Mining Association of Canada
Towards Sustainable Mining

27th Meeting of the
Community of Interest Advisory Panel
POST-VERIFICATION REVIEW REPORT

October 2-5, 2017
Raglan Mine, Quebec

Towards Sustainable Mining
Vers le développement minier durable

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1   Introduction

The purpose of this report is to present the summary of discussions of the MAC Community of Interest Advisory Panel (COI Panel) post-verification review (PVR) for Glencore and Rio Tinto. Meeting presentations and briefing materials were provided to the COI Panel and are not duplicated in the body of this report.

For more information on the October 2017 Panel Meeting, please see the *October 2017 COI Panel Meeting Report* under separate cover.

This report is organized by the following sections:

- **Section 2:** Overview of Towards Sustainable Mining (TSM)
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2   About the Towards Sustainable Mining (TSM) Initiative

Established in 2004, Towards Sustainable Mining (TSM) is the Canadian mining industry's commitment to responsible mining. It is a set of tools and indicators to drive performance and ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. By adhering to the principles of TSM, mining companies demonstrate leadership by:
- Engaging with communities
- Driving world-leading environmental practices
- Committing to the safety and health of employees and surrounding communities

Participation in TSM is a condition of membership in MAC. It requires that members subscribe to a set of guiding principles that are supported by specific performance indicators against which member companies must report their results. All MAC members must report against indicators in the following performance measurement protocols:
- Aboriginal and Community Outreach
- Energy and GHG Emissions Management
- Tailings Management
- Biodiversity Conservation Management
- Safety and Health
- Crisis Management and Communications Planning
- Preventing Child and Forced Labour

For more information on TSM, including company scores, governance, and oversight by the Community of Interest Advisory Panel, visit http://mining.ca/towards-sustainable-mining

3   TSM External Verification System

TSM includes a number of elements to ensure that reported results present an accurate picture of each facility's management systems and performance. Figure 1 identifies the different layers of assurance embedded in TSM.

This report is focused on the final layer: the COI Panel Review. Each year, the COI Panel chooses two or three companies who have undergone an external self-assessment for the PVR at the October COI Panel meeting.

More information on the TSM external verification system, including the terms of reference for verification service providers, can be found on MAC's website.
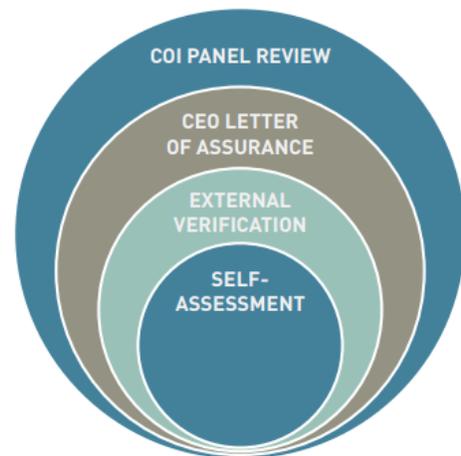

Figure 1: TSM assurance levels

4   COI Panel Post-Verification Review Process

The purpose of the post-verification review is to have the COI Panel lend public credibility to the TSM results by:
- ✓ Engaging in dialogue with the companies undertaking the PVR to identify best practices and challenges on environmental and social issues faced by mining companies and communities;
- ✓ Driving continued performance improvements by identifying both opportunities and impediments to reaching the highest level of TSM performance;
- ✓ Determining whether the member companies are finding the verification process useful;
- ✓ Bringing cohesiveness in the application of the self-assessment and verification processes; and
- ✓ Improving TSM (including the verification process).

The Panel agreed that the PVR process is **not intended to be a "verification of the verification"** undertaken by the verification service providers for each company. Rather it should focus on building a meaningful dialogue with the companies selected to undergo the PVR process to gain a better understanding of the successes and challenges regarding the key environmental and social issues in mining; to challenge the companies on their performance; and determine whether verification is working as the Panel expected. The PVR process should also allow the Panel to gain understanding in how the TSM indicators translate into real action and build confidence in the verification process.

The scope of the PVR process includes the verification process (design, etc.), the verified results, and lessons learned and changes needed to improve performance identified by the company. The specific areas of focus for each year's post-verification review are decided by the Panel. A subset of the protocols may be chosen by the Panel for deeper examination in the hope of exploring how companies are taking action to meet the protocol criteria.

The Panel selected Glencore and Rio Tinto from the list of companies verifying their 2016 TSM results to undergo post-verification review in 2017.

