



CRIRSCO and UNFC

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PUBLIC REPORTING OF MINERAL RESOURCES AND RESERVES

- **Disclosure for companies quoted on stock exchanges.**
 - Objectives: Reliable, transparent information for investors and potential investors
 - **CRIRSCO standards**
- **Governmental, inter-governmental, or NGO reporting of mineral resource estimates and forecasts.**
 - Objectives: Reliable mineral inventory to underpin minerals policies (especially cross border e.g. Europe), available to exploration and mining companies to attract inward investment and exploration activity
 - **UN Framework Classification**

INTERNATIONAL STANDARDS

Overview

- Key definitions and terminology used for reporting **solid mineral** reserves and resources (and exploration results) within these two classification systems have been aligned through extensive co-operative efforts between CRIRSCO and UNECE since the mid 1990s
- A parallel collaboration between SPE and UNECE for **oil and gas**, with the PRMS classification.

INTERNATIONAL STANDARDS

(1) CRIRSCO

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

All CRIRSCO Standards follow the same set of principles and use the same classification

The CRIRSCO family of codes and standards currently includes:

- **JORC** (Australasia)
- **NI43-101 & CIM Definition Standards** (Canada)
- **SAMREC/SAMVAL** (South Africa)
- **PERC** (Europe)
- **SME** (United States)
- **Comisión Minera de Chile** (Chile)
- **NAEN** (Russia)

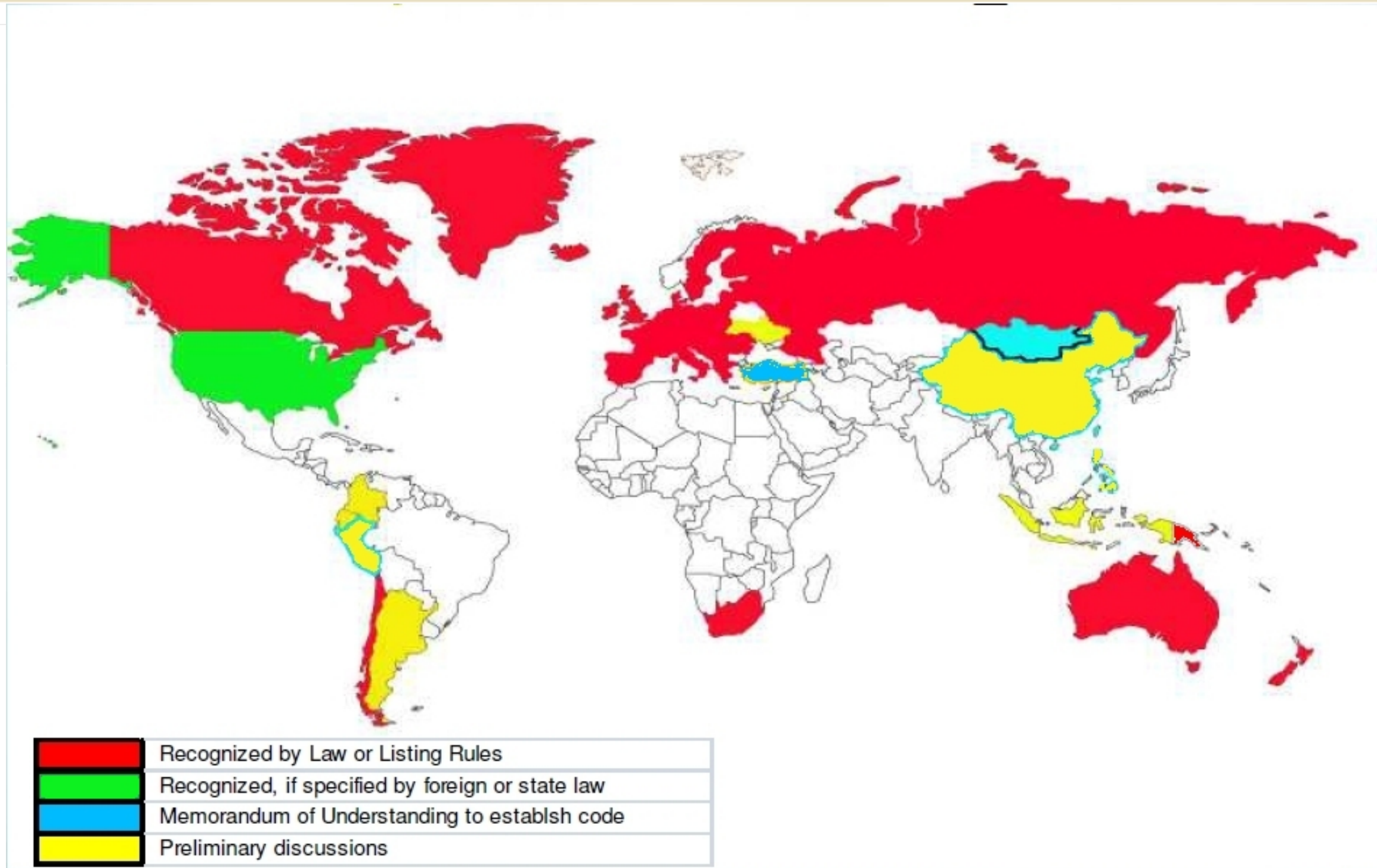
Several other candidate member countries

CRIRSCO – a short history

- National systems: Russia (1927), USGS (1976,1980), SEC (1981), JORC (1989), IMM (1991), ...
- 1994 Sun City: CRIRSCO formed, 5 members (CMMI Mineral Definitions Working Group)
- 1997 “Denver Accord”: agreed definitions
- 1998-9 Geneva: CRIRSCO / UNECE agreement
- 2002 CMMI disbanded. **CRIRSCO is now a partner of, and partly funded by ICMM**
- 2006 CRIRSCO Template published
- 2010 Russian national system mapped to CRIRSCO
- 2011 UNFC-2009 with full CRIRSCO mapping
- Chile joined in 2004; Russia joined in 2011; several other candidate members

The logo for the International Council on Mining & Metals (ICMM), consisting of the acronym "ICMM" in large white letters above the full name "International Council on Mining & Metals" in smaller white text, all set against an orange square background.

CRIRSCO standards in use ...



CRIRSCO's scope and aims

- **SCOPE: All solid minerals** (metals, gemstones, bulk commodities, aggregates, industrial minerals, energy minerals such as coal and uranium)

- **AIM:** *Promoting International Best Practice in the Public Reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves*
 - International consensus on reporting standards
 - Encourages consistent and high quality reporting – through maintenance of Competent Person standards

- **USERS** of CRIRSCO-family standards: **the minerals industry**
 - Including - Mining Companies, Financial Institutions, Stock Exchange Regulators, Governments, Shareholders

Key Features of CRIRSCO reporting standards

- **CRIRSCO standards** quantify, qualify, and categorize mineral assets on the basis of the data, models and criteria.
- **Objective:** Reliable mineral resources/reserves inventory to underpin mineral estimates used by mining companies to attract investment and promote exploration and development activity.
- **Public Reports** are prepared by or under the supervision of a **Competent Person** (Qualified Person in Canada) who signs off and takes personal responsibility. Agreements to recognize professional organizations internationally (RPO)
- A clear distinction between **resources** and **reserves**.
- **Excludes “uneconomic” and “undiscovered” materials**

The CRIRSCO Template

- The set of standard definitions and principles common to all CRIRSCO reporting standards
- **'Template'** is used to indicate that this document is a **model** for code development and does **not** constitute a **'code'** with legal or other regulatory force.
- **Advisory** only - national codes take precedence.
- Intended to assist countries to produce **new** codes consistent with international best practice.
- A consolidated version of national codes that may be used in **comparisons** with other international reporting systems.

