic mineralization
- No competency requirement
- No Securities Exchange recognition

**Important tool for harmonized generic terminology  
at a level suitable for global communication**



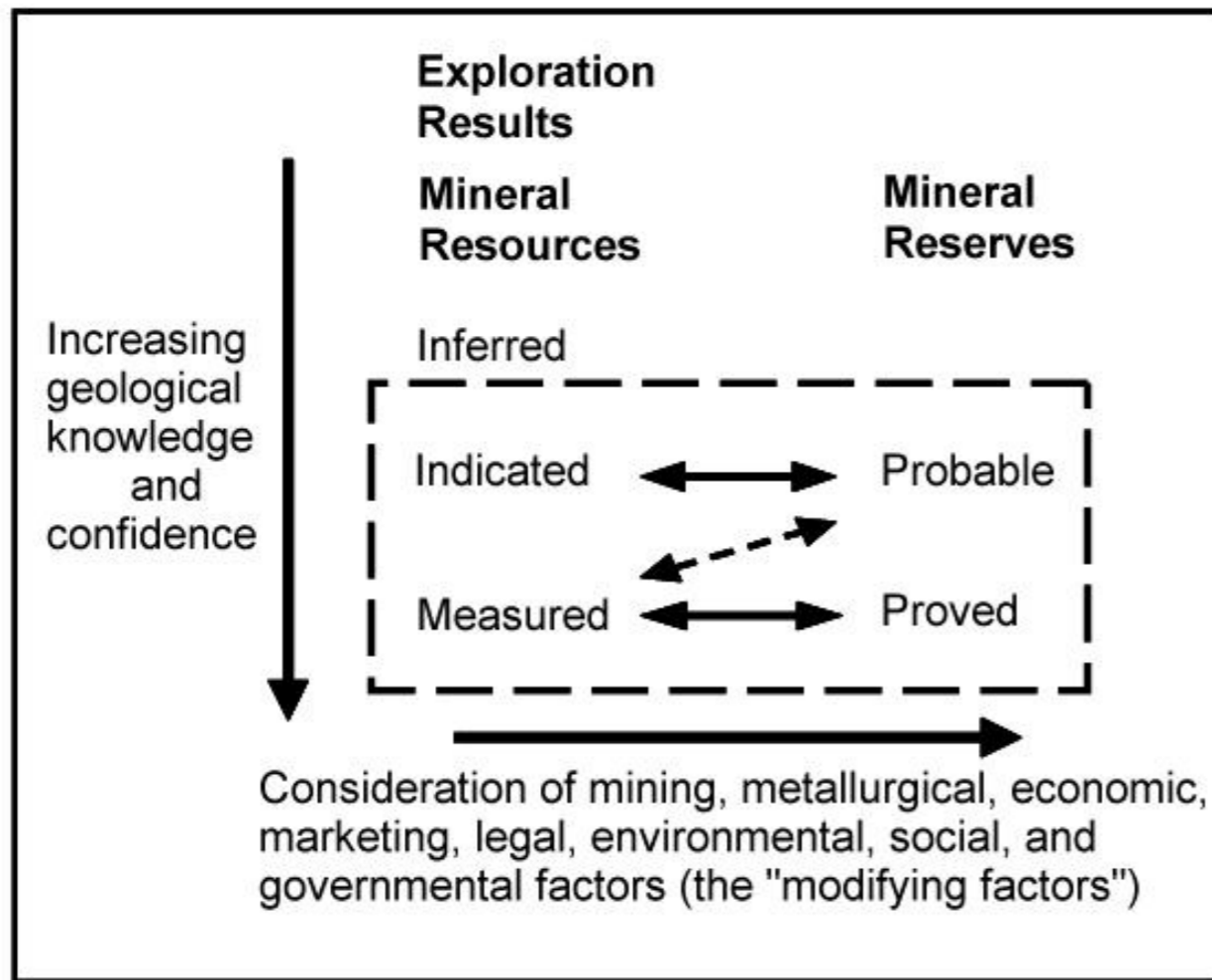
**ALL SLIDES**

**WWW.CRIRSCO.COM**

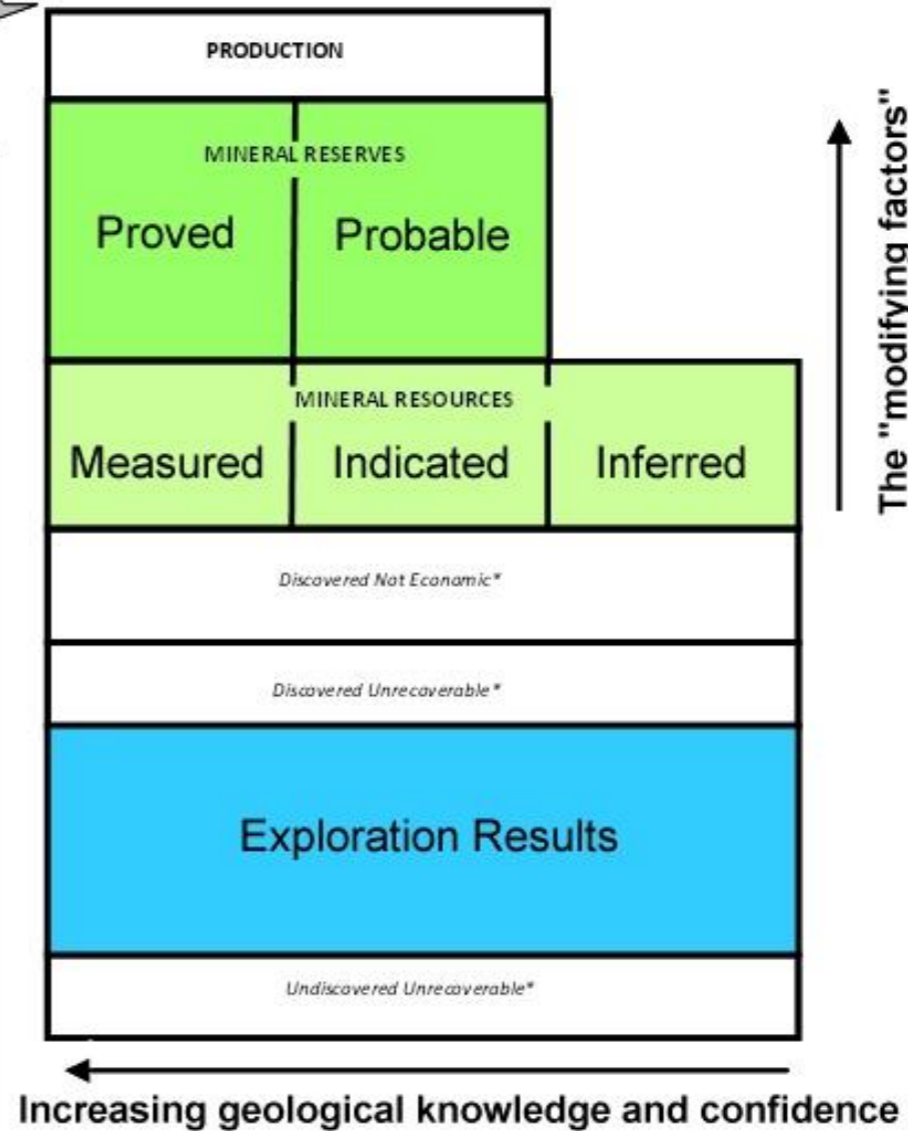


## CRIRSCO classification

Re-oriented to align with Petroleum and UNFC



(a)



(b)