As part of the process, companies undergoing the PVR are asked to prepare a Company Background Document and webinar presentations to help the Panel understand the company, its verified TSM results, and any relevant background information prior to the Fall COI Panel Meeting. Figure 2 outlines the PVR process.
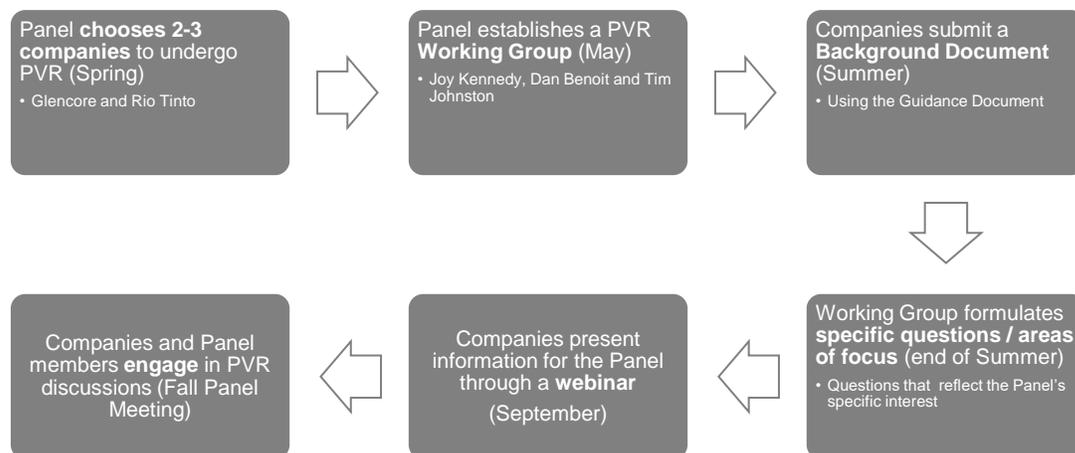

Figure 2: PVR Process 2017

The PVR Working Group reviews the company background documents and decides on the focus areas and approach for engaging with the companies. This year, the PVR Working Group was composed of the following Panel members: Joy Kennedy, Dan Benoit and Tim Johnston.

The PVR Working Group decided on the following themes for the webinar and face-to-face discussions with Glencore and Rio Tinto (see below). Each company presented their themes through the lens of one of their northern and remote mines; Raglan and Diavik mines respectively. The companies answered specific questions during the webinar and provided additional information on the focus areas to prepare the Panel for the face-to-face meetings.

GLENCORE

Through the lens of Raglan mine.
Topics of Interest:

- **Effectiveness of Community Engagement** (including: effectiveness of signed agreements; community involvement in assessing TSM scores, how Canadian experiences influenced international operations)
- **Climate Change, Energy and GHG:** (including: performance against targets, renewable energy projects, climate change in the north, and supply chain power)
- **Closure planning** (including: environmental, and social aspects)
- **Tailings**
- **Biodiversity**

RioTinto

Through the lens of Diavik mine.
Topics of Interest:

- **Effectiveness of Community Engagement** (including: effectiveness of signed agreements, community perspectives on Innu court case)
- **Climate Change, Energy and GHG:** (including: performance against targets, renewable energy projects, climate change in the north, and supply chain power)
- **Closure planning** (including: environmental, and social aspects)
- **Tailings**
- **Biodiversity**
- **Supply chains' role in innovation**

This report summarizes the information provided by the companies in their post-verification reviews and summarizes the Panel discussion on the presented information.

5   Results of the Post-Verification Review: Glencore

GLENCORE

About Glencore:

Glencore is a leading integrated commodity producer and trader, operating worldwide with assets in 90 commodities including metals and minerals, including metals and minerals, energy, and agriculture. Glencore has been operating in Canada for 100 years with assets that include nickel, copper, coal and zinc mining operations and projects; agricultural facilities; and a consulting business.
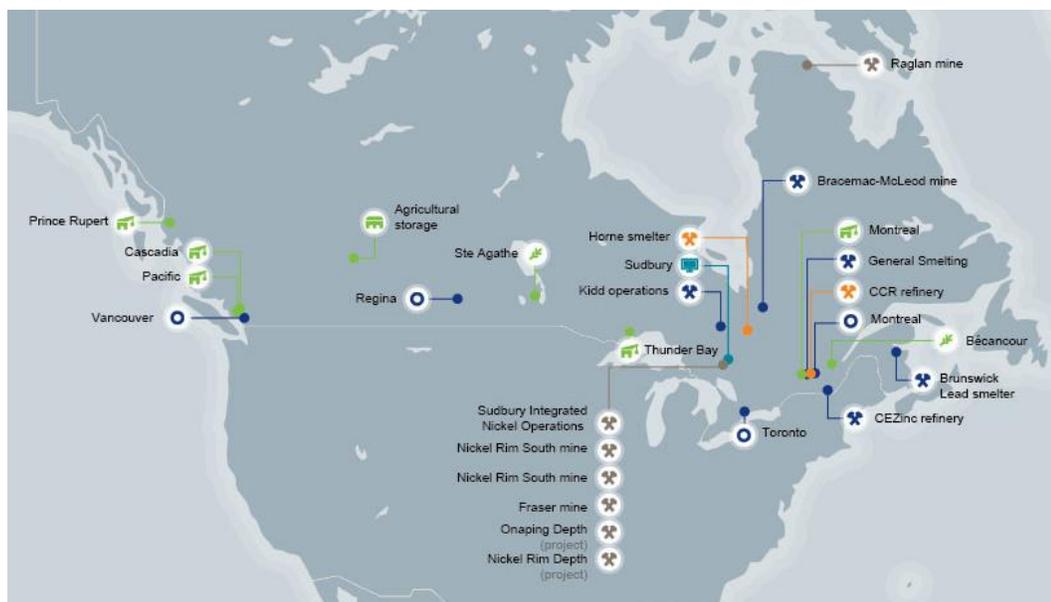
Glencore Canadian operations include those in:

