

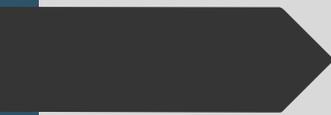


THE UNFC E-AXIS SOCIO-ECONOMIC VIABILITY

Dr. David Elliott

Chair, EGRC Social and Environmental Considerations Task Force

Presented by Mr. Michael Lynch-Bell



OUTLINE

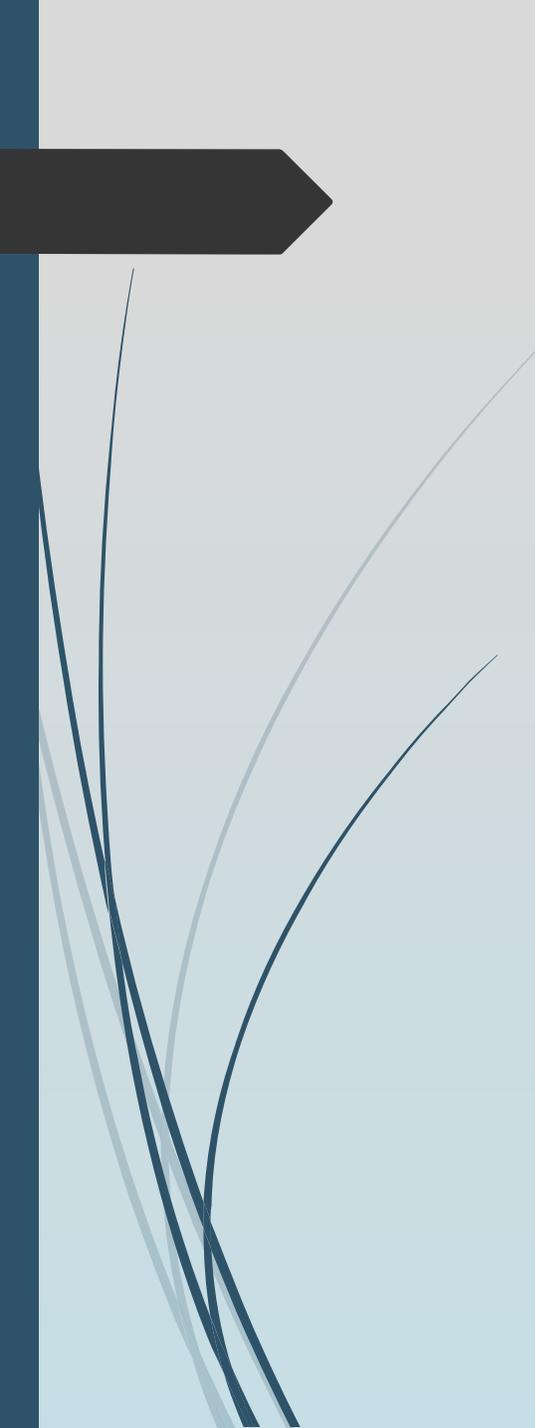


- ▶ INTRODUCTION
- ▶ CURRENT SITUATION
- ▶ CONCLUSIONS
 - ▶ TERMINOLOGY AND CONCEPTS
 - ▶ REVISIONS TO THE UNFC
- ▶ FURTHER WORK



