



COMMITTEE FOR MINERAL RESERVES
INTERNATIONAL REPORTING STANDARDS



crirSCO

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The relationship between the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) Template 2013 and the United Nations Framework Classification (UNFC for Resources)

South African Representative, CRIRSCO

Ankara, August 25 2017



Presentation Agenda

- Objective and purpose;
- UNFC for Resources;
- The Template;
- Bridging documents;
- Non-economic mineralisation;
- NEA/IAEA Mapping

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

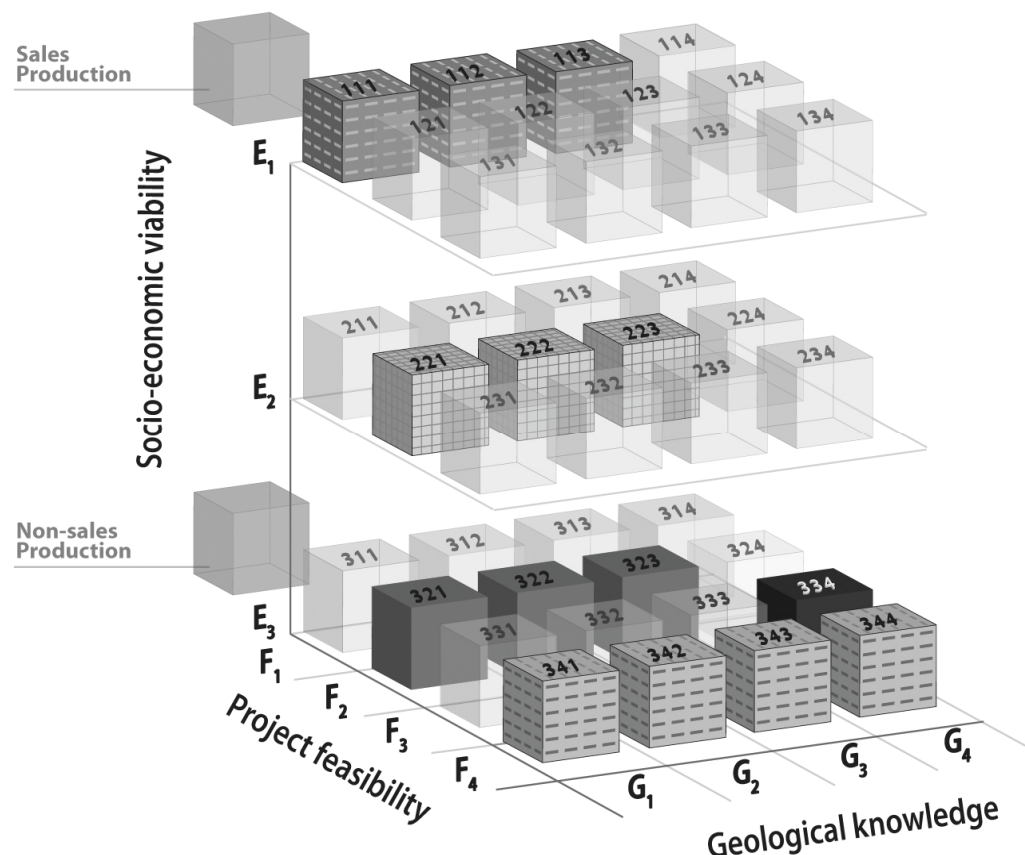
CRIRSCO is an international advisory body without legal authority, relying on its constituent members to ensure regulatory and disciplinary oversight at a national level.

