

crirSCO

COMMITTEE FOR MINERAL RESERVES
INTERNATIONAL REPORTING STANDARDS



*Comisión Calificadora de
Competencias en Recursos
y Reservas Mineras*

CHILE

GLOBALISATION REGULATION AND ACCREDITATION

- In a global economy, uncertainties in the mineral deposits may inhibit or vanish the public confidence in the mineral industries
- Financial institutions, stock exchanges houses, and capital markets also require transparency as well as responsible information regarding listed assets.
- Governments, on the other hand, require to know how their mineral resources are managed as an input for national financial decisions.

- Public Reports comprise reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Mineral Resources or Mineral Reserves.
- Public Reports include, but are not limited to annual and quarterly company reports, press releases, information memoranda, technical papers, website postings and public presentations.

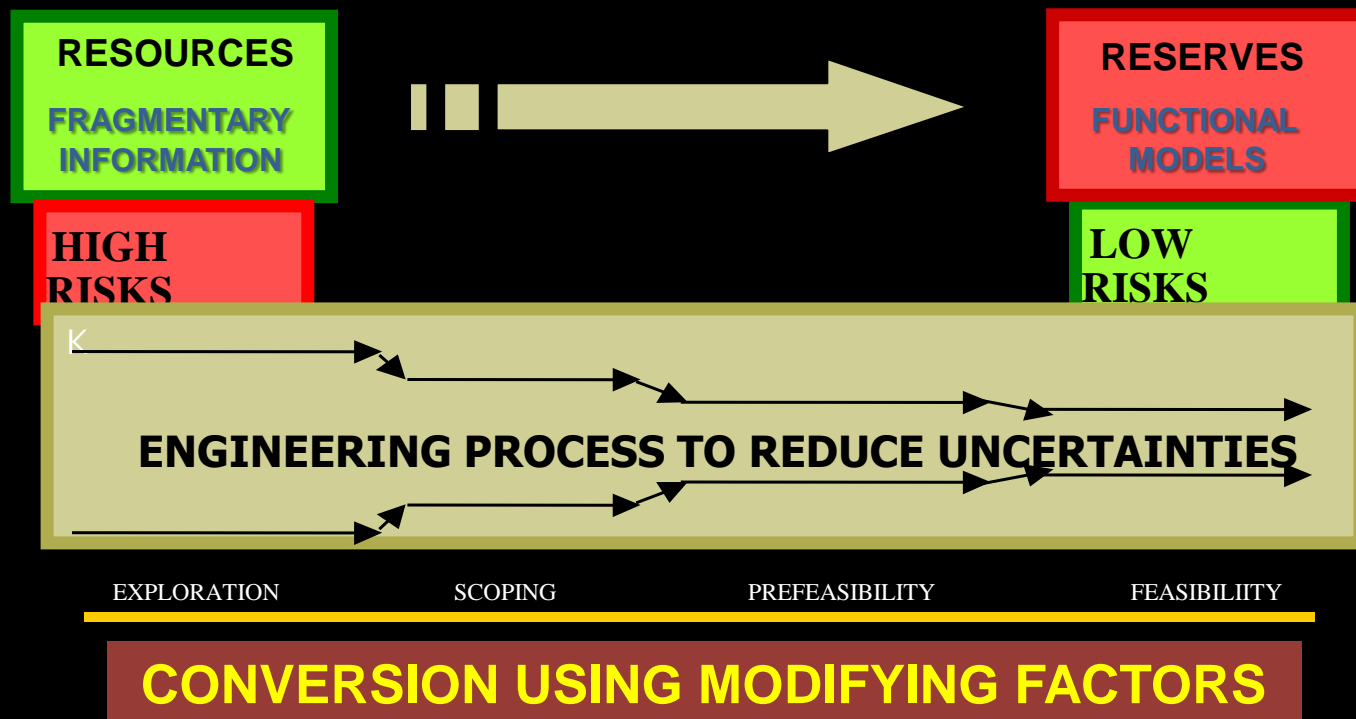
- The mineral industries have been conscious of these requirements from time ago. As a result, the need for international and aligned standards was established.
- This has been the purposes of national organizations in Australia, Canada, South Africa, USA through the SME, some European countries through the present PanEuropean Reserves Committee, and Chile to prepare national codes relative to how to inform and report mineral prospects, resources, and reserves.