THE SOCIAL AND ENVIRONMENTAL IMPACT OF PROJECTS

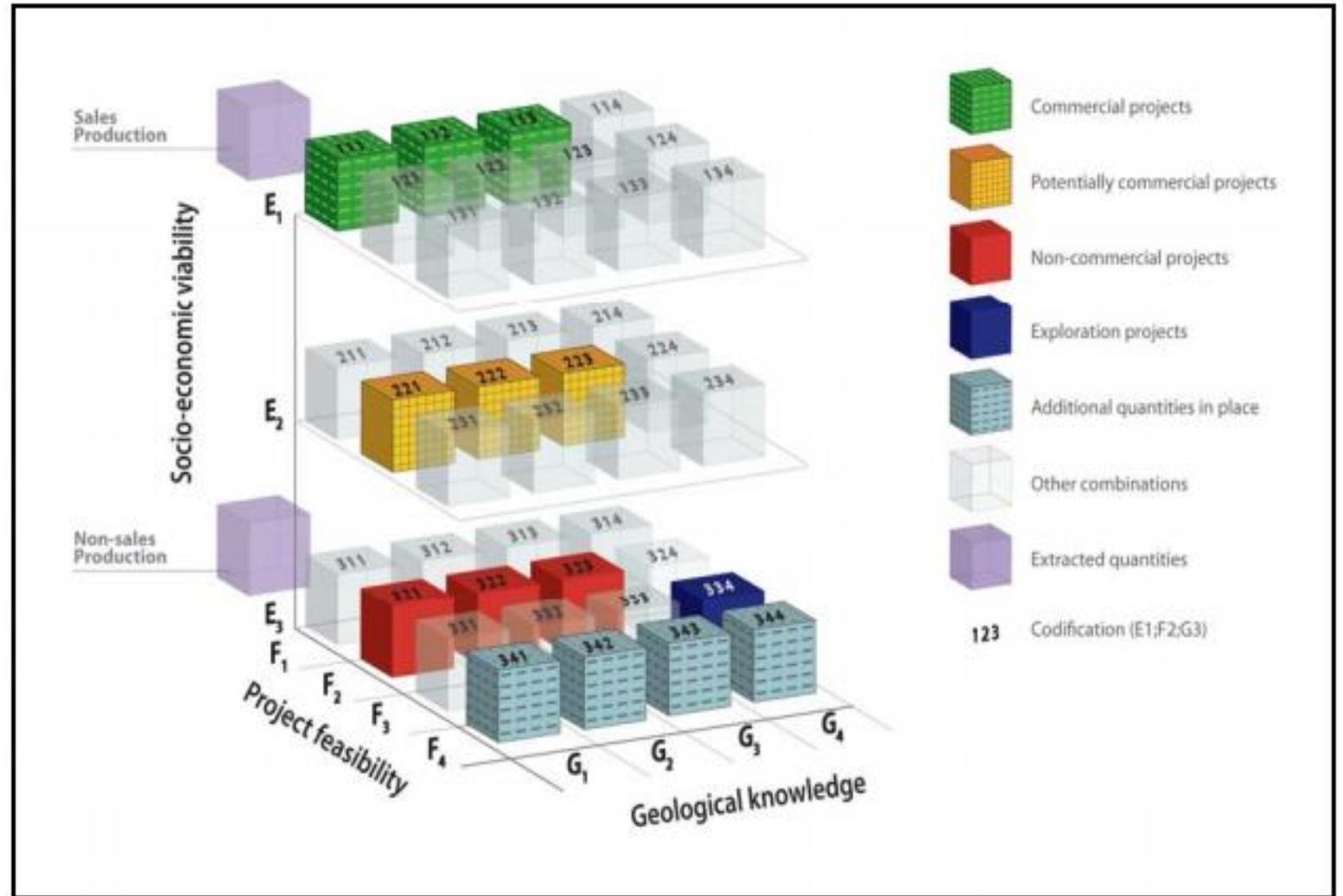
- ▶ Project development:
 - ▶ Can have negative social and environmental consequences, e.g., degradation of the environment, disruptive effect on society
 - ▶ But there are positive consequences, e.g. raw materials, revenue from taxes and royalties, jobs
- ▶ Social and environmental considerations can lead to legal, contractual, environmental, and/or government approval and other issues that affect the timing and implementation of a project:
 - ▶ Access to market, production and transportation facilities, internal and external approvals, access to financing, etc.

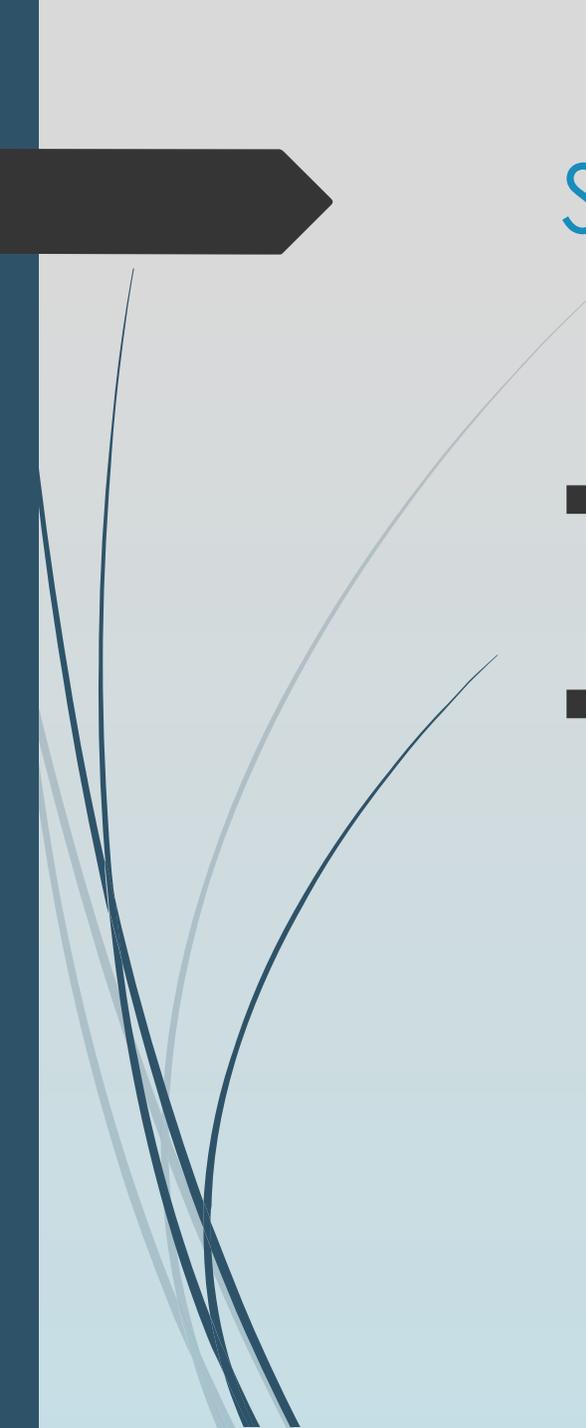


THE IMPACT OF SOCIO-ENVIRONMENTAL FACTORS

- ▶ USA. 7 to 10 years to get mining permits. (NMA Study, Permitting, Economic Value and Mining in the United States, 2015)
- ▶ Peru. Delay of \$21.5 billion worth of mining projects in recent years. (EI Economista reports).
- ▶ Canada. 35 projects, worth \$129 billion, stalled or cancelled due to opposition from environmental, aboriginal and/or community groups. (Financial Post, Dec. 2016)
- ▶ USA. Over 350 green energy projects were delayed or abandoned ... economic impact of these projects estimated at about \$1.1 trillion in GDP and 1.9 million jobs a year. (U.S. Chamber of Commerce, 2011)
- ▶ UK, 32 out of 66 applications for onshore wind farms were rejected in 2010. (Courtesy Dr. P. Pappas)