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

- Generic classification system applicable to Fossil Energy and Mineral Reserves, and Nuclear fuels;
- Provides a single framework on which to build international energy and mineral studies;
- Allows for non-economic mineralisation
- Now applicable to renewable energy

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

- Framework classification not a reporting standard
- No competency requirement
- No Securities Exchange recognition



Generic, Principle based

3 Axis

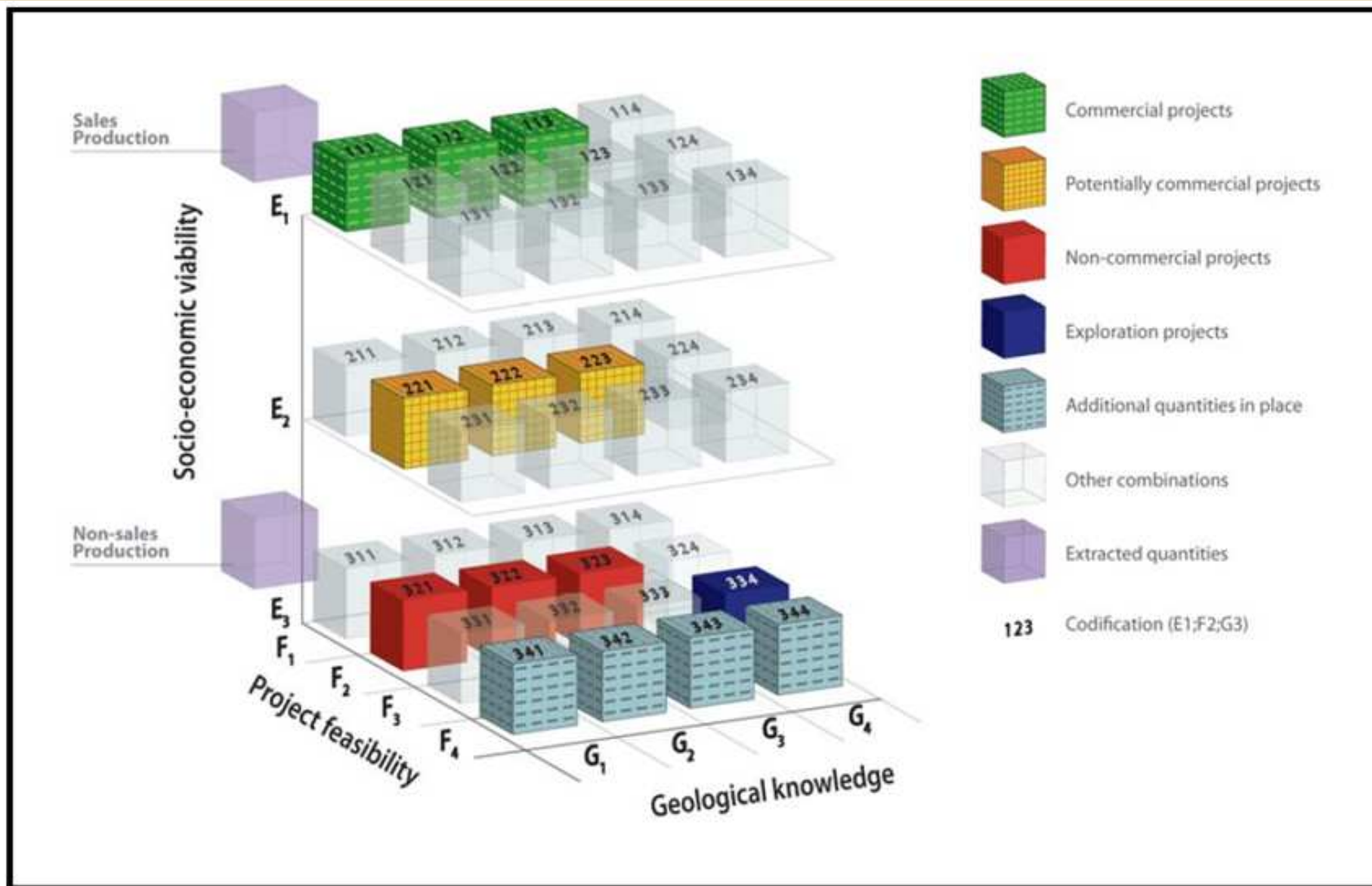
Economic and Social,

Feasibility,

Geological (G axis)