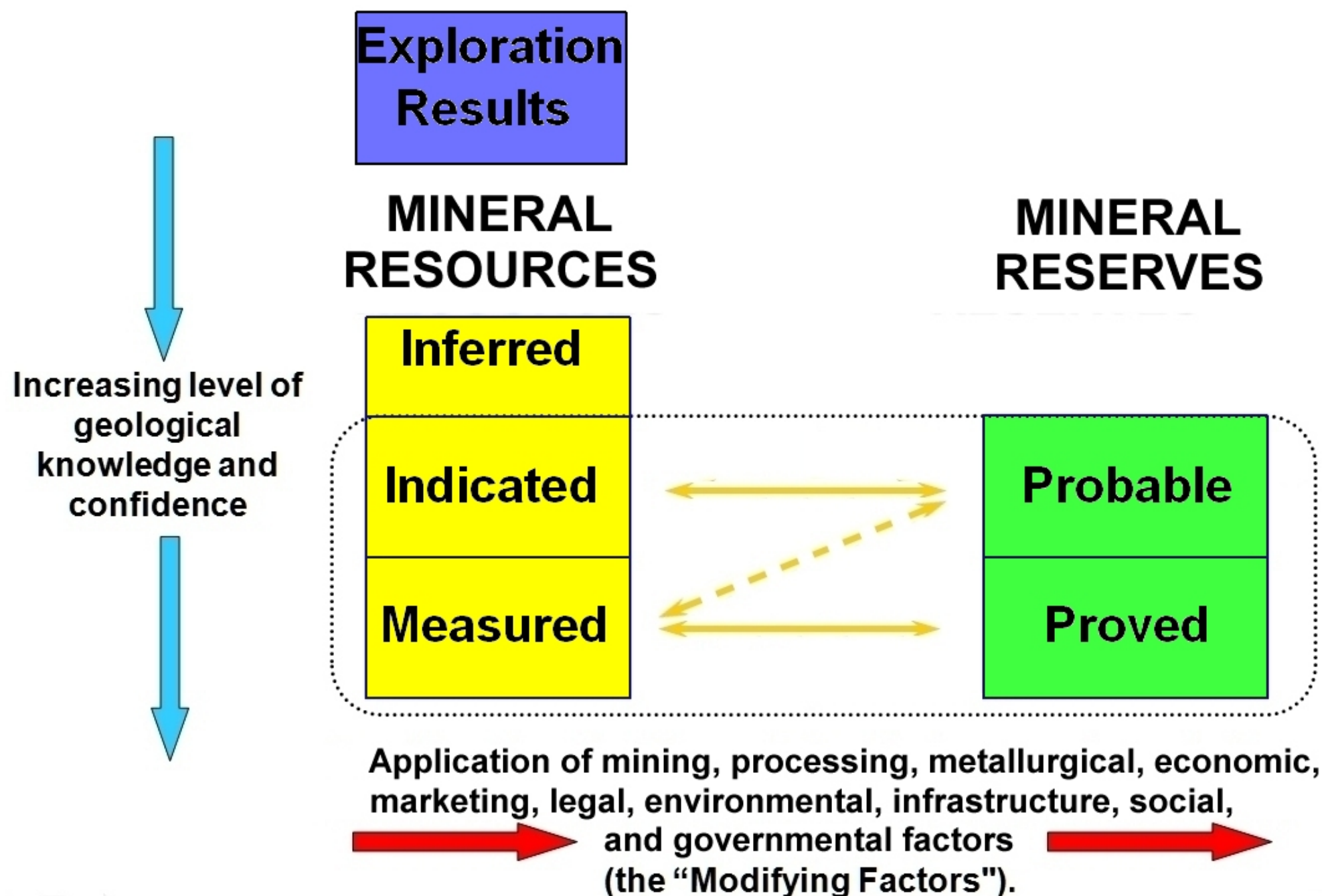
The CRIRSCO Template

- The core of the various standards is practically identical (and becoming ever more closely aligned)
- Inclusion of national regulatory requirements provides small but important differences
- **But for the geoscientist, a report prepared under one national standard can readily be referenced to the requirements of another: they all use an identical classification**

Competence

- A Public Report must be based on work that is the responsibility of **suitably qualified and experienced persons** who are subject to an **enforceable professional code of ethics** and rules of conduct – within a recognised professional association or professional registration system
- **Discipline of professionals is by their professional associations.**
- **Discipline of companies listing and relying on the report is through the stock exchange regulator**

