



Government  
of Canada

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Canada



# Canada's regulation of the extractive industries

Presentation to ASWG

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# Role of Government

- In Canada, the role of government is to create the regulatory environment in which the private sector can undertake mineral exploration, mine development and extraction, followed by remediation.
- In Canada, there is a division of responsibilities between the regulatory (governments) and the operator (private sector).

# Mining Regulations

- Generally speaking, proscriptive regulations are less effective and will not encourage innovation.
- Regulations that set standards or threshold limits, without specifying how they are achieved, will allow industry to innovate (reduce costs) to meet the limits/standards
- Example – A regulation states that “X” cubic metres of air must flow through a mine to ensure worker safety from carbon monoxide from diesel equipment. However, what happens if the mine is using electric vehicles?

# Royalties

- In Canada, provincial/territorial governments (the owner of the mineral resource) set the royalty rate based on their objectives and priorities.
- Industry knows what the rates are and will make the decision to bring a mine to production when it makes economic sense (taking into account all royalties, corporate and non-profit taxes, commodity prices, and operating costs).
- In Canada, tax rates are not changed to ensure a minimum rate of return for industry.

# Dispute Resolution

- In Canada, independent third-party adjudication is a foundational principal.
- For example, disputes between surface and subsurface mineral right holders are settled by independent adjudicative tribunals (e.g., Mining and Lands Commissioner in Ontario or the Surface Rights Board in British Columbia).
- A project proponent, a non-government organization, an individual and / or the government may refer an issue to an independent juridical system for resolution.

# Project Assessment

- In Canada, projects are assessed on more than just their potential environmental impact. Social and economic factors are also part of the assessment.
- Public consultation and input is very important.
- A closure and monitoring plan is included in the assessment process.
- Reclamation funds are used to reduce government exposure to potential environmental liabilities if a company becomes insolvent.

# Environmental Regulations

- In Canada, environmental regulations are science-based and are updated to reflect new advances in our understanding of the impact of humanity on the eco-system.
- Environmental regulations place requirements on a project proponents through all stages of the mineral development process – exploration, mine development, extraction, and finally reclamation.
- Mining regulations cannot be developed independent of environmental regulations.

# Specific examples from offshore oil & gas and terrestrial mining

- **Seismic sound mitigation** – *Statement of Practice*
- **Sedimentation** – Project assessment based on PNET (probably no effect threshold) of 6.5mm
- **Vessel discharges** – *Offshore Waste Treatment Guidelines*
- **Mine closure** – Checklist for Governments

# Seismic sound mitigation

*The Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment* sets out mitigation requirements for:

- Planning of seismic surveys;
- Establishment and monitoring of a safety zone;
- Prescribed start-up;
- Prescribed marine mammal observation and detection measures; and
- Prescribed shut-down.

# How was the *Statement developed*?

- Gov't officials and scientists (int'l and nat'l) attended a workshop to review existing literature
- Identified mitigation measures and best practices, compiled these measures into a report
- Gov't officials compiled these measures into the *Statement*
- Sets out minimum standards which apply to all seismic activities that use air source arrays in areas under Canada's jurisdiction
- Plans of work for seismic studies must include these mitigation measures in order to get necessary approvals

# Sedimentation at offshore sites

- There are no regulations or guidelines in Canada that prescribe the allowable size of a sediment plume from drill cuttings/muds
- Not a lot of research to draw from in Canada
- The vast majority of research is focused on warm water corals or cold-water corals in the North Sea conducted by Norwegian researchers
- Not known how applicable this research is for the corals found in the Northwest Atlantic on the Newfoundland slope but it is the best we have at this time.

# Sedimentation at offshore sites(cont'd)

- At present, we assess impact on environment by having the proponent conduct numerical modelling for drill cutting / mud dispersion to estimate the area affected
- A “predicted no effect threshold” (PNET) of 6.5 mm for toxic and non-toxic sedimentation based on benthic invertebrates’ tolerance to burial, oxygen depletion and change in sediment grain size (Smit et al 2008)
- Not a regulation or guideline but an assessment criteria used in CEAA’s assessment process

# Vessel Discharges

*Offshore Waste Treatment Guidelines* applied by the boards at sites in areas of Canadian jurisdiction. These guidelines were prepared to aid operators in the management of waste material associated with petroleum drilling and production operations in offshore areas. Some language from the foreword:

- “the intent of the Boards is to provide additional information and guidance to operators so that they may better understand the expectations of the Boards regarding responsiveness to, and compliance with, the regulatory requirements”
- The guidelines are not statutory instruments and it is not mandatory to follow them. The onus is on the operator to achieve compliance with the applicable regulations, and to be able to demonstrate the adequacy and efficacy of the methods employed to achieve compliance.