Numerical code

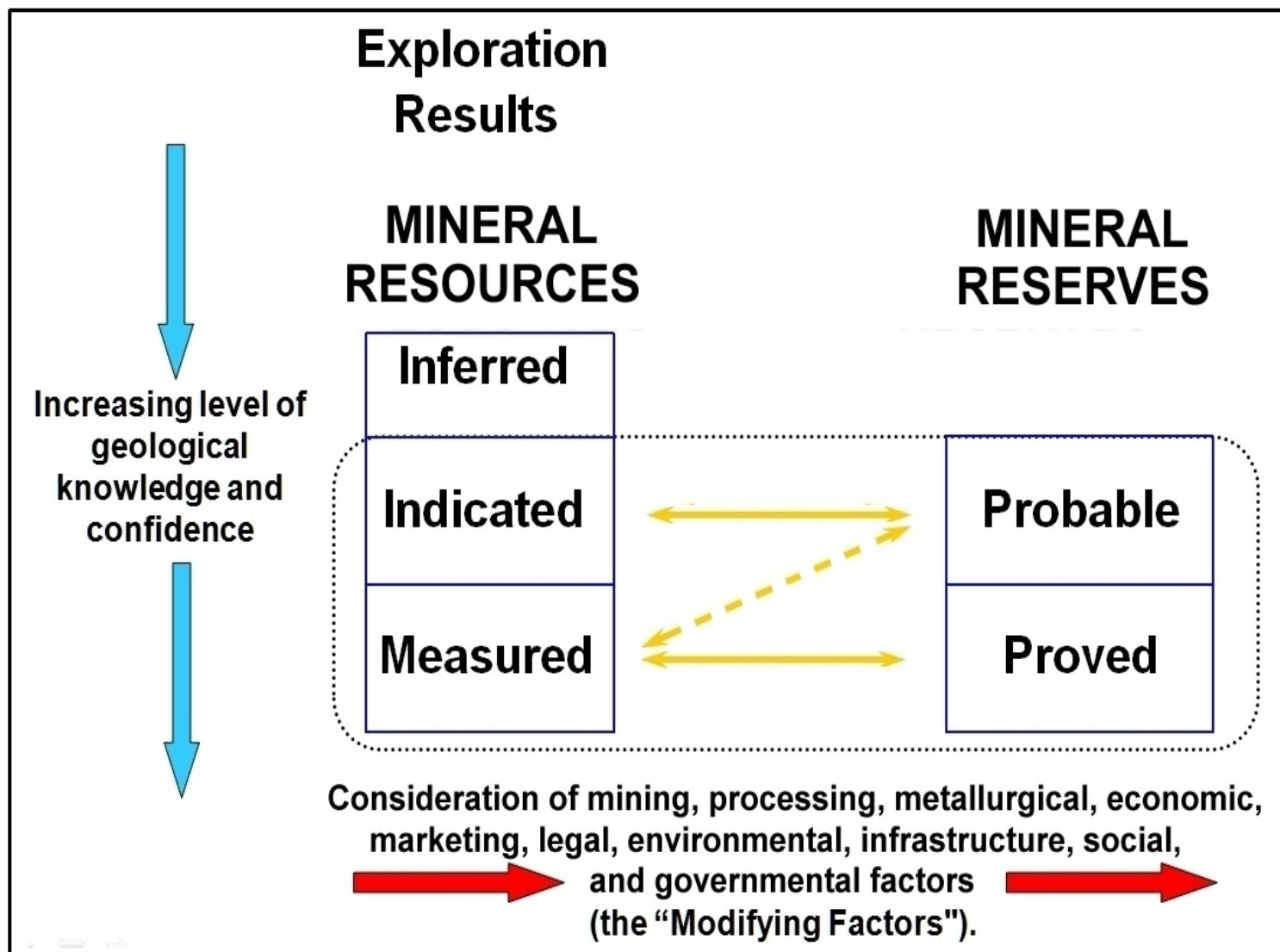
Applied directly or as harmonizing tool



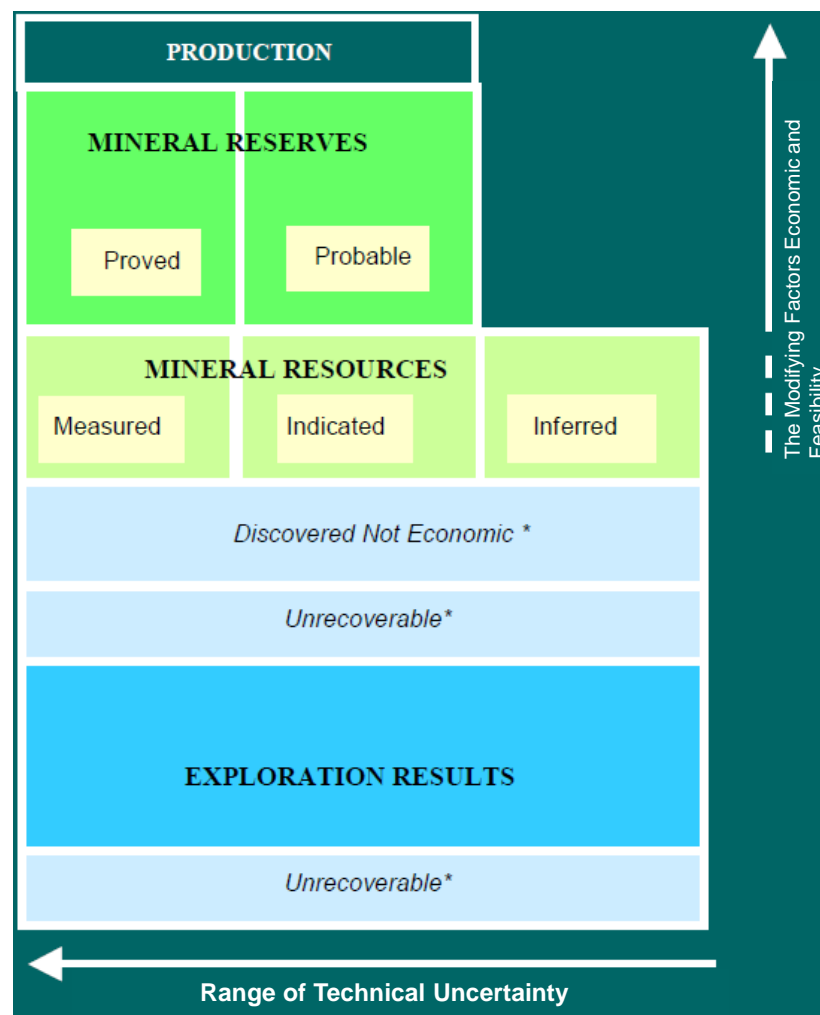
- United Nations Economic Commission for Europe (UNECE) (1999)
- Society of Petroleum Engineers (SPE) (2004)
- International Accounting Standards Board (IASB)
- International Atomic Energy Agency (IAEA)
- Member of TAG and EGRC Bureau

General Relationship between Exploration Results, Mineral Resources and Mineral Reserves