- Quebec:
    - Raglan Mine: a high-grade copper and nickel mine in the far north-east of Quebec
    - Horne Smelter: a copper smelter in Rouyn-Noranda
    - Canadian Copper Refinery in Montreal
    - CEZinc refinery: a zinc refinery in Salaberry-de-Valleyfield
- Ontario:
    - Sudbury Integrated Nickel Operations: composed of two mines, a mill and smelter
    - Kidd Operations: the world's deepest base metal mine in Timmons
- New Brunswick:
    - Brunswick Smelter: a lead smelter and refinery in the Bay of Chaleur

Scott Yarrow, Vice President of Sustainability at Glencore Nickel, Kristan Straub, Vice President at Glencore Mine Raglan, Mélanie Coté, Environmental Superintendent and Christine Soucy, Environmental Coordinator, both at Glencore Mine Raglan, presented on behalf of Glencore.

5.1   **Effectiveness of Community Engagement**

The Raglan Agreement, signed in 1995, was the first Impact Benefit Agreement between a First Nations population and a mining company (Glencore) in Canada. The COI Panel was interested in discussing the effectiveness of implementation of this agreement and if community engagement practices in Glencore's Canadian operations have influenced other international sites.

Building on previously presented material from the webinar, Glencore presented information on their Community Leadership Program, which aims to build and/or enhance social performance capabilities of operational staff and teams.

Key themes from the subsequent discussion with the COI Panel are summarized below.
- **Sharing best practices across Glencore's sites**
  - Glencore shares best practices across sites and teams to enable innovation, while allowing sites flexibility in determining how they achieve the desired outcomes
  - For example, Glencore is applying its "line management" approach used by the Health and Safety team to the Community Relations team
- **Attributing social impacts from company activities**
  - Glencore is developing a social value scorecard to identify categories of socio-economic contributions (e.g. employment, procurement, shared-use infrastructure, etc.) and better understand their impacts
  - Glencore shared that their pilot work in Zambia and Australia in measuring multiplier effects was time-consuming, expensive and rapidly out-of-date
  - It is a challenge to understand company impact without being able to attribute causality
- **Does Glencore participate in coalitions or committees to discuss some of the broader and more challenging issues?**
  - Glencore mostly participates in operational-based committees, but they do engage with NGOs on common challenges (e.g. nature-based education programming with Learning for Sustainable Futures)
  - Glencore sometimes finds it challenging to identify organizations it can work with on increasing sustainability standards
  - Glencore would like to consider multi-stakeholder roundtables once they have stronger relationships with stakeholders
- **Building resilient communities**
  - Glencore has learned that for its contributions to community infrastructure to be successful, it requires sustainable, long-term community capacity to manage the infrastructure
  - The COI Panel suggested identifying community values (i.e. valued economic, social, and environmental ecosystem components) to understand and respond to local needs
  - The COI Panel and Glencore discussed the following methods for increasing resilience:
    - Facilitate conversations on future community development
    - Identify and support community-based social entrepreneurs, and
    - Empower community members to hold their government(s) accountable
  - The COI Panel discussed how companies could monitor and evaluate their efforts to build resilient communities, which could include measuring:
    - Municipal leadership capacity
    - Social entrepreneurship capacity
    - Engagement and coordination with stakeholders inside and outside of the community (e.g. other industries)

- **Have you looked at addressing Truth and Reconciliation Commission of Canada (TRC) call to action for corporate Canada?[1]**
  - o Glencore has not explicitly identified a plan for the TRC call to action, although there are programs in place that address some of its recommendations
  - o One COI Panel member suggested that the TRC call to action could be used as a rationale for addressing community interests
  - o One COI Panel member shared that the Mining Industry Human Resources Council (MiHR) has submitted a proposal to Employment and Social Development Canada (ESDC) to fund a mining industry-wide curriculum on cultural awareness and the residential school experience
    - ▪ Rio Tinto (observer) agreed that this would address a need that many members face
- **CEZinc Labour Strike**
  - o There was some discussion on the CEZinc refinery labour strike (a property where Glencore holds a 25% equity position), which has been ongoing for the past 8 months
  - o One COI Panel member shared that this could impact Glencore's reputation and may require follow-up beyond the local management level
- **Litigation near Quebec City**
  - o The Panel asked about litigation near Quebec City related to dust concentrate from shipping
  - o Glencore conducted testing and resolved that there is a lower quantity of nickel released than in ambient air conditions, but litigation is ongoing

5.2   Climate Change, Energy and GHGs

The COI Panel was interested in discussing climate change, energy and greenhouse gas emissions (GHGs). Specific topics of interest included performance against energy and GHG targets, renewable energy projects, climate change in the north, and supply chain power. This topic was of particular interest due to the installation of a wind turbine at Raglan mine in 2014, which saves about 2.3 million litres of diesel on an annual basis.