CRIRSCO Classification



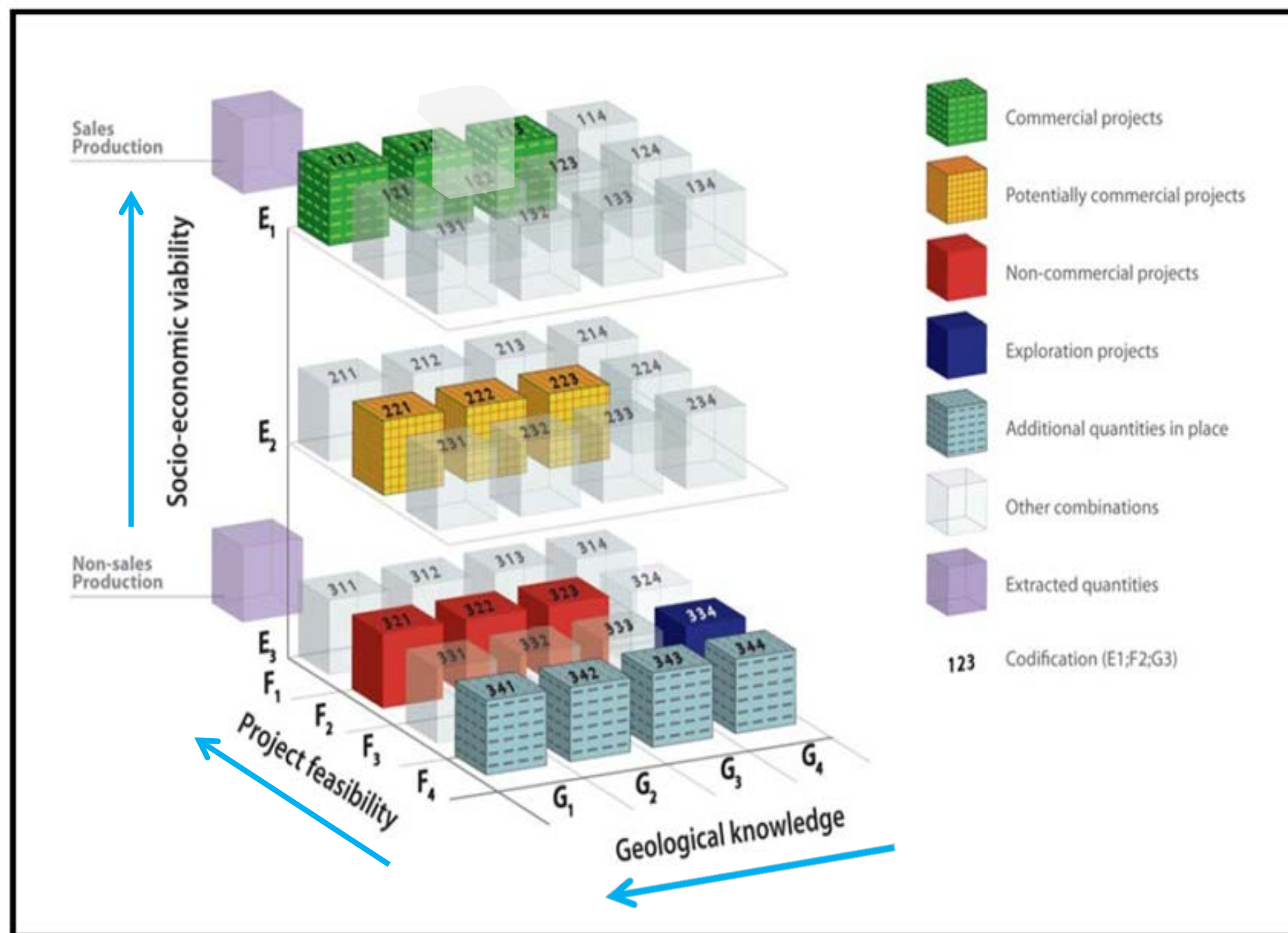
INTERNATIONAL STANDARDS

(2) UNFC

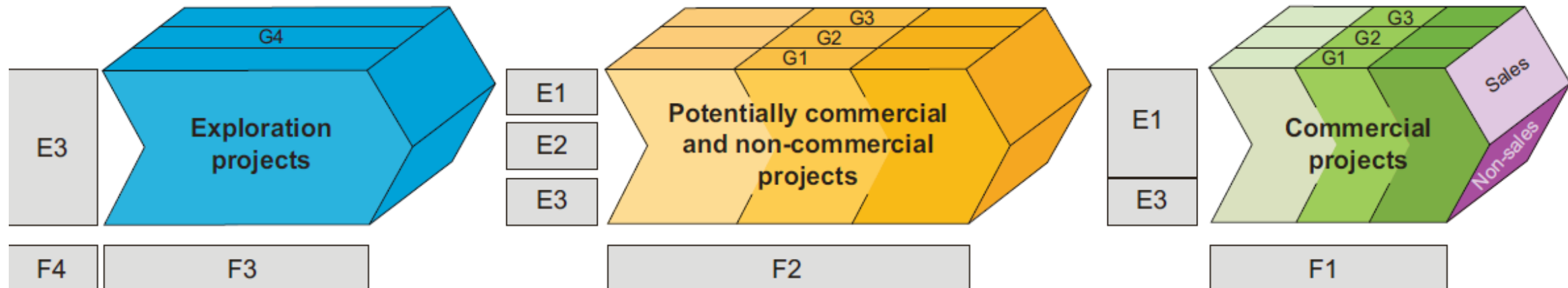
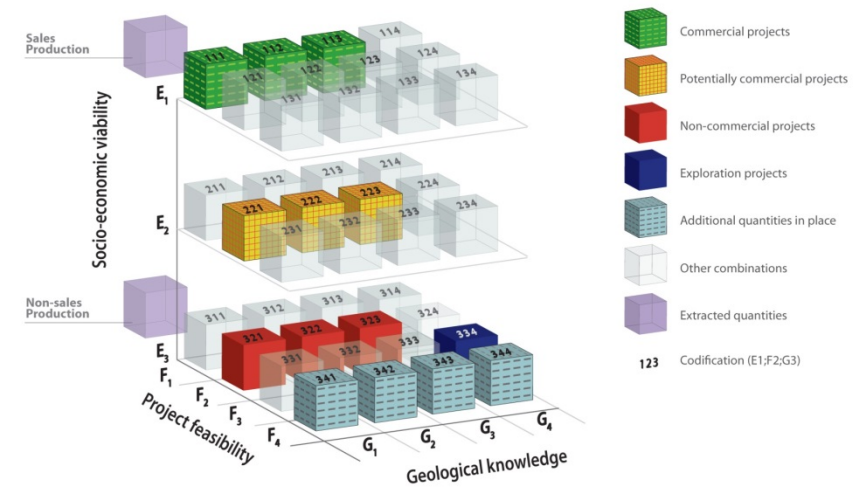
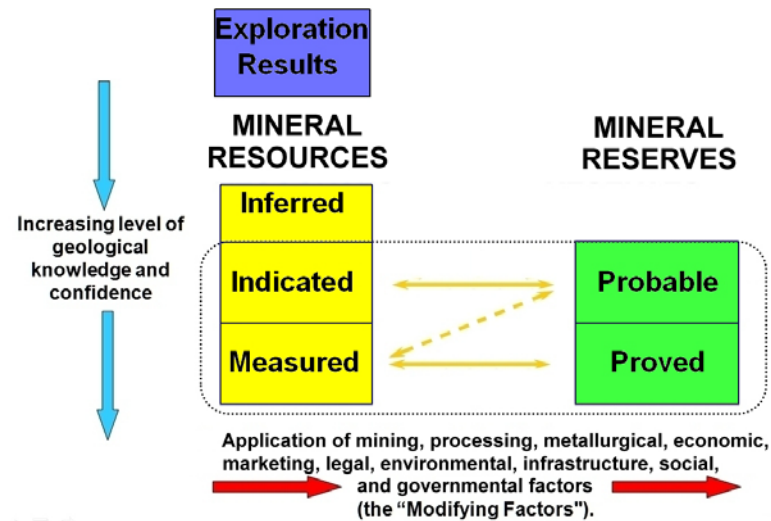
- UNFC = **United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources**
- Development started in the 1990s by UNECE and proceeds under a global mandate from the UN Economic and Social Council
- Intended as a classification for resources of fossil energy and mineral resources
- Active participation of CRIRSCO from 1998