- Standards and codes prepared for these national organizations for information and reporting are based on three fundamental principles: transparency, materiality, and competence.
- Transparency, this is to inform with a clear and fair description of the mineral assets. In other words, descriptions without ambiguity, without double interpretation.
- Materiality, this is to inform with a concrete and concise information. In other words, descriptions based on essential and fundamental facts.

- Competence, this is to inform with knowledge, expertise, and judgment. Reports must be prepared by mining professionals, technically competent and qualified, and ethically reliable. These professionals, accountable before their peers and before regulators and Justice, are called Competent or Qualified Persons.
- Based on these principles each national organization in the countries identified before has prepared Guidelines and Codes on what issues to inform, and how to inform. Nevertheless, these Guidelines are not recipes. They respond to the Competent Persons criteria.

- Competent Persons have the privileged right to inform but they are also responsible, accountable, and liable for the public information provided.
- Because of these principles Competent Personas are recognized by governments, stock exchanges houses, and international entities.
- Information reported by Competent Personas includes the whole value chain of a mine venture: from exploration to project feasibility; from a technical audit to the sale of a mine property.

CONVERSION OF MINERAL RESOURCES TO MINERAL RESERVES



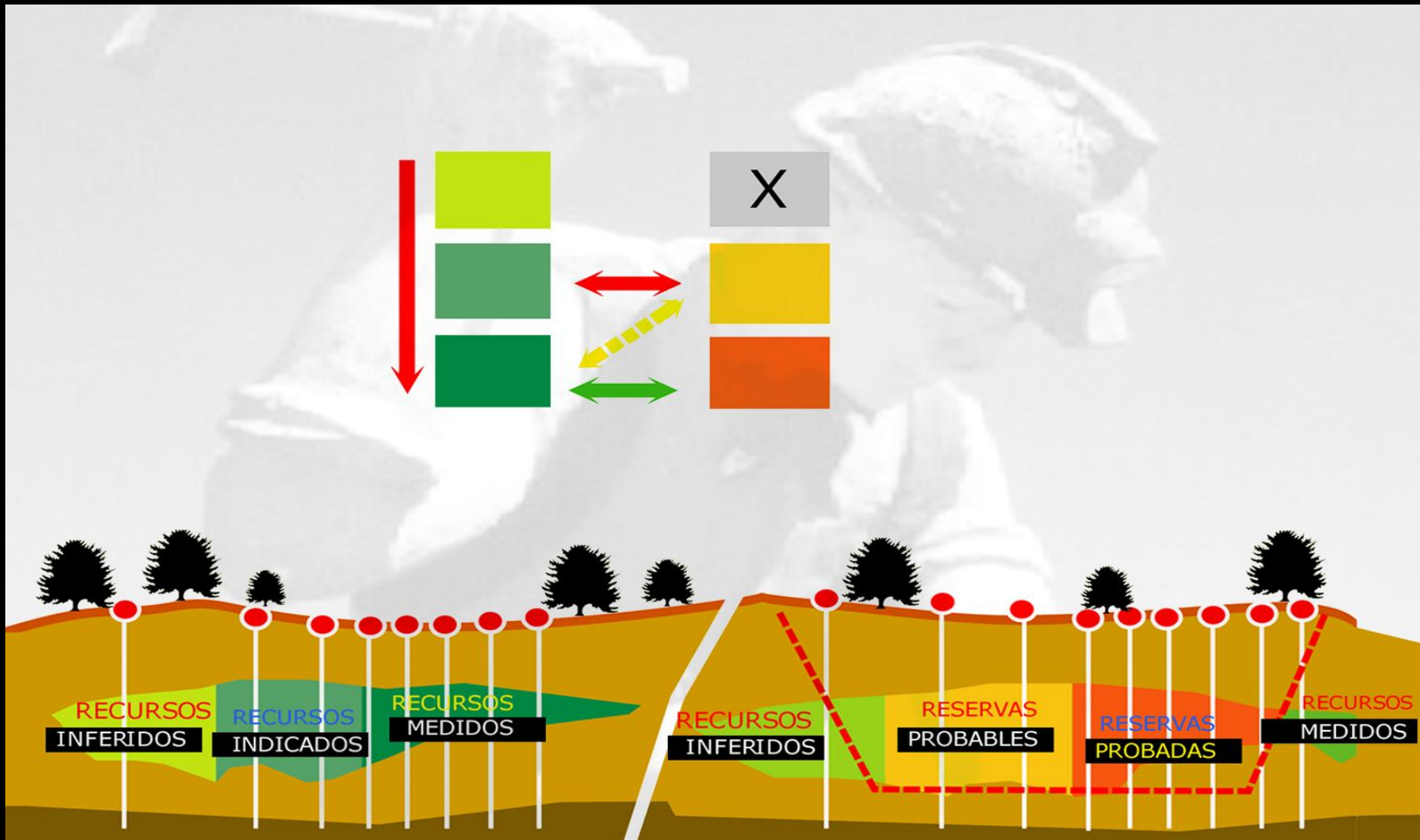
- Modifying Factors are used to convert Mineral Resources to Mineral Reserves and include mining, processing, metallurgical, economic, marketing, legal, environmental, social and governmental considerations.
- Through time and acquisition of information, Modifying Factors are more precise and accurate in such a way that original uncertainties progressively diminish converting mineral resources into mineral reserves.

- Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade continuity.
- An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and may not be converted to a Mineral Reserve.

- Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.
- An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

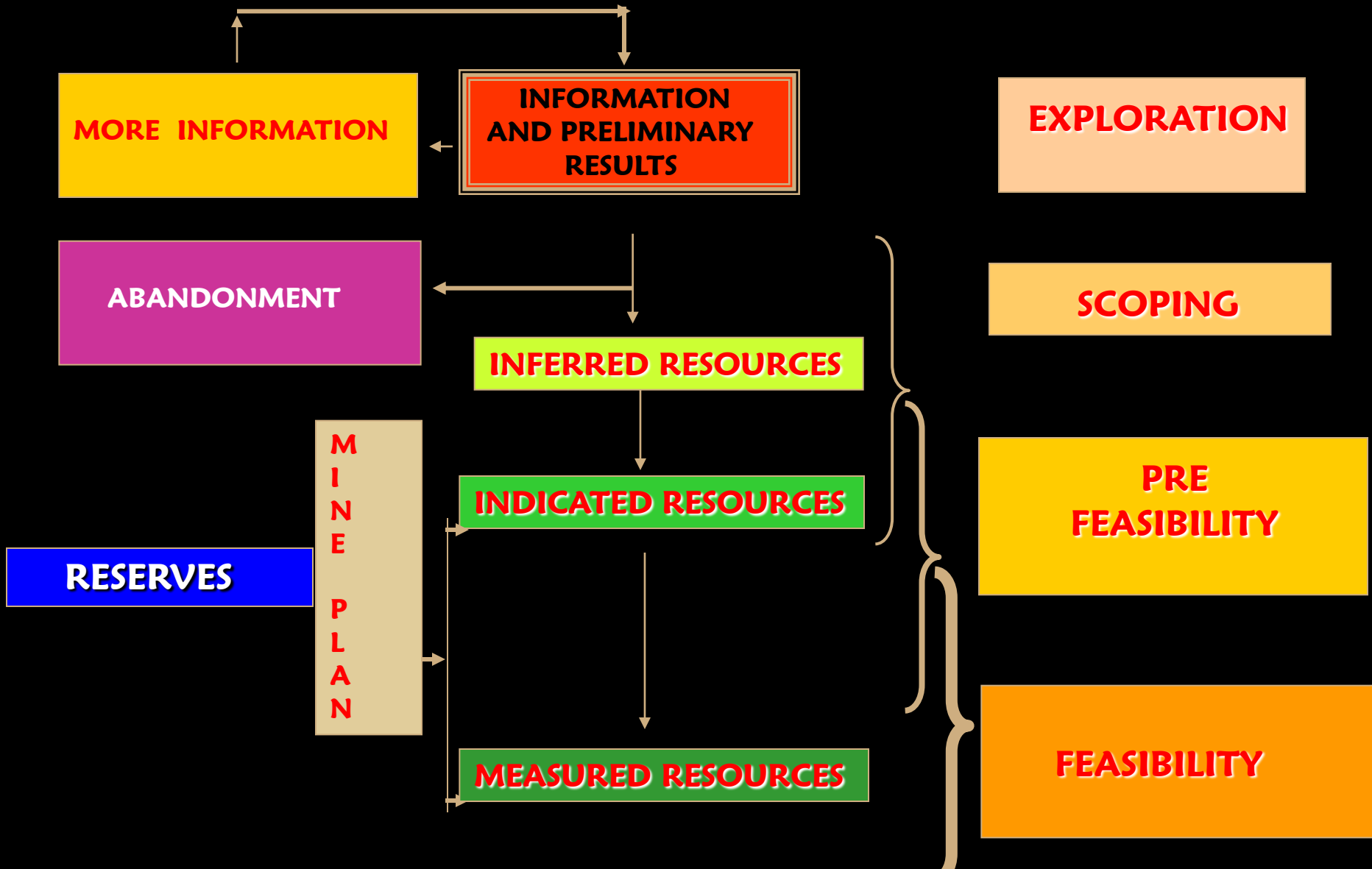
- A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.
- A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved or Probable Mineral Reserve.