# Vessel Discharges: Appendix A: Organizations Participating in the Working Group

Canada-Newfoundland and Labrador Offshore Petroleum Board

Canada-Nova Scotia Offshore Petroleum Board

National Energy Board

Indian and Northern Affairs Canada

Environment Canada

Fisheries and Oceans Canada

Natural Resources Canada

Natural History Society of Newfoundland and Labrador

Inuvialuit Game Council

Canadian Association of Petroleum Producers (North)

Canadian Association of Petroleum Producers (NL)

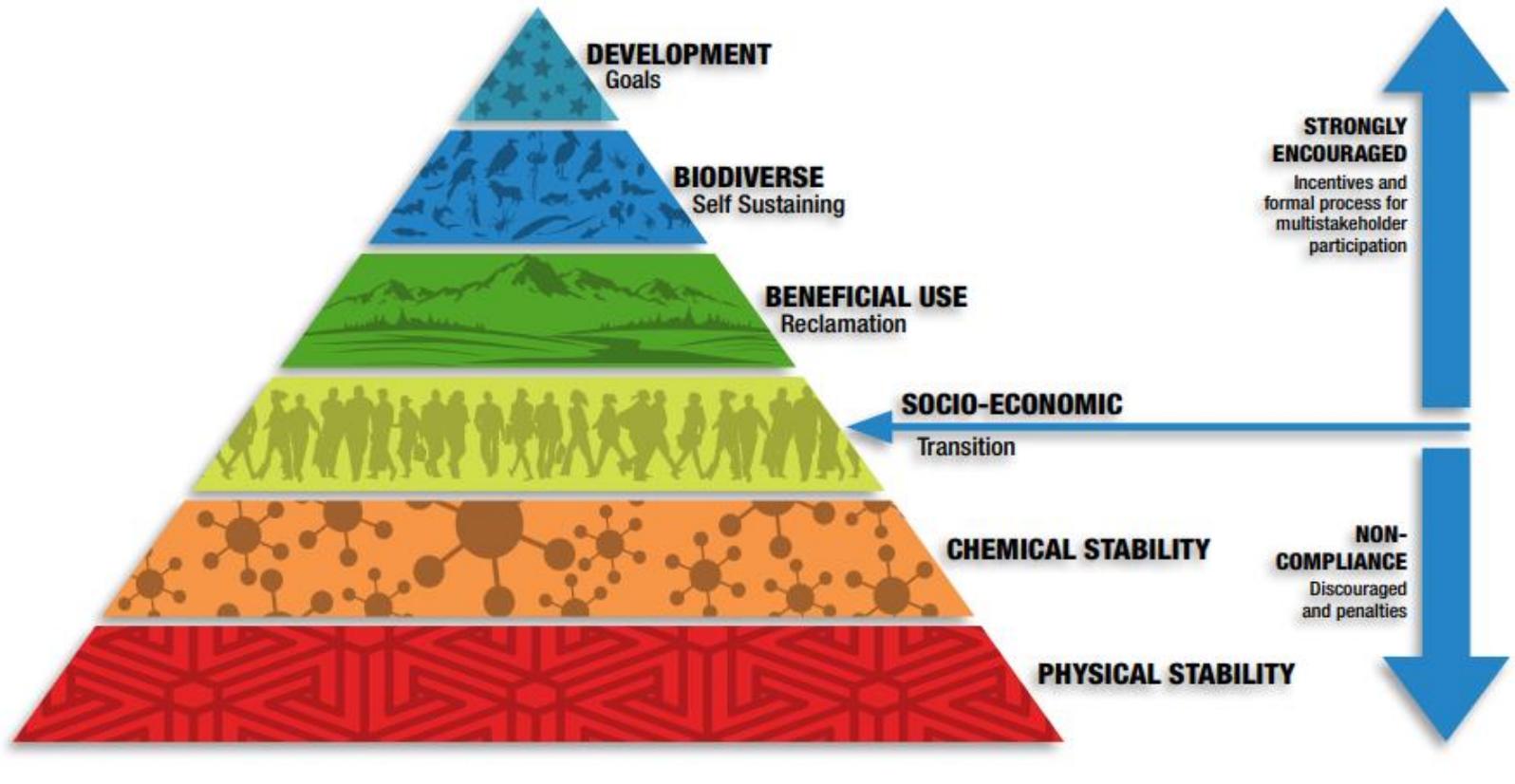
Canadian Association of Petroleum Producers (NS)

# Mine Closures

- Papua New Guinea's Mining Act had no provisions for mine closures
- Mine operators closed their mines based on what their views of international practice. Others were insolvent or in liquidation
- At the 2017 APEC it was decided that PNG would use the outcome of the Canadian lead project to develop a checklist
- A workshop was held to identify gaps and issues
- The checklist was modified for PNG's needs

# From the Checklist – p. 7

## THE HIERARCHY OF CLOSURE NEEDS



# From the Checklist – p. 10

## *SOME CHARACTERISTICS OF GOOD POLICY*

Considerable experience has been gained over the years with the development of closure policy, and various lessons have been learned.