Key Features of United Nations Framework Classification

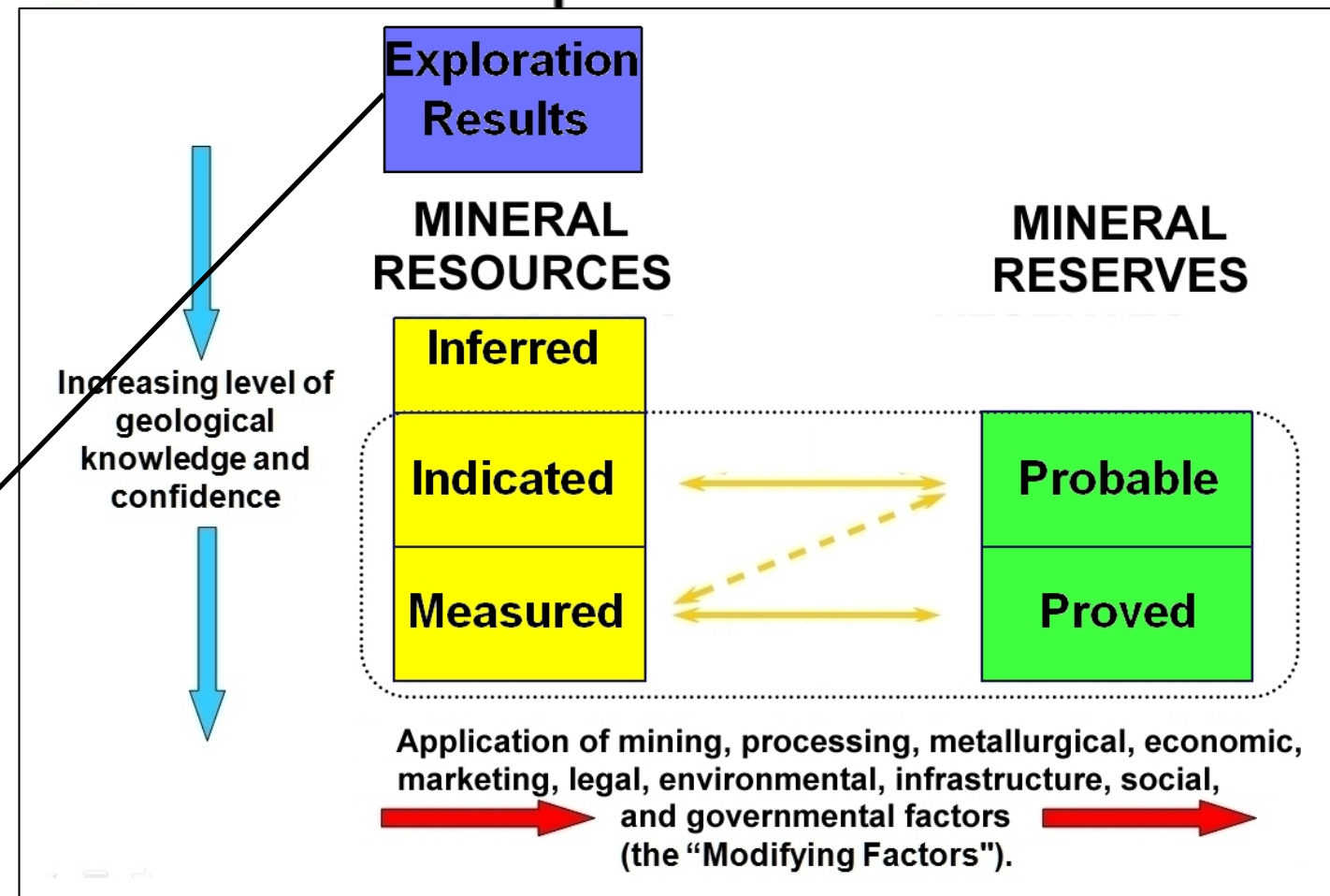
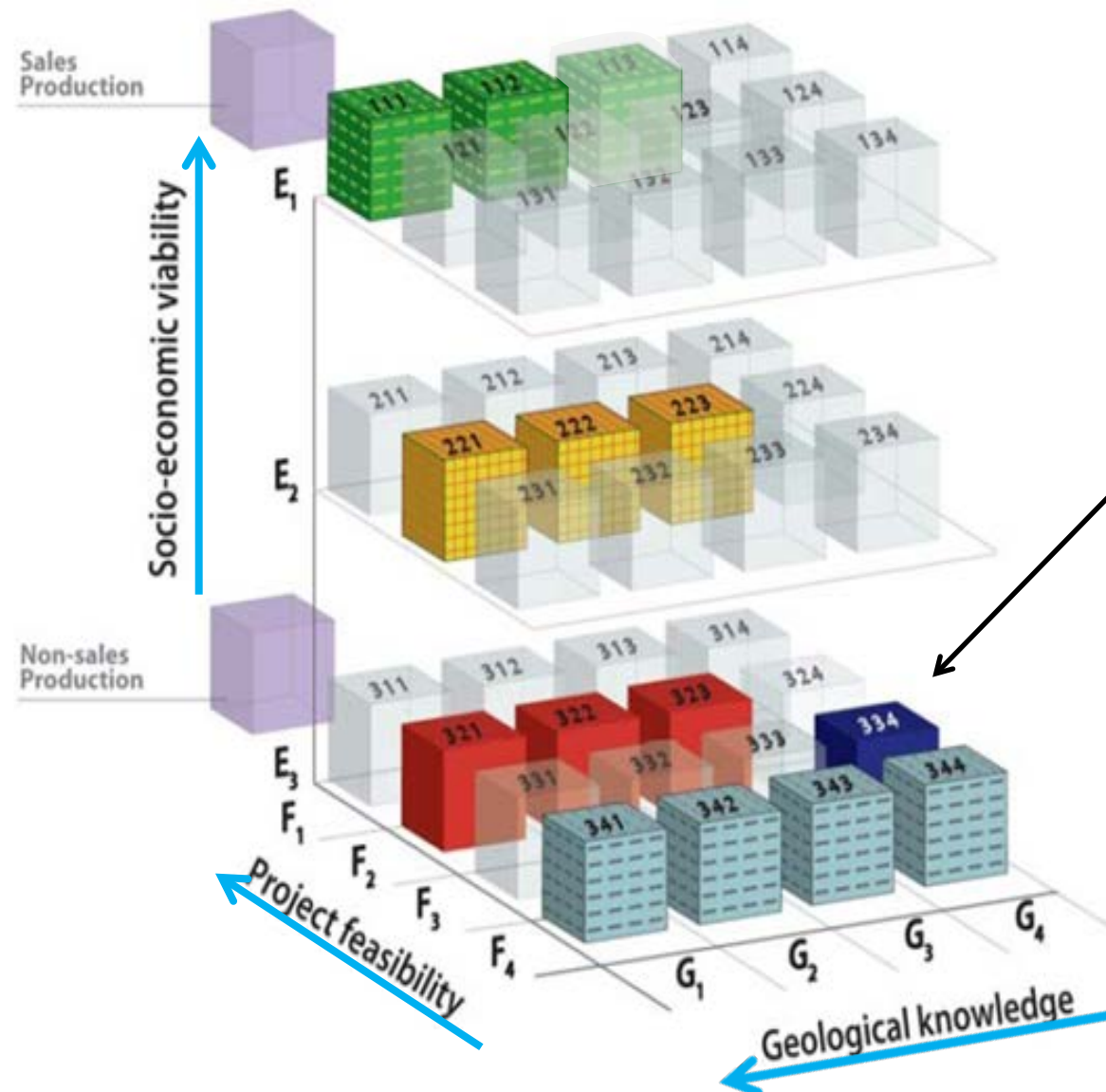
- **A Generic Classification Framework** for solid minerals and oil and gas.
- An important tool for **global** and governmental **communication**
- **Not a Public Reporting Standard** - no underlying principles as a reporting standard, no securities recognition.
- **No Certification of Competency** – does not define a Competent Person who takes personal responsibility for estimates.
- **Includes “Undiscovered” & “Uneconomic” material**
- provides a **neutral framework** for mapping from/to complete **reporting systems (such as CRIRSCO and PRMS)**