Key themes from the subsequent discussion with the COI Panel are summarized below.
- **End-of-life assets (i.e. lower grade ore) are more energy intensive**
  - o Glencore shared that it can be challenging to predict ore grades more than a couple years into the future, which makes it difficult to set appropriate energy and GHG performance targets and engage with stakeholders on this issue
  - o Ore grades are currently not considered by Glencore when setting energy and GHG performance targets
  - o This is becoming a more prevalent consideration for mining companies, as ore grades continue to decline over time
- **How can TSM encourage mining companies to implement more costly green energy supply?**
  - o Green energy can be more costly than diesel generators, particularly in Northern, remote mine sites
  - o MAC noted that provinces have not been proactively facilitating an acceleration of GHG emission reductions
  - o Glencore noted that lessons are being shared across industries (e.g. nickel is ahead of copper in reducing GHG emissions), which should reduce performance gaps

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[1] See the TRC Call to Action #92, as published in their 2015 "Calls to Action" report, accessible here:
http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls_to_Action_English2.pdf

- o Glencore is also examining GHG emissions associated with fuel use (normalized by units of copper production) in areas where this may have a particularly high impact
- **Operating in industrial environments**
  - o Glencore shared that meeting performance targets at their Horne smelter was a challenge, due to it being located in an urban, industrial environment; a similar discussion took place in the Biodiversity section that follows, with the COI Panel asking if smelters should be treated differently within the TSM program as a result
- **Trade-offs between GHGs and other sustainability topics**
  - o The COI Panel discussed trade-offs between water treatment (i.e. water quality), biodiversity management efforts and GHG emissions and one COI Panel member asked: *Is there a way to recognize the impact of the overall system?*
  - o Glencore also shared that they are trying to reduce these trade-offs by using gravity-draining systems in their water treatment processes wherever possible
- **Mapping to climate change scenarios**
  - o Glencore acknowledged that they had completed mapping to 3 climate change scenarios: 1.5, 2 and 4 degrees Celsius of global warming

5.3 Closure Planning and Tailings

The COI Panel had identified interest in closure planning (including social and environmental aspects) and tailings management. Glencore presented some information on the Raglan mine water management (see section 5.5) and also provided a tour to the COI Panel of their dry-stack tailings facilities prior to the PVR discussion (for further information, please refer to the COI Panel Workshop Report).

The COI Panel members asked specific questions about the Raglan mine closure plan, with a focus on long-term monitoring and water management. A summary of Glencore's responses is provided below.

- Once site restoration (i.e. closure) is complete, there should be no acid rock drainage generated or contaminated water
- Post-closure monitoring will be conducted for at least 10 years; at that time, the need for additional monitoring and response will be reassessed
- Tailings disposal will occur until the final cover is installed on the tailings, which will prevent meteoric water from contacting the tailings (i.e. rain water should run off); this water will still be collected and tested to determine if treatment is required
- All open pits will be backfilled and contoured back to the natural landscape

5.4 Biodiversity

The COI Panel was interested in discussing Glencore's approach to biodiversity. Glencore presented some additional information on specific facility scores and approaches to biodiversity to inform the discussion.

Key themes from the subsequent discussion with the COI Panel are summarized below.

- **What measures are in place to prevent invasive species spreading through shipping activities (e.g. use of ballast water)?**
  - o Glencore responded that ballast water is changed and removed when in the Arctic / Atlantic shipping areas; ships enter the Hudson Strait with minimum ballast and then pick up local water
  - o The Department of Fisheries and Ocean Canada also conducts sampling and trains technicians to identify and monitor risks of invasive species