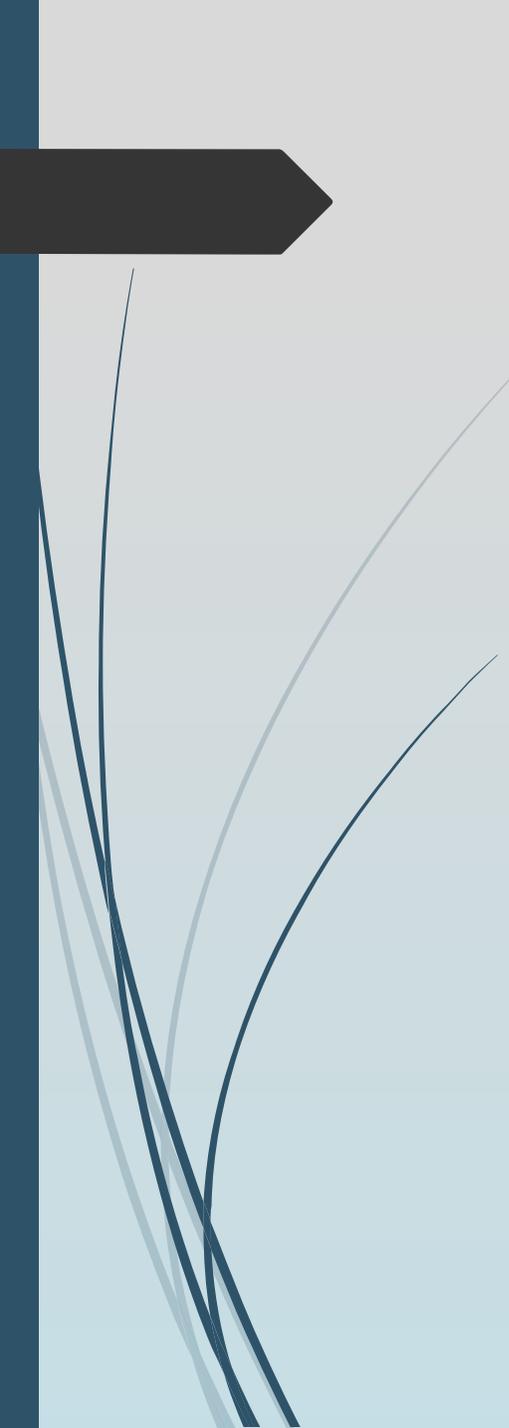
THE UNFC





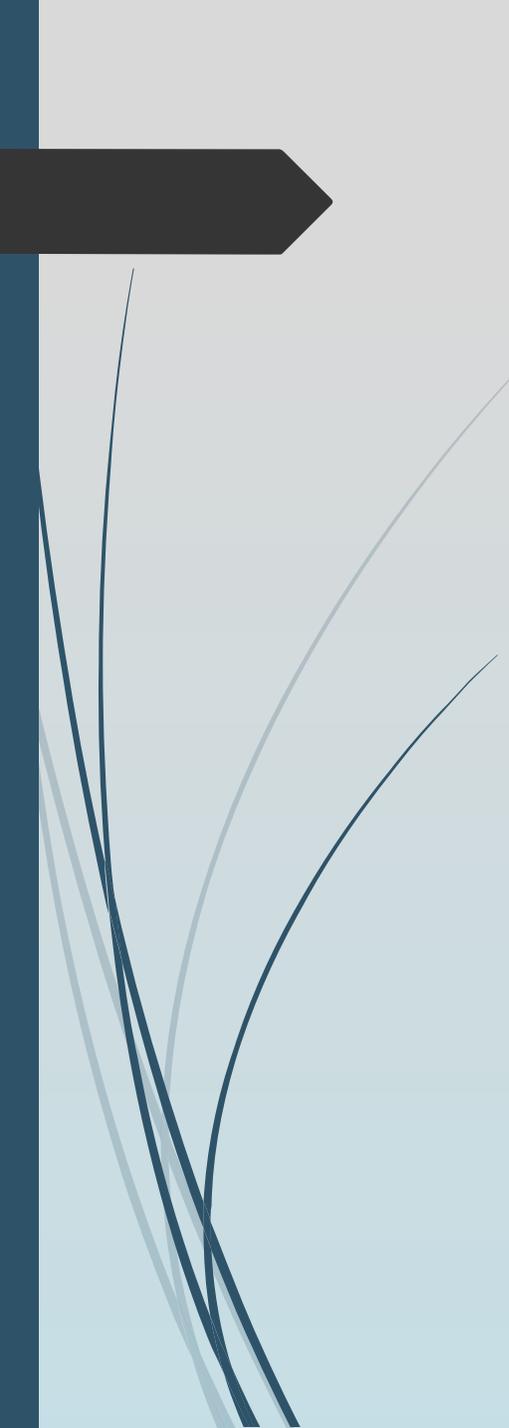
SOCIO-ECONOMIC FACTORS

- ▶ The Socio-Economic E-Axis is described in the UNFC as:
- ▶ “... designates the degree of favorability of social and economic conditions in establishing the commercial viability of the project, including consideration of market prices and relevant legal, regulatory, environmental and contractual conditions.”