<i>Ensure Adequate Financial Assurance</i>	<ul style="list-style-type: none"> <li>• Mines should be required to develop credible, auditable estimates of closure costs (historically, closure costs tend to have been underestimated)</li> <li>• A mechanism is put in place to ensure that this amount is set aside to fund closure, independent of the success or failure of the mine as an economic venture</li> <li>• When mining companies are required to set aside these closure funds as a condition of permitting (often called financial assurance), there is a strong incentive for operators to proactively close out the mine and obtain a release of the financial assurance funding</li> </ul>
<i>Avoid Prescriptions</i>	<ul style="list-style-type: none"> <li>• Prescriptive regulations define in detail how a goal should be achieved, rather than what the goal is.</li> <li>• Can stifle innovation, or simply become out of date as science advances faster than regulations can change</li> </ul>
<i>Updates Mechanisms</i>	<ul style="list-style-type: none"> <li>• Mine plans are dynamic, and mines do not typically arrive at closure with the same configuration or on the same date as was planned prior to the start of operations.</li> <li>• A regular program of closure plan updates and approvals is needed during the mine life, allowing changes in the mine plan to be incorporated, as well as the results of ongoing research</li> <li>• The amount of the financial assurance should also be updated, increasing as the mine expands or decreasing as the mine undergoes progressive reclamation.</li> <li>• If the closure policy includes prescriptive elements, it is critical that the policy itself include update mechanisms. For instance, some jurisdictions have systems in place to estimate the minimum amount of financial assurance. If these mechanisms are not updated regularly, rising costs can render them obsolete.</li> </ul>
<i>Define Outcomes</i>	<ul style="list-style-type: none"> <li>• The desired results of closure should be defined by key stakeholders in concert with each other, rather than imposed through blanket policy.</li> </ul>
<i>Legislate Stakeholder Involvement</i>	<ul style="list-style-type: none"> <li>• The benefits of stakeholder involvement have been well established.</li> <li>• Governments can ensure through regulation that stakeholders will be properly informed and consulted about the plans for closure.</li> </ul>
<i>Alignment</i>	<ul style="list-style-type: none"> <li>• Mine closure policy should be developed in a way that aligns with the existing regulatory framework, such as:             <ul style="list-style-type: none"> <li>– The structures around Environmental and Social Impact Assessments (ESIAs) and related management plans</li> <li>– Closure commitments for closure that are made as part of the ESIA process</li> <li>– Applicable environment and mining legislation</li> </ul> </li> <li>• Policy should also be developed in alignment with the development targets for the jurisdiction as well as strategies and plans for the mining sector as a whole.</li> </ul>

These are just some of the characteristics of good policy—many others are described throughout this document.

Thank you!

# References

## **Mine Closure checklist**

<https://www.apec.org/Publications/2018/03/Mine-Closure---Checklist-for-Governments>

<https://www.igfmining.org/wp-content/uploads/2018/11/Session-10--Mine-closure-best-practice--1.pdf>

<https://www.igfmining.org/wp-content/uploads/2018/09/Session-10-MINE-CLOSURE-REHABILITATION-PAPUA-NEW-GUINEA-Roger-Gunson.pdf>

## **Seismic Mitigation**

<https://waves-vagues.dfo-mpo.gc.ca/Library/283727.pdf> - Review of Scientific Information on Impacts of Seismic Sound on Fish, Invertebrates, Marine Turtles and Marine Mammals

<http://www.dfo-mpo.gc.ca/oceans/publications/seismic-sismique/page02-eng.html> - Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment

# References

## **Sedimentation**

Smit, M.G.D., Holthaus, K.I.E., Trannum, H.C., Neff, J.M., Kjeilen-Eilertsen, G., Jak, R.G., Singaas, I., Huihbregts, M.A.J. and A.J. Hendriks (2008). Species sensitivity distributions for suspended clays, sediment burial and grain size change in the marine environment. *Environmental Toxicology and Chemistry*, 27(4): 1006-1012.  
<https://setac.onlinelibrary.wiley.com/doi/full/10.1897/07-339.1>

## **Vessel discharges**

Offshore Waste Treatment Guidelines

<https://www.cnlopb.ca/wp-content/uploads/guidelines/owtg1012e.pdf>