- o One COI Panel member noted that the Green Marine program, a voluntary environmental program of the North American marine industry, was modeled on TSM and partly driven by ballast water issues
- **What measures are in place to minimize shipping disturbance to ice and animals?**
  - o Glencore has been in discussion with its vessel operator about opportunities to minimize damage to ice that requires repair (e.g. align timing for ships to have one track in and out of the Deception Bay)
  - o Glencore limits shipping in ring seal pupping areas
  - o Glencore is co-sponsoring research with Kativik government to understand winter ice thickness and marine mammal movement and how those may vary
  - o Glencore communicates to Transport Canada (Kuujuaq) and community members (e.g. Landholding Committee) when the ship leaves the port of Quebec and its estimated time of arrival
  - o Glencore has found that community members in small boats that want to see the large ship is a more significant challenge than hunters on the ice
- **Supporting biodiversity in urban industrial areas**
  - o Glencore shared that addressing biodiversity in urban industrial areas (e.g. Horne smelter in Montreal) is a challenge
  - o The COI Panel identified the following opportunities for contributing to biodiversity in urban industrial areas:
    - ▪ Support local nature initiatives (e.g. environmental education or nature access programs)
    - ▪ Contribute to municipal biodiversity programs
    - ▪ Improve characterization of local biodiversity (e.g. describing local species)
    - ▪ Consider impacts beyond large fauna (e.g. bees and butterflies); this could include implementing programs like LEED building certification (e.g. green roofs)
  - o Glencore noted that they were looking at how they could improve watershed management at the Horne smelter; the COI Panel agreed this was a good approach
- **Should the Biodiversity Protocol be applied to downstream facilities?**
  - o Several COI Panel members noted that some downstream facilities could still be located in rural areas and/or where biodiversity is an issue of importance
  - o MAC added that the question of whether TSM should apply to downstream facilities has been actively discussed by members for some time
  - o One COI Panel member noted that a benefit of TSM is it allows a focus on action and outcomes, rather than discussing whether a topic or protocol applies (i.e. a materiality approach like ICMM)

5.5   Other Topics

Glencore presented on water management practices applied at Raglan Mine and the ensuing discussion with the COI Panel is captured below.

- One COI Panel member suggested considering capturing steam from the concentrate drying process for energy production (Natural Resources Canada is currently looking for proposals)
- A COI Panel industry member and Glencore both shared that salinity, thiosalts and total suspended solids is a challenge at their Northern sites
  - o At Raglan mine, a particular challenge is sediment accumulation following water settlement underground
- Glencore shared that the next step change in water conservation at Raglan is extremely difficult following the implementation of the Zero Process Water Discharge system, which enables 100% recycling of process water and fresh water reduction

o The driver for implementing this system was previous challenges with water quality discharge

The COI Panel also asked about Glencore's experiences in applying TSM internationally, if any. Glencore has discussed how TSM could be applied to international sites, but has not yet implemented TSM internationally.

5.6   Glencore's TSM assessment results

See the 2017 TSM Progress Report for Glencore's full TSM scores.

6   Results of the Post-Verification Review: Rio Tinto

About Rio Tinto:

RioTinto

Rio Tinto is a leading mining group that focuses on finding, mining and processing the Earth's mineral resources. Rio Tinto is currently the largest mining and metals business operating in Canada, with over 15,000 people working in over 35 sites and operations across the country. Operations include mining and manufacturing interests in alumina, aluminium, iron ore, diamonds and titanium dioxide. Rio Tinto also undertakes exploration activities and operates research and development centres, port and rail facilities, technical and sales service centres, and hydroelectric facilities in British Columbia and Quebec. Montreal is also home to the global headquarters for Rio Tinto's Aluminium and Rio Tinto Iron and Titanium businesses.
Rio Tinto's Canadian operations include:
- Diavik Diamond Mine, including a mine and processing plant in the Northwest Territories
- The Iron Ore Company of Canada (IOC), a mine, concentrator, and pelletizing plan in Labrador City and port facilities in Quebec with a railroad linking the mine and port
- Rio Tinto Fer et Titane is a mine near Havre-Saint-Pierre and a metallurgical complex in Sorel-Tracy, Quebec (only the mine subscribes to TSM)

The following individuals represented Rio Tinto in the PVR discussions:
- Kelly Paine, Director of the Environment Group
- Carolyn Chisholm, Principal Advisor for Rio Tinto Canada
- David Wells, Environmental Superintendent at Diavik
- Rebecca Alty, Manager of Communities and External Relations at Diavik
- Janina Gawler, VP of Community and Social Performance for the Americas

Additional information on Rio Tinto and its performance can be found in its PVR Background Document, PVR webinar slides and on its website: http://www.riotinto.com/

6.1   Effectiveness of Community Engagement

The COI Panel was interested in discussing the effectiveness of community engagement, in particular the effectiveness of signed agreements and understanding perspectives in the Innu court case in Quebec.

Rio Tinto presented information about the Diavik mine's formal agreements, which include:
- Participation agreements with 5 local Indigenous groups
- Socio-economic monitoring agreement with the Government of the Northwest Territories
- Environmental Monitoring Advisory Board
- Traditional Knowledge Panel, which has been instrumental in integrating traditional knowledge with science in their closure plan

They shared that the Diavik mine site is the most mature in terms of its approach to Indigenous relations, and that their other two sites in Labrador City and Havre-Saint-Pierre are engaging with local communities based on the process used at Diavik.