THE SOCIAL AND ENVIRONMENTAL CONSIDERATIONS TASK FORCE (SECTF)

- ▶ 6th session of the EGRC in 2015
 - ▶ Established the E-axis Subgroup, to prepare guidance on accommodating environmental and social considerations in UNFC-2009
 - ▶ Guidance should revolve around high-level principles
- ▶ Progress reports at 7th and 8th sessions
- ▶ 8th session
 - ▶ The E-axis Subgroup was re-established as the Social and Environmental Considerations Task Force (SECTF)



SOCIAL AND ENVIRONMENTAL CONSIDERATIONS TASK FORCE

- Dr. David Elliott (Chair), Canada
- Dr. Tom Schneider, Ryerson Univ. Canada
- Ms. Kathryn Campbell, UK
- Mr. Michael Lynch-Bell, UK
- Dr. Julio Claudeville, Argentina
- Mr. Julian Hilton, UK.
- Mr. John Atherton, ICMM, UK
- Mr. Luis Martins, Portugal
- Ms. Hua Yang, PetroChina
- Mr. Dennis Mwalongo, Tanzania
- Dr H G Chong, Malaysia
- Ms. Karen Jenni, USGS
- Mr. Luis Lopez, Argentina
- Ms. Sarah Magnus, S. Africa
- Dr. Michael Neumann, EFG
- Mr. Rodrigo Chanez-Vincente, EU
- Mr. Sigurd Heiberg, Norway



SOCIAL AND ENVIRONMENTAL CONSIDERATIONS TASK FORCE

- Mandate is with regard to social and environmental factors, not economic
- Steps
 - Collect and compile relevant information
 - Review and analyse this information
 - Identify and define E-axis factors
 - Develop High Level Guidance
 - Recommend approach to developing Detailed Guidance



E-AXIS CATEGORIES

- ▶ **E1.** “Commercial: discovered, with a known recovery process and economically viable.”
 - ▶ E1.1 ... economic.
 - ▶ E1.2 ... not economic ... but viable through government subsidies and/or other considerations.
- ▶ **E2.** “Expected to become economically viable in the foreseeable future”. No sub-categories.
- ▶ **E3.** “...not expected to become economically viable ... or... at too early a stage to determine economic viability.”
 - ▶ E3.1 ...extracted ... not be available for sale.
 - ▶ E3.2. ... viability cannot yet be determined due to insufficient information
 - ▶ E3.3. ... not reasonable prospects for economic extraction and sale ...



CURRENT GUIDANCE

- ▶ F-AXIS and G-AXIS, E-AXIS (Economic):
 - ▶ Considerable guidance and well-developed commodity-specific practice
- ▶ E-AXIS (Social and environmental conditions):
 - ▶ Cited in most commodity-specific guidelines
 - ▶ But no significant guidance on classification



COMMODITY SPECIFIC GUIDANCE

- ▶ Recognised by UNFC:
 - ▶ Oil and Gas: SPE PRMS (Petroleum Resource Management System)
 - ▶ Minerals: CRIRSCO Template
 - ▶ Uranium and Thorium: NEA/IAEA Red Book
- ▶ Others:
 - ▶ COGEH, NPD, NI 43-101, SEC/FASB, ESMA, etc.
- ▶ All recognise Socio-Environmental factors (not necessarily by that name), but there is no significant guidance regarding classification

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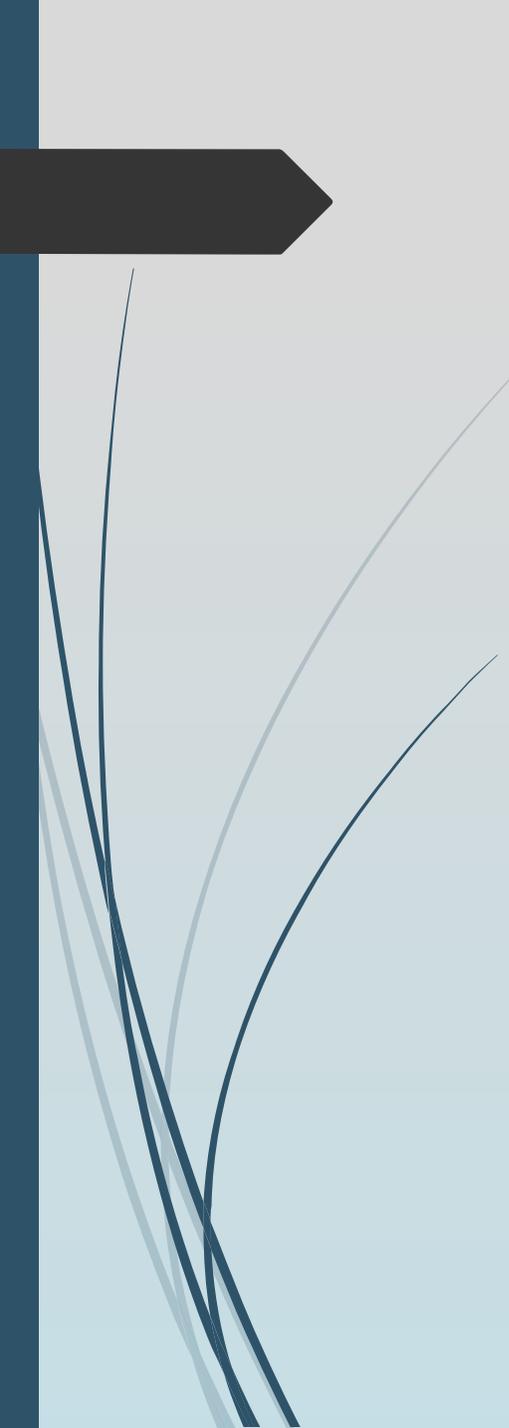
2018 TASK FORCE REPORTS

- Draft guidelines for accommodating environmental and social considerations in the United Nations Framework Classification for Resources.
- Accommodating Social and Environmental Considerations in the United Nations Framework Classification for Resources: Concepts and Terminology.