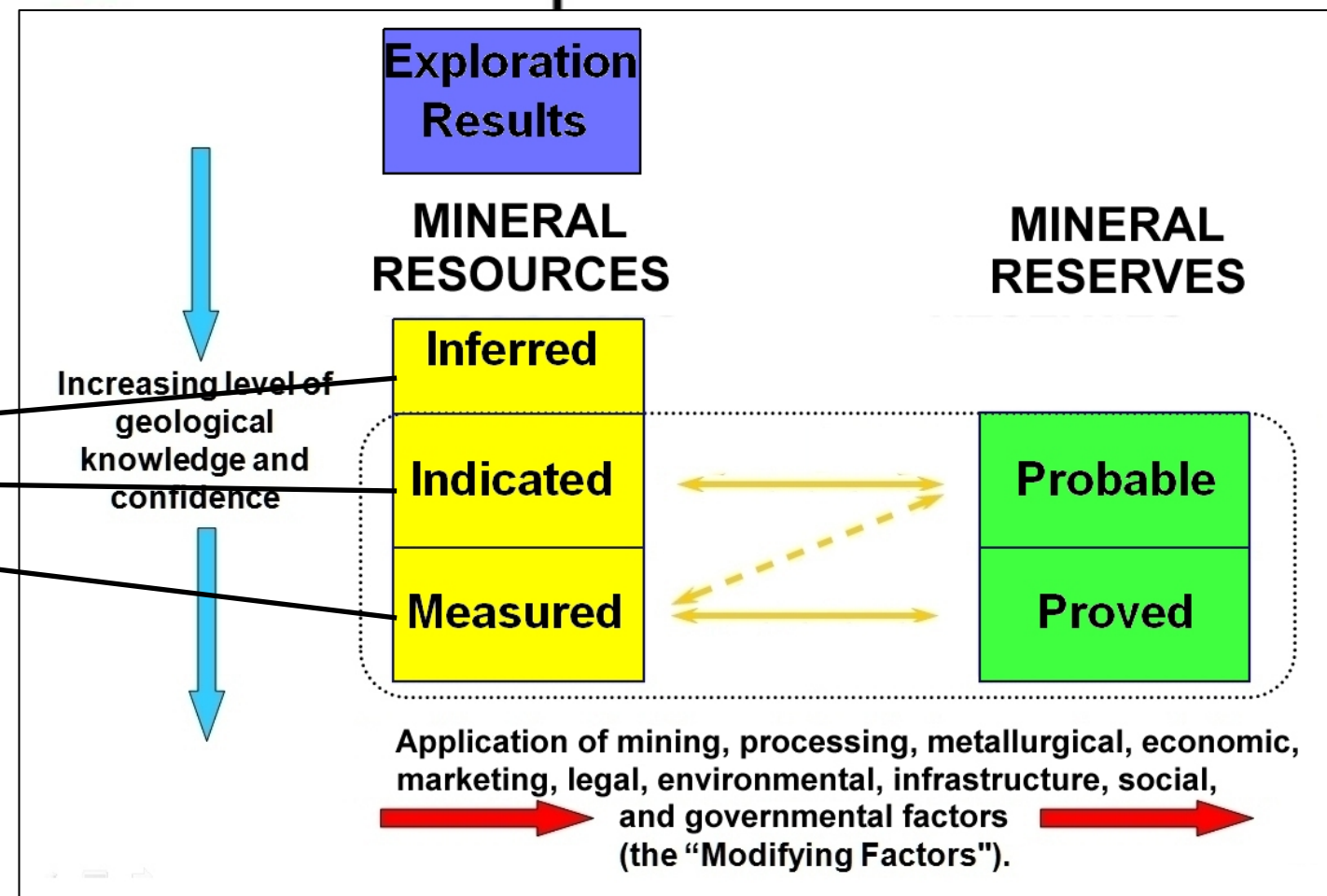
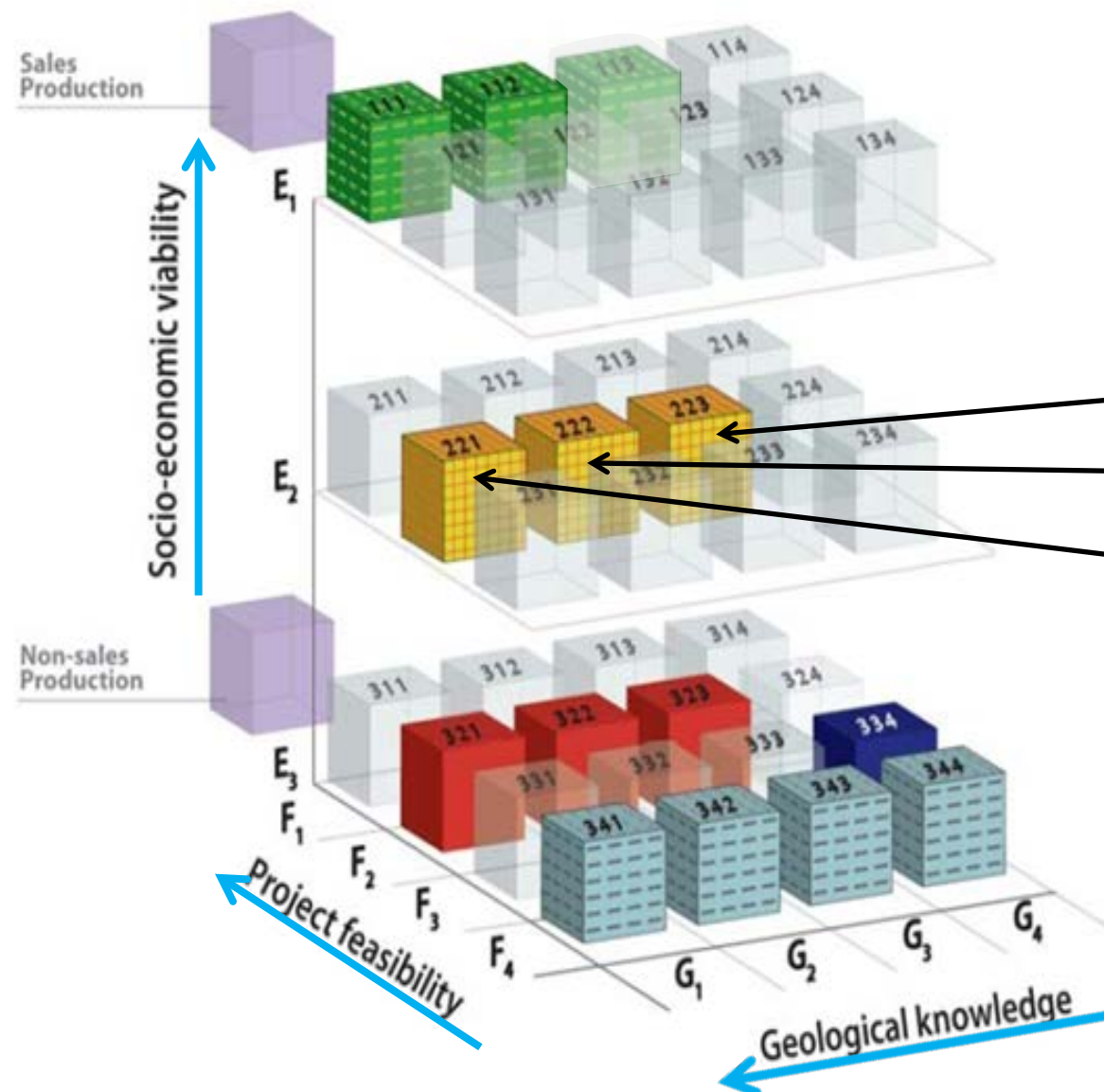