Key themes from the subsequent discussion with the COI Panel are summarized below.
- **Are there provisions to encourage participation in all levels of employment rather than just entry-level positions?**
  - Rio Tinto described training programs offered at Diavik mine including:
    - Apprenticeship programs
    - Mining programs offered by the NWT Mine Training Society targeted towards those who are in high school or have not completed high school
    - MiHR certification programs for mining skills
    - Northern Leadership Development program offered by Aurora College
  - The other Rio Tinto sites have struggled more, due to the following challenges:
    - Legacy of previous mine sites built without Indigenous peoples involvement (this also applies to Diavik, where the Giant Mine left behind a toxic legacy)
    - Lack of local employment or "upgrade" opportunities historically
    - Perception that the site and workforce do not welcome Indigenous employees; this may also mean that existing workers are not self-identifying as Indigenous
    - Downturn in iron ore prices
  - Rio Tinto acknowledged that it will likely take 5 years of cultural awareness training to address underlying racism, based on their experiences in Australia
  - One COI Panel member noted that they appreciate acknowledgement of racism as it is important that leadership does so in a transparent manner
- **Addressing the TRC calls to action**
  - Rio Tinto has discussed with Indigenous groups how to best increase cultural awareness in the workforce
  - Rio Tinto recently completed a review of the past 20 years of learnings from community and Indigenous engagement and associated agreements, which they committed to sharing with the COI Panel
- **Are communities treated consistently or differently in IBAs?**
  - Rio Tinto acknowledged that IBAs were not always consistent and they have learned from those experiences
  - Rio Tinto shared that Diavik IBAs were developed with a fairly consistent approach, as the communities have similar challenges, but acknowledged there may be some differences if one community is directly impacted and another is not
  - A COI Panel member shared an example that the Highland Valley agreements vary based on the population size and level of impact

- o A COI Panel member shared that Metis communities in particular have struggled to negotiate IBAs, especially south of the 60th parallel
  - o Rio Tinto is also reporting their payments to governments, including Aboriginal governments, to meet the requirements of recent U.K.[2] and E.U. legislation as well as Canada's *Extractive Sector Transparency Measures Act*
- **Would TSM scores match with community perceptions?**
  - o Rio Tinto believes the TSM scores for Diavik would likely align with community perceptions, but this may not be the case for other sites
  - o MAC acknowledged that companies are not required to engage stakeholders on TSM self-assessments and that the Aboriginal and Community Outreach protocol will be undergoing a review in 2018
- **How does Rio Tinto measure community effectiveness?**
  - o Rio Tinto measures the number of complaints and is also looking at promoting an engagement methodology (vs. using polls) that was shared by Anglo American at Indaba a couple of years ago[3]
- **Community Wellness**
  - o One COI Panel member suggested incorporating in the verification process questions on the impact of the policies and processes recommended by TSM during community visits

The COI Panel also asked about the litigation with the Innu at the IOC mine and Rio Tinto shared that they are actively consulting with the Innu community on their approach to engagement, regulatory matters, and working towards achieving a non-court resolution.

6.2   Climate Change, Energy and GHG

The COI Panel was interested in discussing climate change, energy and greenhouse gas emissions (GHGs). Specific topics of interest included performance against targets, renewable energy projects, climate change in the north, and supply chain power. Diavik mine has the first large-scale, off-grid wind-diesel hybrid system at a mine site in Canada. It has offset 18.2 million litres of diesel, and provided approximately $22 million in energy savings.

Key themes from the subsequent discussion with the COI Panel are summarized below.
- **As a large multi-national organization, how do you affect change throughout the supply chain related to climate change?**
  - o Rio Tinto shared that it is examining solar energy options and reducing idle time in trucks
  - o Rio Tinto also has a significant fleet in Australia that relies on diesel and natural gas. The electricity grid is heavily reliant on coal power, which means that electrification would not be beneficial
- **Has Rio Tinto considered climate change scenarios for 1.5, 2 and/or 4 degrees of global warming?**

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[2] The U.K. is published in a centralized, accessible database, located here:
https://www.gov.uk/government/publications/extractive-industries-transparency-initiative-payments-report-2015
[3] The Commonwealth Scientific and Industrial Research Organisation (CSIRO) approach
 using text messages with stakeholders over the course of a year to understand their perceptions on a range of sustainability issues:

https://www.csiro.au/en/Research/MRF/Areas/Community-and-environment/Social-licence-to-operate/Anglo-American

- o Rio Tinto shared it has been using climate change scenarios, but the representatives participating did not have the specific details re: degrees of warming considered
  - o Rio Tinto offered to provide these details to the COI Panel following the PVR conversation
- **Have you considered climate change impacts from/to aluminum smelters?**
  - o Rio Tinto shared that all smelters run on hydropower and they also have a research centre examining how to reduce their aluminum carbon footprint
  - o Rio Tinto is looking to promote their aluminum brand as having a low carbon footprint (called "Renew Al")
    - ▪ For example, Rio Tinto's Kitimat smelter has reduced its carbon intensity by 50% through a $6 billion dollar modernization project
  - o MAC mentioned that they are in discussions with Responsible Steel, etc. on responsible mineral sourcing
- **Has Rio Tinto considered its exposure to climate change risk in its pension plans?**
  - o One COI Panel member suggested that Rio Tinto integrate climate change considerations (e.g. exposure to climate change risk) in its capital plans and pension funds

6.3   Closure Planning and Tailings

The COI Panel was interested in discussing the environmental and social aspects of closure planning, including tailings management. Rio Tinto presented the closure planning process at Diavik, where a closure plan has been in place since the mine site was proposed (2000) and has gone through several iterations, incorporating community input.

