This document describes the *Towards Sustainable Mining® (TSM®)* initiative: what it is and how it works. It is intended to help mining companies implement TSM.

As of 2019, the Quebec Mining Association, the Finnish Mining Association, Cámara Argentina de Empresarios Mineros (the national mining association in Argentina), the Botswana Chamber of Mines, the Chamber of Mines of the Philippines, and the Confederación nacional de empresarios de la minería y de la metlaurgia, the national mining association of Spain, have also adopted TSM for their members.

**TABLE OF CONTENTS**

01 What is TSM?  
02 TSM Guiding Principles  
04 TSM Assessment Protocols  
07 Guidance  
08 TSM Protocols and Indicators  
09 TSM Performance Rating Systems  
10 TSM Reporting and Verification Process  
12 Verification Service Providers  
13 Community of Interest Advisory Panel  
15 Governance of TSM  
18 TSM Implementation  
19 Optional Reporting and Verification Process  
20 Training  
21 TSM Awards  
22 Global Uptake of TSM  
23 TSM Milestones  
24 Value of TSM  

Publication date: April 2019
Towards Sustainable Mining 101: A Primer

Participation in TSM is mandatory for MAC’s member companies. This involves subscribing to the TSM Guiding Principles, which are backed by specific performance indicators that member companies publicly report on annually in TSM Progress Reports.

By adhering to the TSM Guiding Principles, mining companies exhibit leadership by:

- Engaging with communities
- Driving world-leading environmental practices
- Committing to the safety and health of employees and surrounding communities

Established in 2004 by the Mining Association of Canada (MAC), TSM’s main objective is to enable mining companies to meet society’s needs for minerals, metals and energy products in the most socially, economically and environmentally responsible way.

At its core, TSM is:

**Accountable:** Assessments are conducted at the facility level where the mining activity takes place – the only program in the world to do this in our sector. The results provide local communities with a meaningful view of how a nearby mine is faring.

**Transparent:** Mining companies publicly report their facilities’ performance against a suite of indicators in the annual TSM Progress Report. Results are externally verified every three years.

**Credible:** TSM is overseen by an independent Community of Interest (COI) Advisory Panel. This multi-interest group helps mining companies and communities of interest foster dialogue, improve the industry’s performance and shape the TSM initiative for continual improvement.

**Measuring, verifying and reporting performance where it counts – at the mine site.**

What is TSM?

TSM is an award-winning performance system that helps mining companies evaluate and manage their environmental and social responsibilities. 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.
TSM Guiding Principles

As members of the Mining Association of Canada, our role is to responsibly meet society’s needs for minerals, metals and energy products. To achieve this, we engage in the exploration, discovery, development, production, distribution and recycling of these products. We believe that our opportunities to contribute to and thrive in the economies in which we operate must be earned through a demonstrated commitment to sustainable development.

Accordingly, our actions must demonstrate a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of our communities of interest. Our actions must reflect a broad spectrum of values that we share with our employees and communities of interest, including honesty, transparency and integrity. And they must underscore our ongoing efforts to protect our employees, communities, customers and the natural environment.

We will demonstrate leadership worldwide by:

- Involving communities of interest in the design and implementation of TSM.
- Proactively seeking, engaging and supporting dialogue regarding our operations.
- Fostering leadership throughout our companies to achieve sustainable resource stewardship wherever we operate.
- Conducting all facets of our business with excellence, transparency and accountability.
- Protecting the health and safety of our employees, contractors and communities.
- Contributing to global initiatives to promote the production, use and recycling of metals and minerals in a safe and environmentally responsible manner.
- Seeking to minimize the impact of our operations on the environment and biodiversity, through all stages of development, from exploration to closure.
- Working with our communities of interest to address legacy issues, such as orphaned and abandoned mines.
- Practicing continuous improvement through the application of new technology, innovation and best practices in all facets of our operations.

Our actions must reflect a broad spectrum of values that we share with our employees and communities.
In all aspects of our business and operations, we will:

- Respect human rights and treat those with whom we deal fairly and with dignity.
- Respect the cultures, customs and values of people with whom our operations interact.
- Recognize and respect the unique role, contribution and concerns of Aboriginal peoples (First Nations, Inuit and Métis) and Indigenous peoples worldwide.
- Obtain and maintain business through ethical conduct.
- Comply with all laws and regulations in each country where we operate and apply the standards reflecting our adherence to these guiding principles and our adherence to best international practices.
- Support the capability of communities to participate in opportunities provided by new mining projects and existing operations.
- Be responsive to community priorities, needs and interests through all stages of mining exploration, development, operations and closure.
- Provide lasting benefits to local communities through self-sustaining programs to enhance the economic, environmental, social, educational and health care standards they enjoy.
TSM Assessment Protocols

TSM focuses on eight operational areas for which tools, referred to as TSM Assessment Protocols (or Protocols), assist mining companies in understanding and achieving the TSM Guiding Principles they committed to.

The Protocols can be grouped under three pillars:

- COMMUNITIES AND PEOPLE
- ENVIRONMENTAL STEWARDSHIP
- ENERGY EFFICIENCY

Each Protocol is made up of a set of indicators that help mining facilities build, measure and publicly report on the quality of their management systems and their performance in the TSM focus areas.