Figure 1 in the CRIRSCO Template



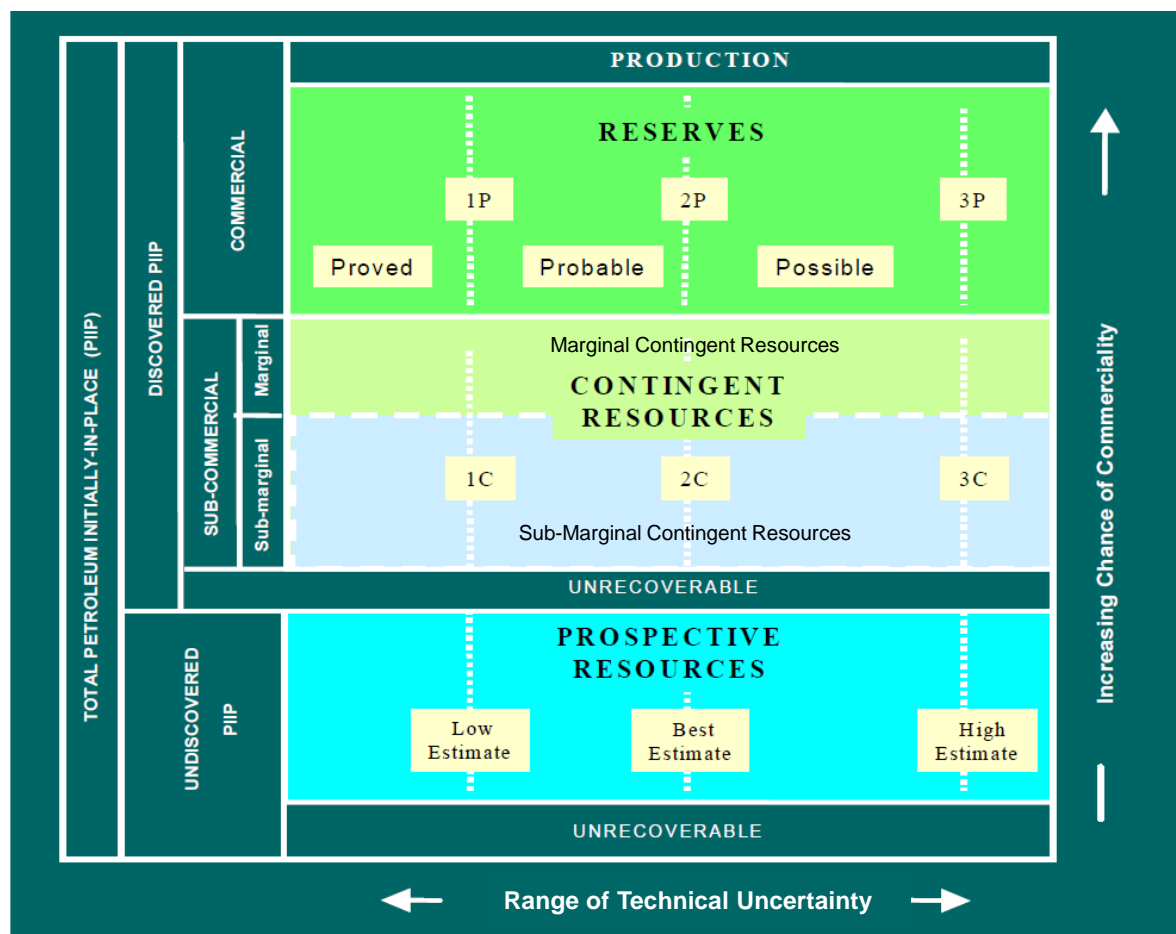
Re-Oriented Figure Showing the CRIRSCO Categories (Shaded) and Additional Categories in Other Systems