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CONCLUSIONS AND RECOMMENATIONS

- ▶ There is no significant current guidance regarding classification with regard to Socio-Environmental factors.
- ▶ Many of these factors are common to all types of resource
- ▶ Some commodity-specific
- ▶ Recommendations
 - ▶ High level guidance
 - ▶ Revisions to the E-axis
 - ▶ Clarification of concepts and terminology
 - ▶ Future work



CONCEPTS AND TERMINOLOGY

- ▶ SECTF work necessitated an examination of related concepts and terminology that lay beyond the immediate mandate.
- ▶ What do the following mean?
 - ▶ “Economic in the narrow sense”, “Economically viable” and “Commercial”
 - ▶ Environmental, Social
 - ▶ Social licence
 - ▶ Legal, regulatory, contractual conditions
 - ▶ Foreseeable Future
 - ▶ Etc.

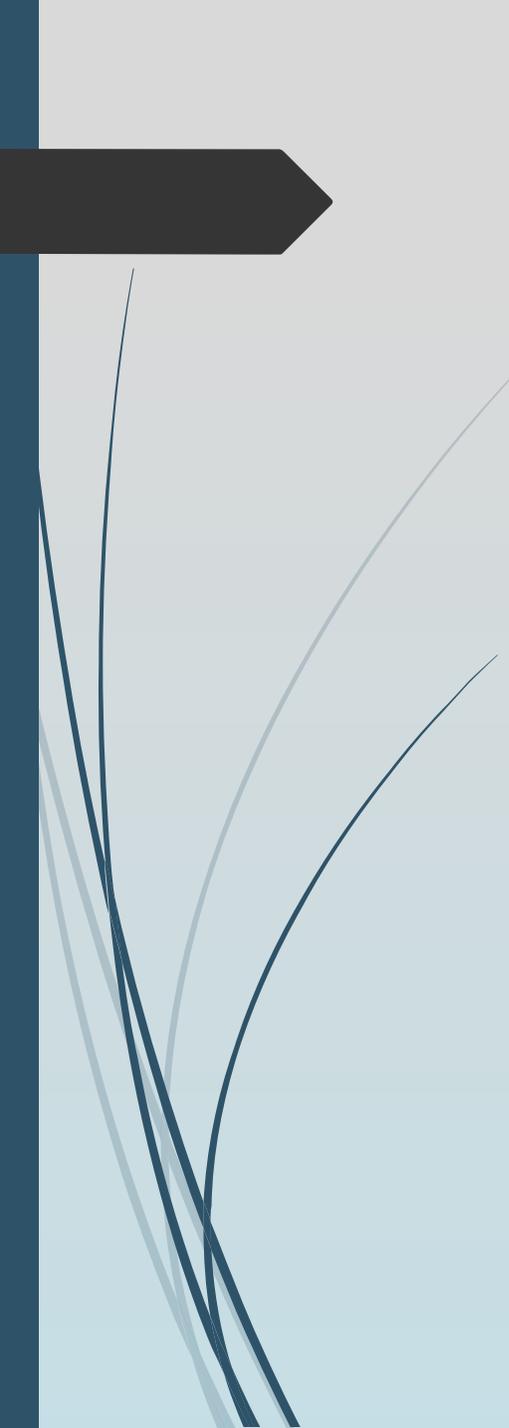
TERMINOLOGY: ECONOMICS. UNFC USES

- ▶ “Economic in the narrow sense”. Not defined, but assumed to mean Economic as used in industry
 - ▶ E.g. a positive NPV at a reference discount factor.
- ▶ “Economically viable”. Includes E-axis commercial factors in addition to “Economic in the narrow sense”
 - ▶ ... include all “social and economic conditions in establishing the commercial viability of the project, including consideration of market prices and relevant legal, regulatory, environmental and contractual conditions.”