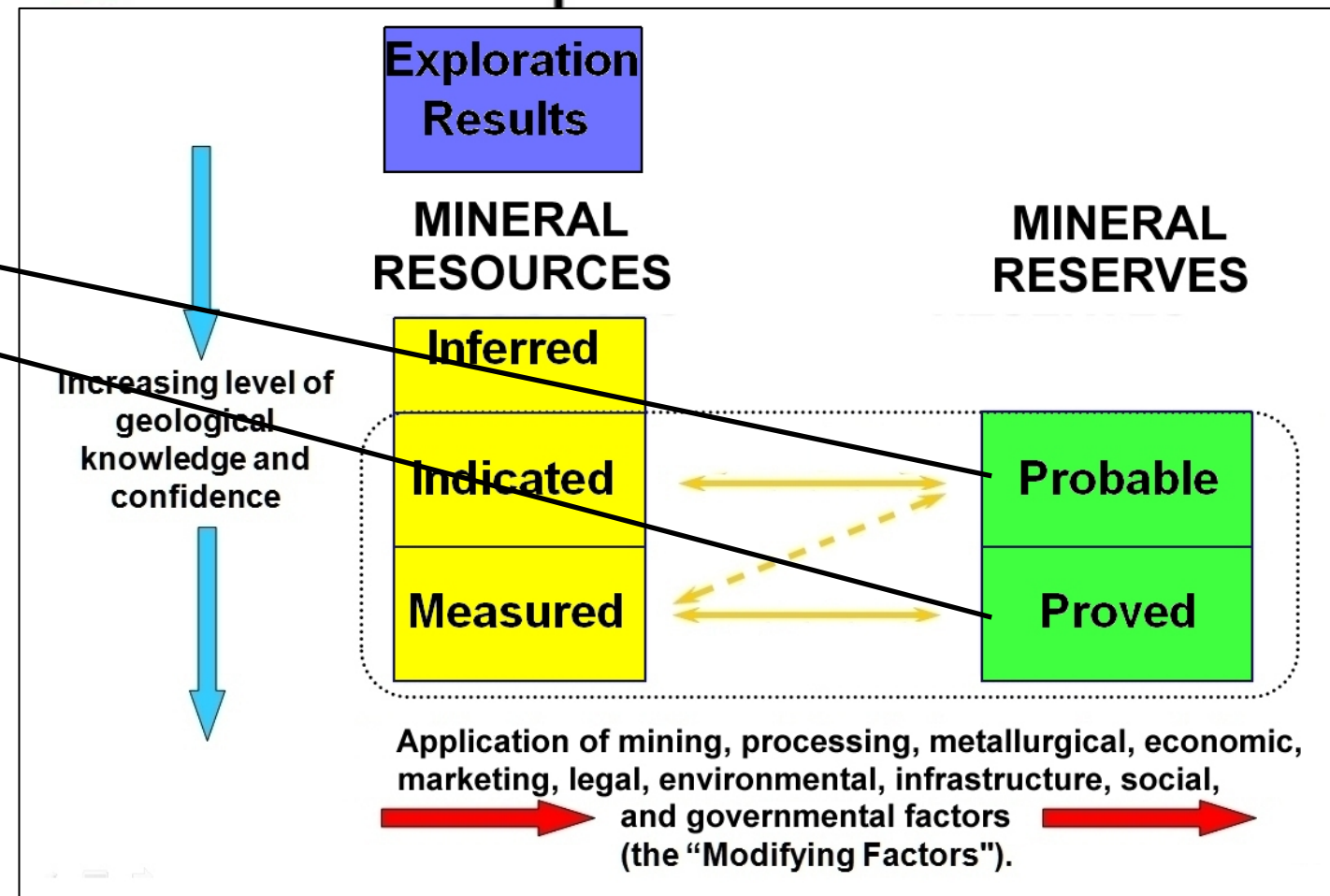
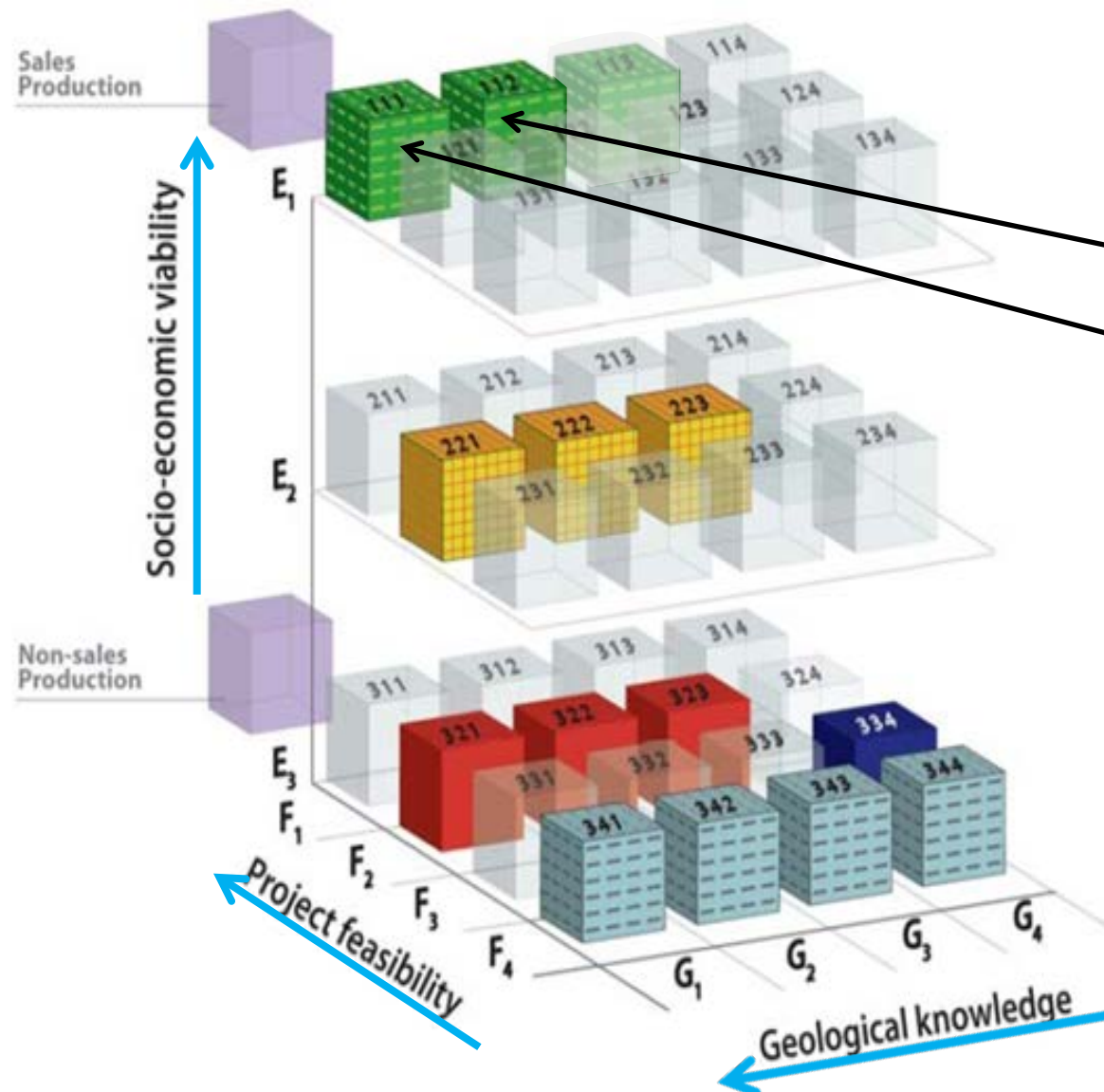
Animated presentation



- CRIRSCO resource categories are mapped to corresponding UNFC categories (i.e. there is common terminology)
- **The CRIRSCO Template is the set of commodity-specific definitions in UNFC for all solid minerals**