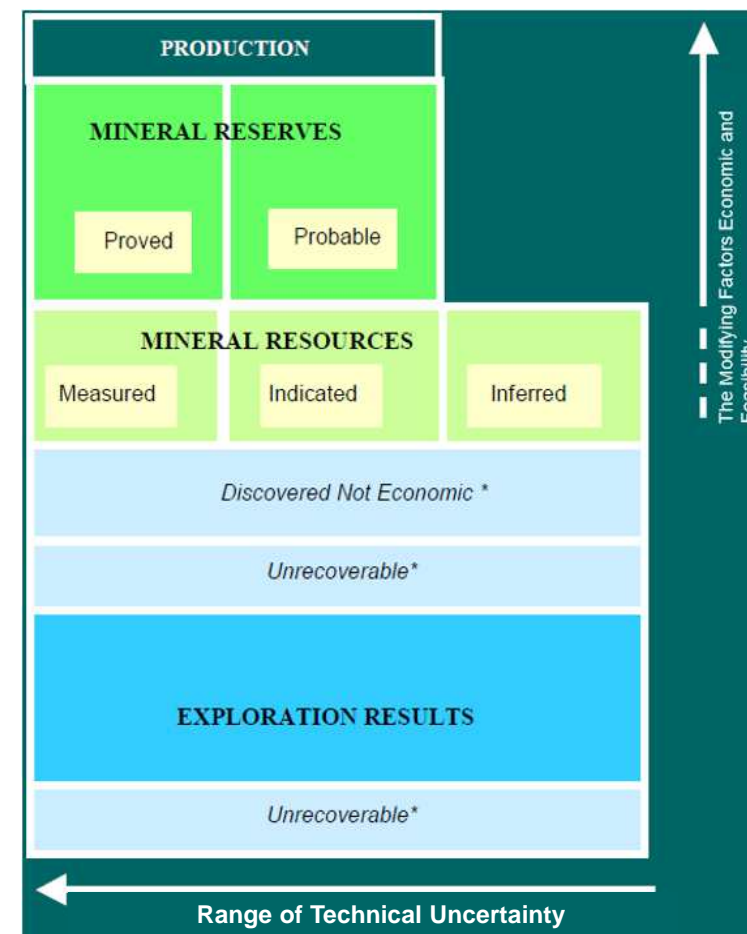
*Not part of the Template but may be used for internal project management

Comparison of the Petroleum Resource Management System (PRMS) and the CRIRSCO Template

Petroleum (SPE/WPOC/AAPG/SPEE 2007)



Minerals (CRIRSCO 2013)