- A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.
- A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.



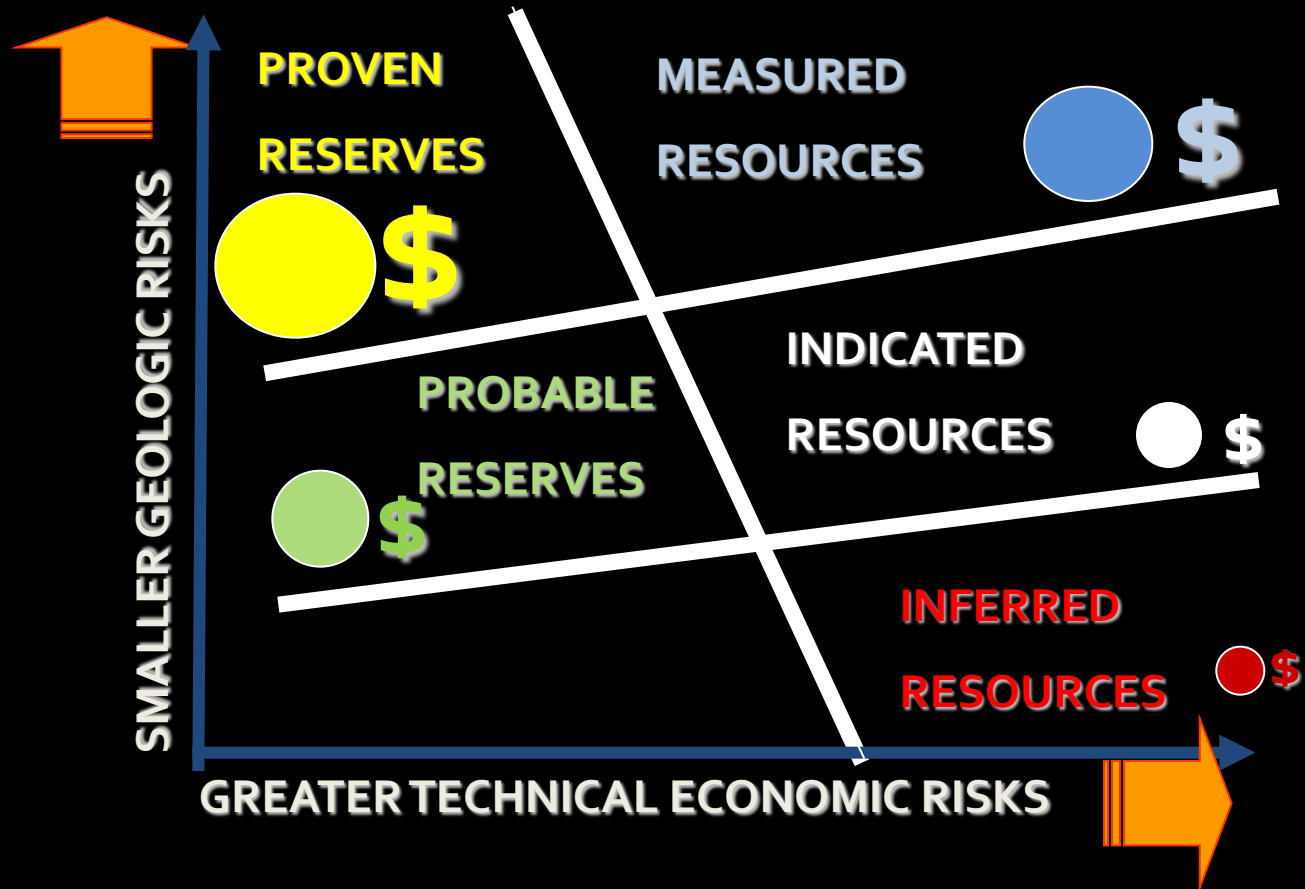
- A Pre-Feasibility Study is a comprehensive study of a range of scenarios for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method (underground mining or pit configuration), and a method of mineral processing are determined.
- It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resource may be converted to a Mineral Reserve. A Pre-feasibility Study is at a lower confidence

- A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable).
- The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.



**RELATIVE IN-SITU VALUE ESTIMATES AS A
FUNCTION OF THE GEOLOGICAL AND TECHNICAL RISKS**

GEOLOGICAL
AND
TECHNICAL.- ECONOMIC
RISKS
INFLUENCE
MINERAL
RESOURCES
AND
RESERVES
CATEGORIZATION



CHILE

DEFINICIONES Y GUIAS

Código para la Certificación de Prospectos de Exploración, Recursos, y Reservas Mineras.

~ Ley 20.235 ~

SOUTH AFRICA

South african code for Reporting of mineral resources And mineral reserves.

~ The SAMREC Code ~

AUSTRALIA

Australasian Code for Mineral Resources and Ore Reserves Reporting of Exploration Results.

~ The JORC Code ~

EUROPEAN CODE

Code for Reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves.

~ The PERC Code ~

CANADA

CIM DEFINITION STANDARDS

On Mineral Resources and Mineral Reserves Prepared by the CIM Standing Committee on Reserve Definitions.

~ National Instrument 43-101 ~

USA

A Guide for Reporting Exploration Information, Mineral Resources, and Mineral Reserves

The SME ~

- A Reciprocity Overseas Professional Organization principle (ROPO) has been established within CRIRSCO's national representative organizations (NRO).
- Such as the name implies, two NRO within CRIRSCO may grant to each other mutually rights to their Competent Persons to inform and report on exploration results, mineral resources or mineral reserves in those jurisdictions where this principle is applied.

- CRIRSCO is an organization with solid ethical and technical foundations supported by standards and guidelines coming from representative national organizations of the most vigorous mining locations in the world with the purposes of promoting a complete and reliable information on mineral assets at an international level.
- CRIRSCO has a strategic partnership with the ICMM and the recognition of the UNECE, IASB, the SPE, the IAEA and most of the stock exchanges houses, and financial institutions.