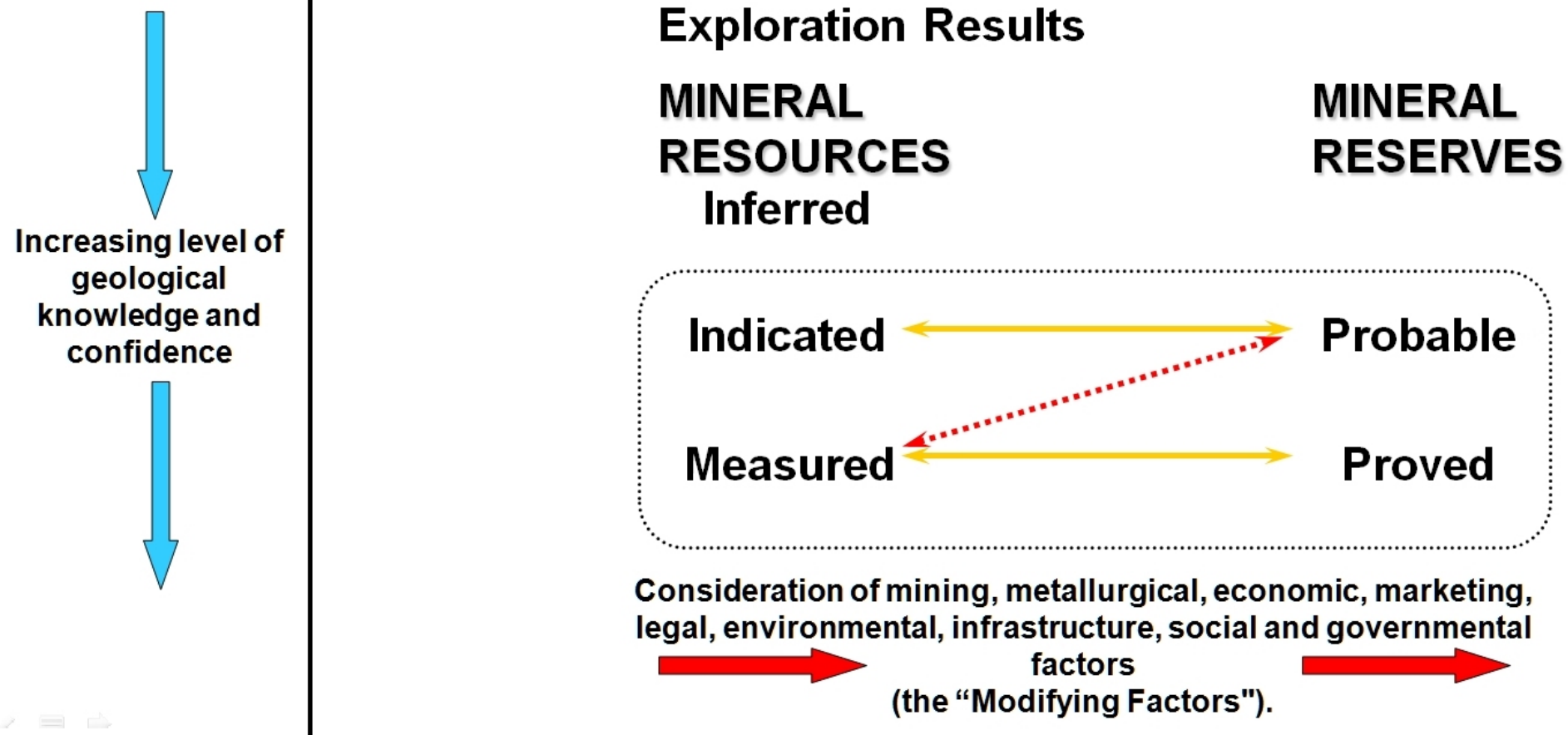




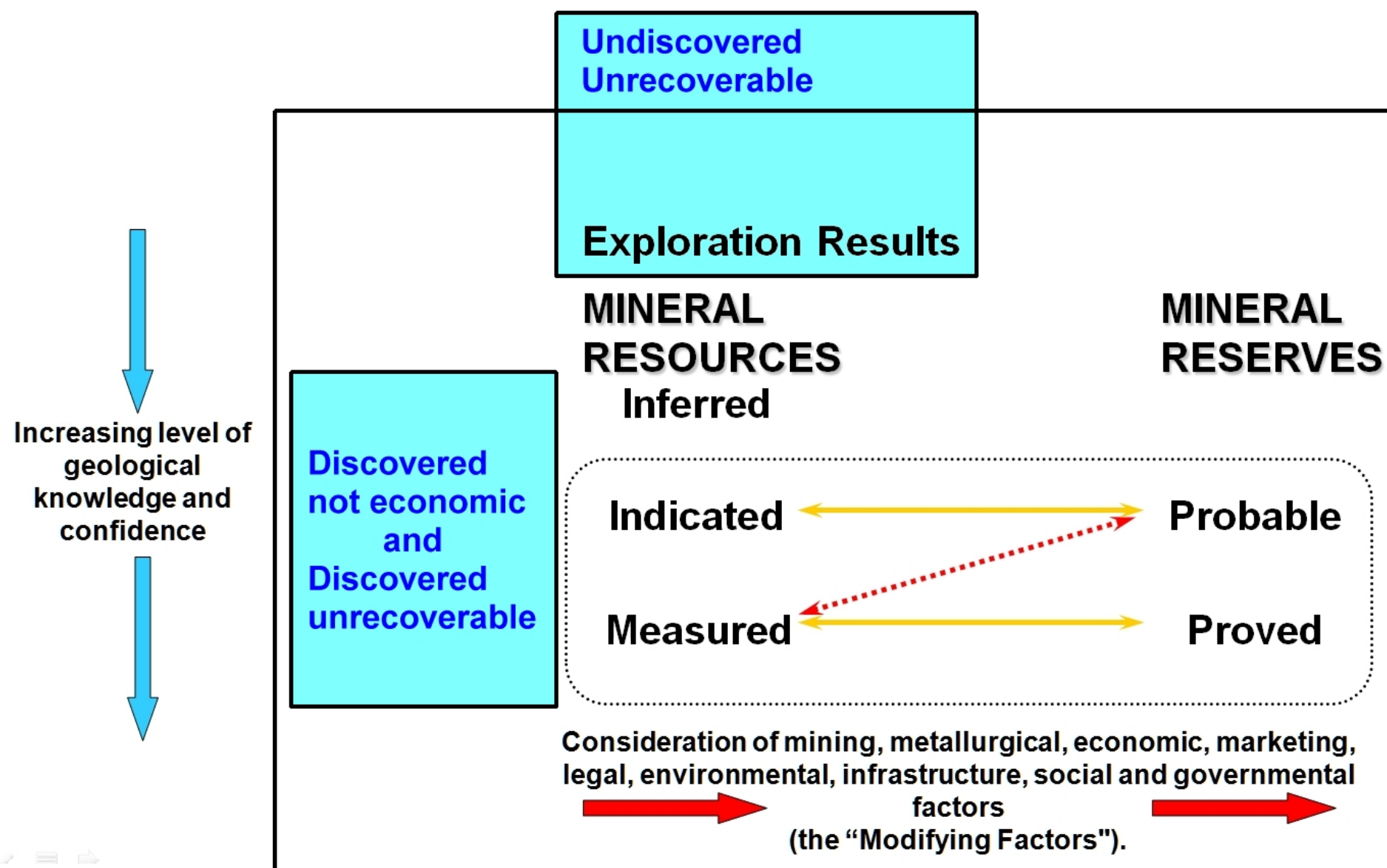


Mineralisation beyond “Inferred”

What about other UNFC categories?



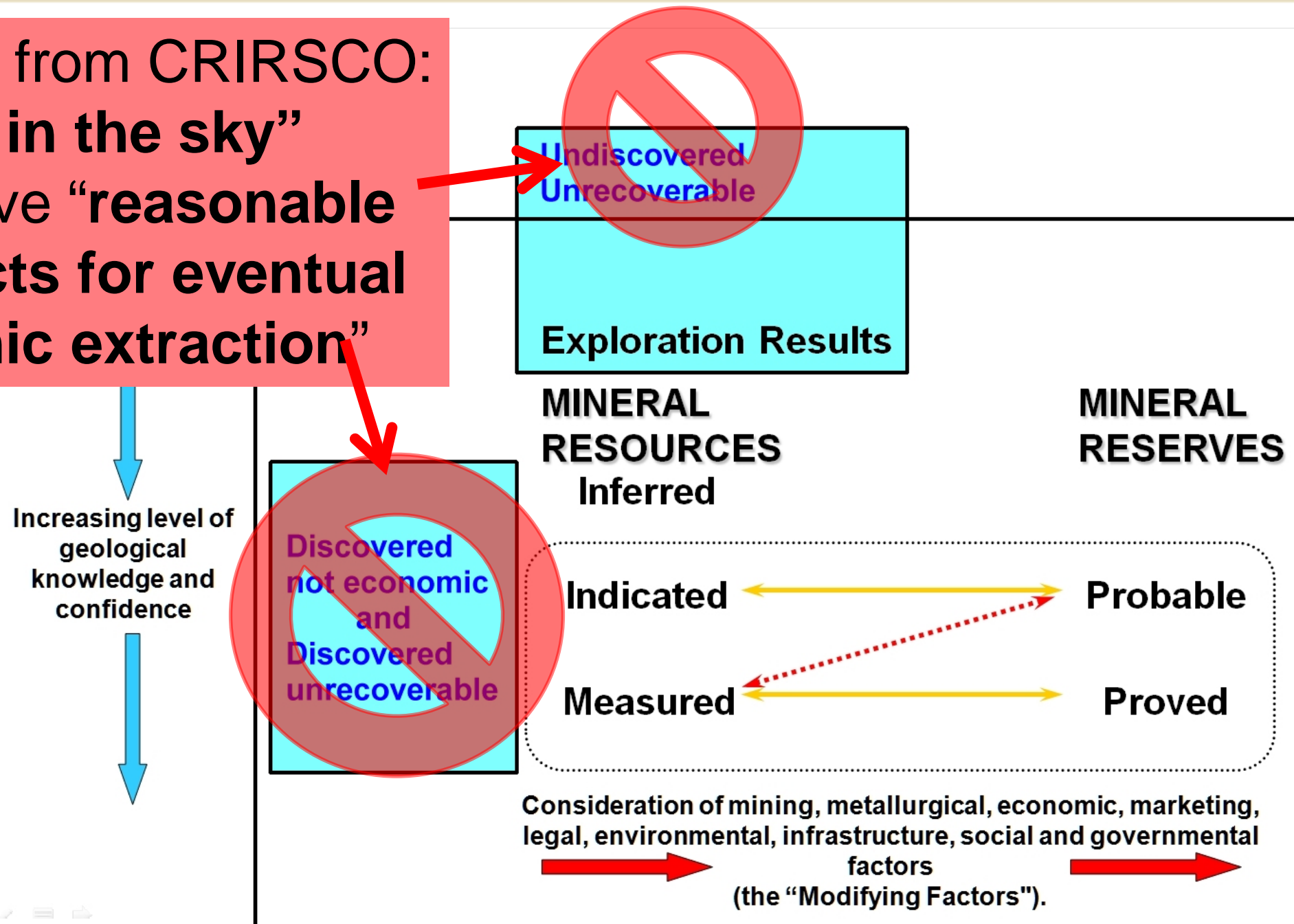
Mineralisation beyond “Inferred”