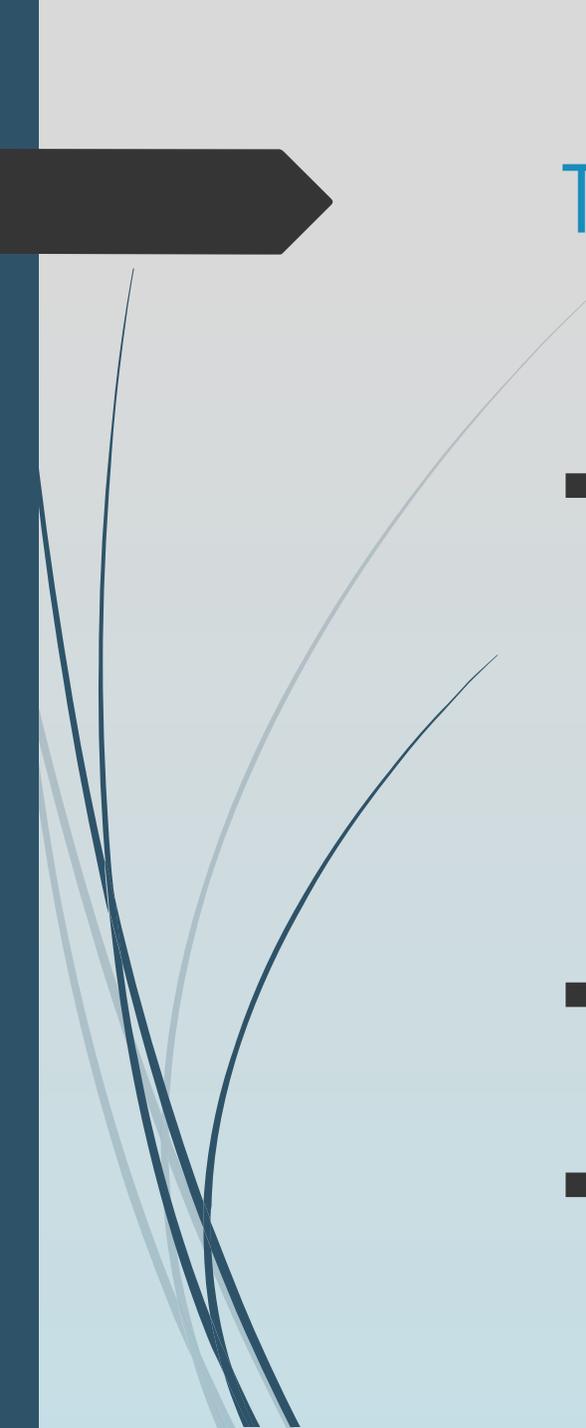
TERMINOLOGY PROPOSED: COMMERCIAL AND ECONOMIC

- ▶ **ECONOMIC:** a project is economic when the anticipated monetary revenues equal or exceed the costs by a margin that satisfies financing requirements, taking the risks and opportunities into account, and provides a positive return on investment, often measured by a monetary criterion, such as having a positive NPV at a discount factor.
- ▶ **COMMERCIAL:** a project is commercial when it satisfies all the relevant criteria of the E, F, and G axes that are required for it to proceed. Including being economic.



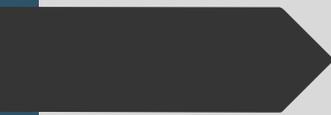
TERMINOLOGY PROPOSED: ENVIRONMENTAL AND SOCIAL

- ▶ **ENVIRONMENTAL:** the physical, chemical, and biological impact on, or changes to, the project area and surroundings, due to a project, such as:
 - ▶ Heavy metal contamination in soils or water, disruption of wildlife habits and migration characters, etc.
- ▶ **SOCIAL:** the resulting impact on humans and society, from a project, such as:
 - ▶ Effects stemming from environmental changes (e.g. health issues due to heavy metal contamination).
 - ▶ Changes in social systems and structures, (e.g. ownership claims, traditional land usage, land and other value changes, changes in local population and community structures, etc.).



TERMINOLOGY: CONTINGENCY

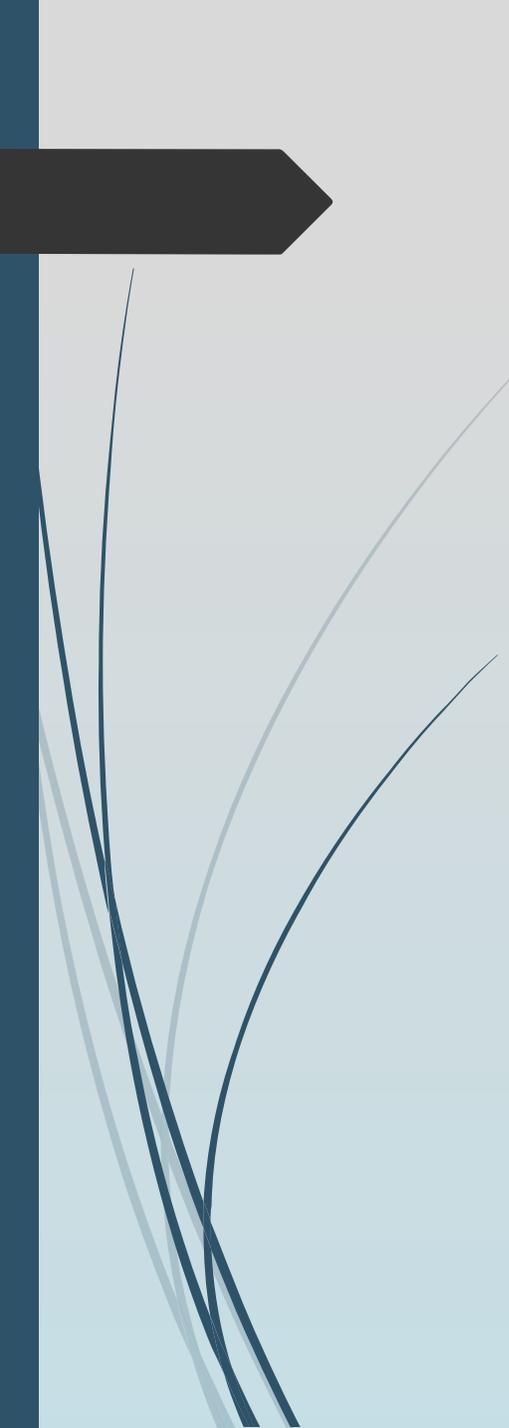
- ▶ A condition that must be satisfied for recovery of a resource:
 - ▶ specific to the project being evaluated; and
 - ▶ expected to be resolved within a reasonable timeframe.
 - ▶ Once satisfied, no longer a contingency
- ▶ Commerciality requires all contingencies to be satisfied
- ▶ There are contingent factors in both the E and F-axes, possibly also the G-axis.