Key themes from the subsequent discussion with the COI Panel are summarized below.
- **Social aspects of the closure plan**
  - o Rio Tinto shared that they have considered the capabilities of local suppliers and contractors (e.g. how to partner with southern businesses to expand opportunities), including how Yellowknife could service other northern regions in the Northwest Territories to provide business opportunities after Diavik closes.
  - o Rio Tinto has also engaged with the Canadian Council for Aboriginal Business
- **Environmental aspects of the closure plan**
  - o Rio Tinto shared that their ultimate goal is to leave the site without a need for active management or monitoring (e.g. pits will be flooded, infrastructure removed)
  - o The tailings facility will have a cover designed with insulation so that once permafrost has been established it should act as a permanent cover
  - o The tailings facility is also located in an Arctic desert (i.e. minimal precipitation), which should reduce or eliminate need for long-term monitoring and maintenance
  - o Rio Tinto acknowledged that they have examined aggressive scenarios on permafrost change to demonstrate the resilience of their tailings closure plan; scenarios show that the region will remain an arid Arctic desert climate
  - o Rio Tinto identified that the most challenging aspect for closure will be maintaining chemical stability, i.e. not impacting Lac de Gras
- **What are the size of the reclamation bonds and what does relinquishment look like?**
  - o Rio Tinto shared that Diavik posted the largest reclamation bond in Canadian mining history when it first submitted its closure plan, which includes two bonds to meet regulatory requirements and a third bond defined through a monitoring agency established by Diavik
  - o As reclamation progresses, the government releases part of Rio Tinto reclamation bonds back to the company, reflecting the reduction in liability

- o The final relinquishment process is not yet defined, but Rio Tinto is in ongoing conversations with the Government of the Northwest Territories and regulators to understand what that could look like

6.4   Biodiversity

The COI Panel was interested in learning more about Rio Tinto's approach to biodiversity planning and management. Key themes from the COI Panel discussion are summarized below.

- **Defining biodiversity offsets**
  - o Rio Tinto's corporate standard requires consultation with local communities and government to ensure the offsets integrate with regional land use planning and community values, as well as local reporting on biodiversity progress
  - o One COI Panel member suggested that the Iron Ore Company of Canada identify protected areas to set aside, to contribute to the provincial and federal government targets for land and marine protected areas
  - o Another COI Panel member suggested that climate change be considered when identifying offsets
- **Reporting on biodiversity efforts**
  - o Rio Tinto reports to local communities and governments on biodiversity progress including success, challenges and impacts and measures biodiversity impacts using a qualitative assessment in consultation with stakeholders
  - o Rio Tinto shared that the mining industry as a whole struggles with tracking "avoidance", which is likely underreported
  - o Rio Tinto noted that it is difficult to report Net Positive Impacts at an organizational level, due to the unique environment of each site
- **What has been the impact of the Biodiversity Protocol on Diavik's work plans?**
  - o The Diavik mine was designed to have as small a footprint as possible; the footprint of activities is reported to regulators on an annual basis
  - o The Diavik Traditional Knowledge panel identifies biodiversity aspects important to them (e.g., caribou, water quality)
  - o Diavik biodiversity activities have included diverting caribou herds around the mine site and creating offsets for fish habitat
- **Has the drop of corporate commitment meant a lowering of aspirations?**
  - o Rio Tinto shared in the presentation their bold, ambitious commitment in 2004 to net positive impact (NPI) on biodiversity across all operations
  - o Through this process, Rio Tinto learned that allowing sites to tackle their own contexts on a case-by-case basis is more viable than applying a blanket NPI target
  - o Rio Tinto has changed their commitments to reflect an honest aspiration of what can be achieved (i.e., aim to reduce perception of green washing with unachievable targets) and are focusing on what is most important to stakeholders
    - ▪ One COI Panel member notes that this is consistent with TSM standards
  - o Rio Tinto's biodiversity planning is driven by its corporate standard, which has in turn influenced ICMM and MAC standards; the change of the corporate commitment has not changed Rio Tinto's approach
  - o Rio Tinto's biodiversity protection measures must also meet regulatory requirements and stakeholder commitments
- **If you were to treat biodiversity as a COI, how would that change your approach?**
  - o Rio Tinto shared that they already take this approach but using landscape-level planning based on community concerns and priorities, rather than focusing on specific endangered species
- **Climate change impacts on Biosystems**

- One COI Panel member suggested supporting climate change research in a mine sites' Biosystems, to ensure external impacts, such as climate change, are taken into account during biodiversity planning
- Glencore shared that through their research, climate change was identified as one of the largest impacts on caribou migratory routes
- Rio Tinto shared that they use a risk framework to understand climate change impacts on the business, but have not conducted specific studies (e.g. climate change impacts on the Biosystems)

6.5 Rio Tinto TSM assessment results

See the 2017 TSM Progress Report for Rio Tinto's full TSM scores.