Mineralisation beyond “Inferred”

Excluded from CRIRSCO:

- **No “pie in the sky”**
- Must have “**reasonable prospects for eventual economic extraction**”



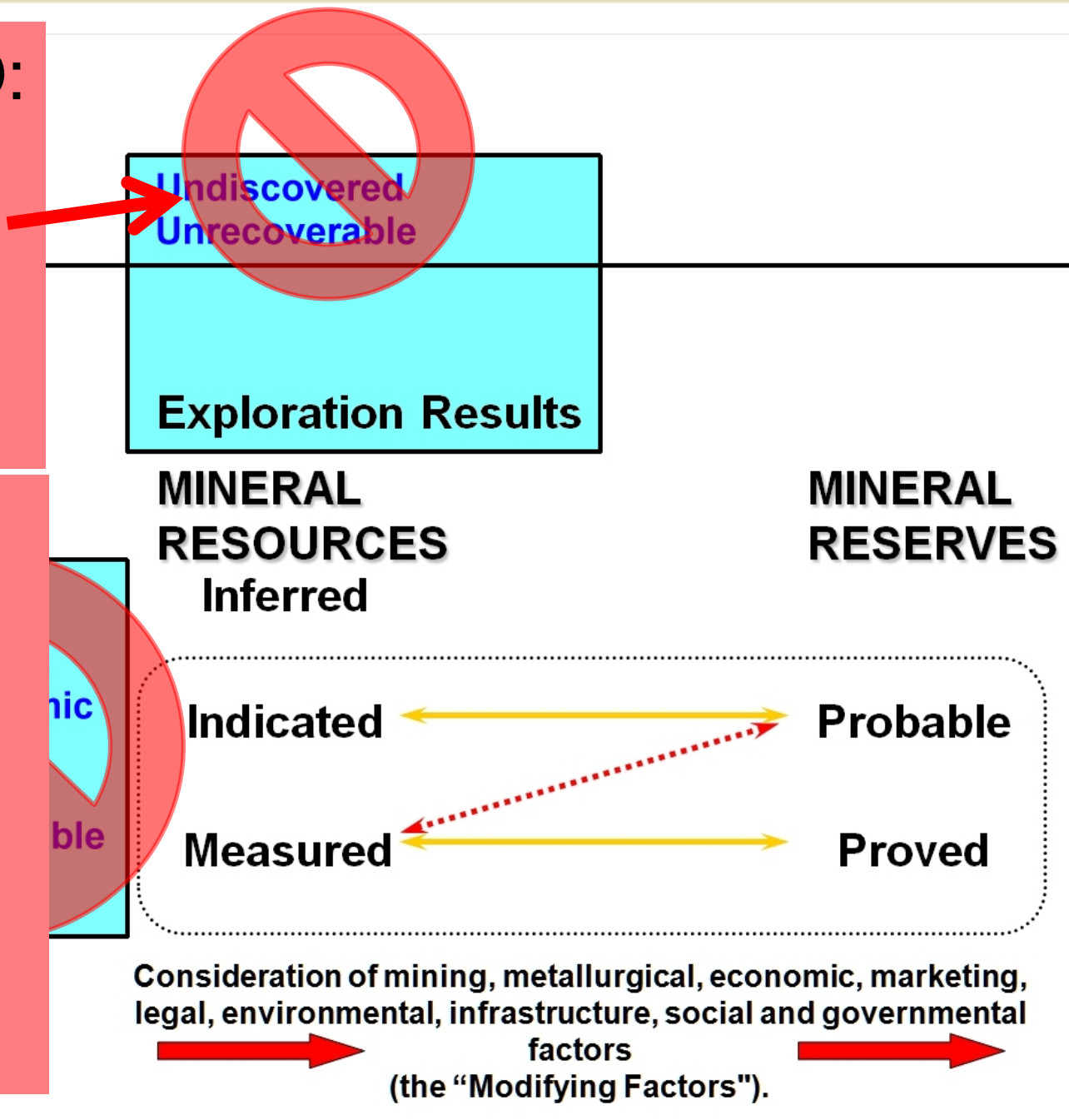
Mineralisation beyond “Inferred”

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- Must have “**reasonable prospects for eventual economic extraction**”

But ...

... may be needed for resource management and policy formulation
... CRIRSCO reporting does not address non-sales production



Which to choose?

- Not a question of “competition” or “choice” between the CRIRSCO reporting system and the UN Framework Classification.
- UNFC provides a big umbrella within which consistent and comparable public reporting can be carried out at a range of scales and for a range of purposes and national mineral inventories can be developed and maintained.
- **If users find it easier to follow the CRIRSCO classification, they can do so in full confidence that this is also compliant with UNFC**

- Decisions on **disclosure and quality assurance** are independent from decisions on **classification**.
 - CRIRSCO addresses both.
 - UNFC-2009 requires preparers and users to agree.
- UNFC provides a method for **governments and NGOs** to **incorporate published industry data** (using the CRIRSCO classification) into **databases, mineral inventories**, etc.
- Provides a mechanism for **companies** to use a **standardised internal classification** beyond the publicly reported CRIRSCO categories

- On 26 April 2013, the UNECE Expert Group on Resource Classification (EGRC) reached consensus on:
 - **Specifications for UNFC 2009.** CRIRSCO and SPE (and its PRMS partners) were thanked for their ongoing support and cooperation in providing the solid minerals- and petroleum-specific specifications for UNFC-2009 respectively.
 - **Technical Advisory Group** to be established (governance and technical advice)
 - UNFC-2009 to be applied also to nuclear fuel and renewable energy resources
- **Consensus was reached under a global mandate with broad representation from both UNECE and non-UNECE member states. EU was well represented.**

Thoughts on data integrity

- Using UNFC does not compromise the reliability of reports.
- CRIRSCO provides the specifications for UNFC categories which map to the CRIRSCO classification: these include strict Competence requirements.
- For UNFC categories which do not map to CRIRSCO, the reporting guidance has yet to be defined, but should include Competence requirements at least as strict.

- CRIRSCO standards require all publicly declared resources to have **reasonable prospects for eventual economic extraction** (i.e. NO “pie in the sky” – NOT an inventory of all mineralisation regardless of economics)
- Short and medium term planning should use resources and reserves reported under CRIRSCO standards as a solid and reliable basis
- Longer term planning can simply migrate to UNFC, with the inclusion of prospective estimates of mineral potential

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Websites:

- PERC – <http://www.percstandard.eu/>
- EFG - <http://www.eurogeologists.de/>
- CRIRSCO – <http://www.crirSCO.com>
- UNFC-2009 - <http://www.unece.org/energy/se/reserves.html>
- UNFC email: reserves.energy@unece.org