NON-ECONOMIC E-AXIS CONTINGENCIES

In UNFC and elsewhere

- ▶ Legal framework. The right to produce and sell or benefit from a resource. Not a contingency unless unsettled or in dispute.
- ▶ Fiscal framework and Contractual conditions? (taxes, royalties, etc.)?
- ▶ Regulatory approvals.
- ▶ Environmental or social impediments or barriers.
 - ▶ Even if they are known to exist, there can be significant uncertainty as to the likelihood of their resolution.
 - ▶ May include:
 - ▶ Issues of interest to a local community
 - ▶ Civil unrest
 - ▶ War
 - ▶ Political (in PRMS)



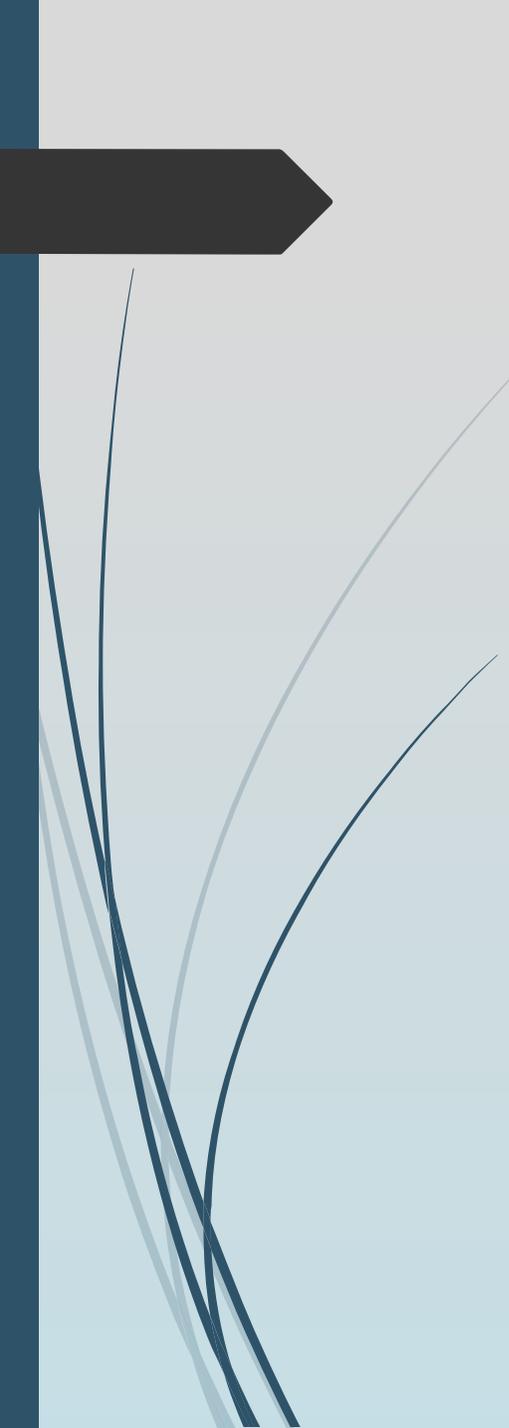
FORMAL AND NON-FORMAL CONTINGENCIES

- ▶ FORMAL legal and regulatory processes:
 - ▶ E.g., environmental approval or a licence to drill, or to mine.
- ▶ NON-FORMAL, outside a formal legal or regulatory process:
 - ▶ Could be a result of concerns of local communities about the impact of a mineral recovery project, or of organisations that would not be directly affected but who have concerns of a more general nature.
 - ▶ Harder to determine how to classify.