*Not part of the Template but may be used for internal project management

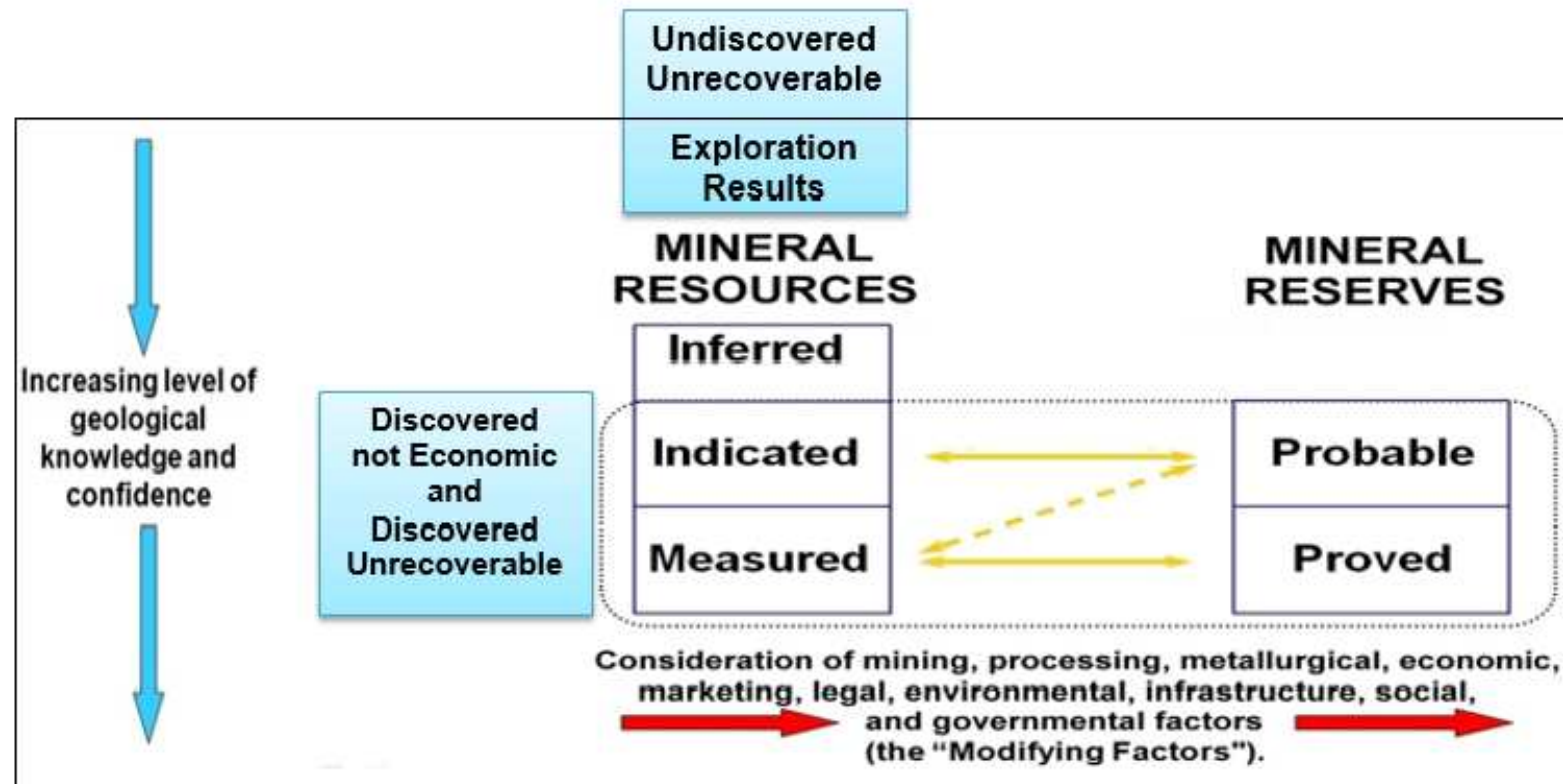
Total commodity initially in place	Production	Sales Production			
		Non-sales Production			
		Class	Categories		
			E	F	G
	Future recovery by commercial development projects of mining operations	Mineral Reserves	1	1	1,2
	Potential future recovery by contingent development projects or mining operations	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

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

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.

- Strategic planning at country or global level
- Corporate mineral inventory management
 - exploration target definition
 - development options
 - purchase price accounting



- Mapped and bridged to CRIRSCO Template
- Mapped and bridged to UNFC for Resources

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			COMMITTED	
	APPROVED FOR DEVELOPMENT	1	1.2	1		PROVED				PLANNED
				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		IR*		
				3		INFERRED		RAR **		
	DEVELOPMENT ON HOLD	2	2.2	1		MEASURED		IR*		
				2		INDICATED				
				3		INFERRED				
NON-COMMERCIAL PROJECTS	DEVELOPMENT UNCLARIFIED	3.2	2.2	1	INVENTORY (NOT DEFINED IN TEMPLATE)	DEVELOPMENT UNCLARIFIED (NOT DEFINED IN TEMPLATE)	IDENTIFIED RESOURCES	RAR **	UNCLARIFIED	
				2		NOT VIABLE (NOT DEFINED IN TEMPLATE)		IR*		
				3				RAR **	NOT VIABLE	
	DEVELOPMENT NOT VIABLE	3.3	2.3	1				UNDISCOVERED RESOURCES		PROGNOSTICATED RESOURCES
				2						
				3						
EXPLORATION PROJECTS		3.2	3.1	4	EXPLORATION RESULTS			SPECULATIVE RESOURCES		
		3.2	3.2, 3.3	4						

- Need for management of inventory and resources
 - Company level
 - Country level
 - Global level
- Definitions must be consistent

ALL SLIDES

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