7 Key Takeaways of 2017 Post-Verification Review

A number of themes emerged during both post-verification reviews. Key takeaways include:

Effectiveness of Community Engagement

- **Implementing the TRC call to action for corporate Canada**
  - There is a need for cultural awareness training to address underlying racism in the workplace; this is particularly important for increasing Indigenous participation beyond entry-level positions
- **Building resilient communities**
  - The COI Panel made a number of suggestions for increasing the resilience of community development, including:
    - Facilitating conversations on future community development
    - Identifying and supporting community-based social entrepreneurs
    - Empowering community members to hold their government(s) accountable
    - Coordinating these efforts with other stakeholders in the region
- **Implementing IBAs**
  - The importance of sharing lessons learned across sites when developing IBAs was raised by both Glencore and Rio Tinto
  - It was acknowledged that while consistency is preferred, there may be differences in IBAs, based on how and to what extent the community is impacted by mining activities

Climate Change, Energy and GHG

- **Challenges in meeting performance targets**
  - The companies shared that meeting performance targets in urban environments (e.g. smelters) and for end-of-life assets can be a challenge
- **How can mining companies be encouraged to implement green energy supply?**
  - It was acknowledged by the group that this is particularly a challenge for northern, remote mine sites
  - Glencore noted that lessons are being shared across industries (e.g. nickel has lower GHG emissions than copper)
  - Both companies are exploring reduction of transportation energy/ fuel use as an alternative and potentially less costly measure to reduce GHG emissions

Closure Planning and Tailings

- **Post-closure monitoring**
  - Both companies shared their efforts in minimizing the need for long-term monitoring and maintenance post closure

- **Climate change impacts on tailings closure**
  - o Both companies acknowledged that climate change could impact their tailings closure plans, which rely on cold (i.e. permafrost) and/or arid climates;
  - o Companies are pursuing aggressive modelling of potential future scenarios and post-closure monitoring to address the above-noted challenge

Biodiversity

- **Importance of regional planning**
  - o Both companies use landscape or watershed level perspectives to develop biodiversity plans, rather than focusing on specific species
  - o Rio Tinto ensures that biodiversity offsets integrate with regional land use planning and community values
  - o The COI Panel suggested working with other organizations (e.g. local nature initiatives, government initiatives/programs) to identify opportunities for coordination in biodiversity efforts, particularly in urban environments
- **Considering climate change impacts on biodiversity**
  - o The COI Panel highlighted the importance of considering external impacts, such as climate change, during biodiversity planning

8   Panel Feedback on the Post-Verification Review Process

Overall, COI Panel members expressed their appreciation for the well-organized and enriching experiences provided through the site visits and PVR discussions. One COI Panel member emphasized that it enhanced their understanding of mining in a northern environment, which will improve their ability to support the panel in the future. Another COI Panel member shared that Glencore and Rio Tinto did a great job answering questions that came out of the PVR webinar.

A couple of COI Panel members acknowledged the amount of work required to prepare for the PVR process and raised a concern that discussion on how to best measure and communicate the effectiveness of community engagement may have taken away from the time available to provide more specific, direct feedback to the PVR companies.

"This is a very Canadian way of doing things … getting a safe space where everyone can voice their concerns and industry is nimble enough to react thoughtfully … we do make a difference."

Annex 1: List of Companies That Verified Their TSM Results

Past companies:

2007: Albian & HudBay

2008: Barrick & Xstrata Nickel and Xstrata Zinc

2009: BHP Diamonds - EKATI & IAMGOLD

2010: Breakwater & Teck

2011: De Beers &IOC

2012: Cameco & Inmet

2013: Teck & Vale

2014: ArcelorMittal & Barrick

2015: Taseko & Agnico Eagle

2016: Hudbay Minerals & Suncor Energy

2017 Company Selection for PVR:

The following companies were verifying their 2016 TSM results and were therefore in the pool to be selected to undergo the COI Panel's post-verification review. As a rule, the Panel seeks to select companies that have not been subject to a recent post verification review and takes into account commodity type, and location.

- ArcelorMittal
- Barrick Gold
- De Beers
- **Rio Tinto** (including Iron Ore Company of Canada and Diavik)
- **Glencore**
- Syncrude
- Teck Resources (Select facilities: Trail Operations, Cardinal River Operations and Greenhills Operations)