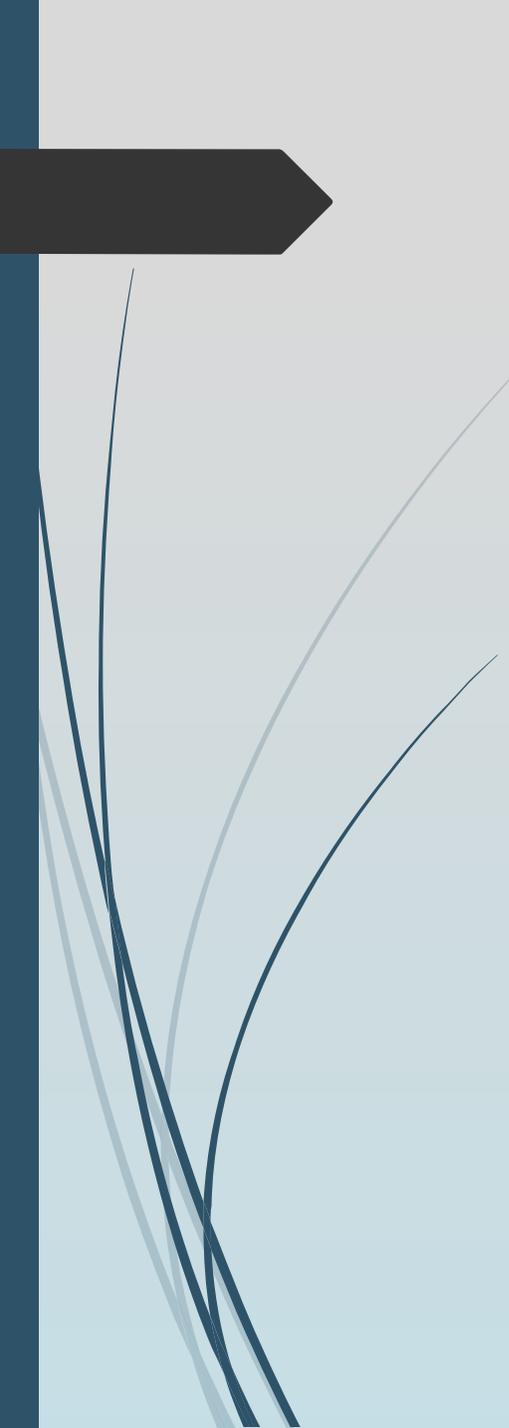
INTERNAL AND EXTERNAL FACTORS

- ▶ INTERNALITIES: Factors that are under the control of an operator, and directly affect the commercial viability of a project.
 - ▶ E.g., Capex, Opex, etc.
- ▶ EXTERNALITIES: “The cost or benefit that affects a party who did not choose to incur that cost or benefit.” (Wikipedia)
 - ▶ E.g., Increased noisy traffic, heavy metal emissions, etc.
- ▶ **Projects must increasingly consider factors that were previously considered to be externalities**



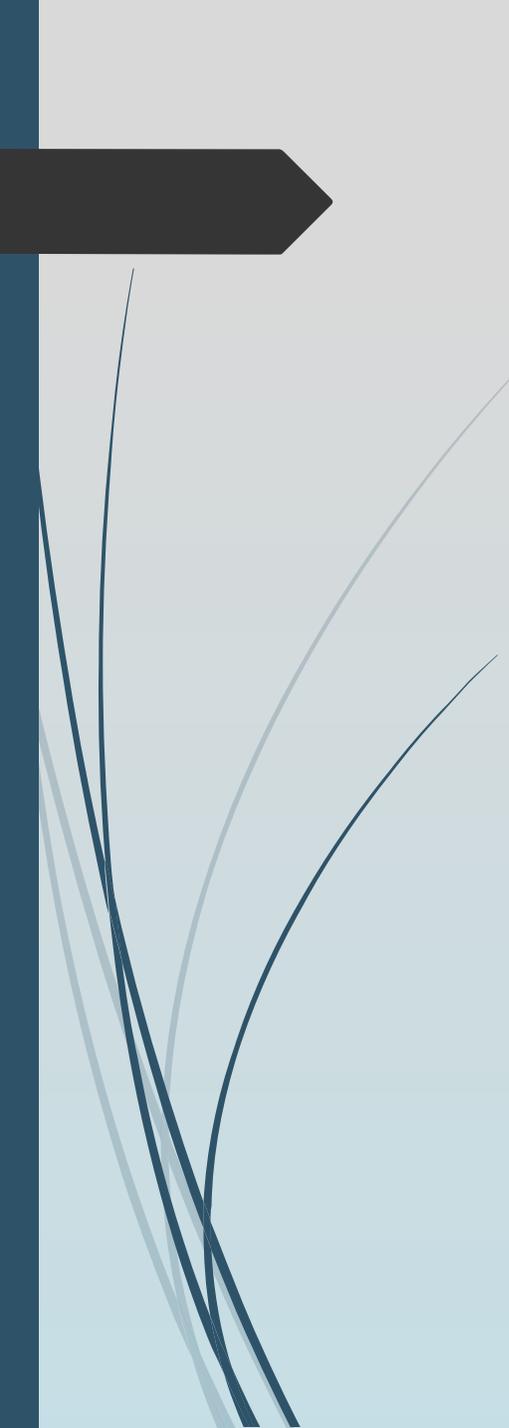
SOCIAL LICENCE

- ▶ Several “definitions”, in summary:
 - ▶ Resolution of activities that could delay or prevent a project, by agencies inside or outside a formal legal and regulatory process.
- ▶ For Classification:
 - ▶ Not recommended as a classification term because it is uncertain as to what it could include.
 - ▶ Use specific criteria (e.g., regulatory approval, etc.)



E-AXIS SUB-CATEGORY REVISIONS

- ▶ For all Sub-categories:
 - ▶ Replace “economically viable” with “economically, socially, and environmentally viable”
 - ▶ Minor word changes for clarity
- ▶ E.1 and E.3 No other changes being considered
- ▶ E.2 Establish sub-categories to reflect the probability that contingencies will be resolved
 - ▶ E2.1 High probability of resolution
 - ▶ E2.2 Medium probability of resolution
 - ▶ (E3.3 Low probability of resolution)



SECTF FUTURE WORK

- SECTF to develop non-commodity specific guidance (SECTF mandate did not include development of detailed guidance of the level found in PRMS, CRIRSCO, etc.)
- Support the development of guidelines, case studies, and best practices documents for the practical application of the guidance in consultation with the various sectoral Working Groups.
- Develop guidelines for UNFC to conform with the UN SDGs.