The most up-to-date versions of the Protocols are available on the MAC website in English, French and Spanish and can be viewed at [www.mining.ca/tsm](http://www.mining.ca/tsm).

### 1. Aboriginal and Community Outreach

Building strong relationships with our communities of interest, in particular Aboriginal communities, is a fundamental component of TSM. The indicators of the Aboriginal and Community Outreach Protocol determine whether a facility:

- Has a formal system in place to establish who they should be speaking with about their operations and how to best engage with them.
- Participates in two-way dialogue with their communities of interest (COI).
- Receives and responds to COI concerns.
- Communicates their activities and performance through public reporting.

### 2. Safety and Health

Protecting the health and safety of employees, contractors and communities is fundamental to TSM and is deeply ingrained in the Canadian mining industry’s culture. The indicators of the Safety and Health Protocol determine whether a facility:

- Has made senior management accountable for the safety and health of their people.
- Has processes in place to prevent incidents.
- Sets safety and health targets for continuous improvement and meets them.
- Monitors and publicly reports safety and health performance.
- Conducts risk-based training for all employees, contractors and visitors, and fosters a culture of safety.

### 3. Crisis Management and Communications Planning

The Crisis Management and Communications Planning Protocol provides mining companies with the tools needed to effectively plan for communications in the unfortunate event of a crisis at one of their facilities or at the corporate level. Where the crisis is caused by a physical emergency, such as a fire or flood, the tools offered in this Protocol are intended to work in conjunction with emergency response plans at the facility.
Towards Sustainable Mining 101: A Primer

The indicators of the Crisis Management and Communications Protocol determine whether a company’s corporate office and facility(ies):

• Have developed crisis management and communications plans.

• Established crisis communications teams to support the execution of the plans.

• Have communications programs in place to effectively alert their people and the public in the event of a crisis.

• Engage with local emergency responders such as fire, police and ambulance.

• Regularly review their plans and conduct crisis simulation training exercises.

4. Preventing Child and Forced Labour

The purpose of the Preventing Child and Forced Labour Protocol is to provide guidance to member companies on verification requirements regarding the prevention of child labour and forced labour. This Protocol sets out the general approach taken to verifying that processes are in place to ensure that neither child nor forced labour as defined by the International Labour Organization conventions on forced and child labour with the objective of preventing child labour and forced labour at mining operations.

The indicators of the Preventing Child and Forced Labour Protocol involves companies asking:

• If there are processes in place that are commensurate to jurisdictional risks to ensure that forced labour is not used.

• If supply chains and recruitment agencies are monitoring for human trafficking and forced labour, where there is a high risk of forced labour.

• If there are processes in place that are commensurate to jurisdictional risks to ensure that no child under 18 years of age engages in work that is likely to jeopardize the health, safety and morals of young persons.

• If there are processes in place that are commensurate to jurisdictional risks to ensure that no child under 15 years of age is employed. Engage with local emergency responders such as fire, police and ambulance.

ENVIRONMENTAL STEWARDSHIP

5. Biodiversity Conservation Management

Adopting best practices in biodiversity conservation management through all stages of a mine’s life cycle is an industry priority. The indicators of the Biodiversity Conservation Management Protocol determine whether a facility:

• Has made formal commitments to manage biodiversity at their site.

• Has identified significant biodiversity aspects, is implementing action plans for them and partners with interested stakeholders on conservation planning.

• Publicly reports on its biodiversity activities and performance.
6. Tailings Management

Tailings facilities are necessary components of mining activity and it is crucial that they be managed responsibly to protect human safety and the environment. Together with our members, MAC has developed tailings management guides that are used around the world. The guides outline how mining companies can safely manage tailings facilities by adhering to best practices in tailings management. The Tailings Management Protocol measures adherence to these guides.

The indicators of the Tailings Management Protocol determine whether a facility:

- Has a policy and commitments in place to safely manage tailings facilities.
- Has implemented a tailings management system that conforms to MAC’s two tailings guides.
- Has assigned accountability for tailings management to both a senior executive and the company’s board of directors.
- Conducts an annual tailings management review.
- Has implemented an Operation, Maintenance and Surveillance Manual that conforms to MAC’s guidance.

7. Water Stewardship

The Water Stewardship Protocol is the newest addition to TSM with public reporting scheduled to begin in 2021. This Protocol includes a set of performance indicators to measure water governance, operational water management, watershed-level planning and water performance and reporting at the mine-site level. The Protocol will guide the development of water stewardship practices in a manner that will go beyond legal compliance.

The indicators of the Water Stewardship Protocol determine whether a facility:

- Has commitment and accountabilities in place and communicated to relevant communities of interest to support water stewardship.
- Has implemented an operational water management system.
- Participates in watershed-scale planning.
- Conducts water reporting focused on performance outcomes at the site level.


Improving energy efficiency and reducing GHG emissions are priorities for the Canadian mining industry as a way to limit impacts to the environment, address climate change, and to help reduce operational costs. The indicators of the Energy Use and GHG Emissions Management Protocol determine whether a facility:

- Has a comprehensive system for managing energy use and GHG emissions.
- Tracks and publicly reports energy use and GHG emissions.
- Sets and achieves performance targets.
MAC offers several guidance documents to help Canadian mining companies adopt industry best practices, and to comply with government regulations and the requirements of the TSM Protocols.

- A Guide to the Management of Tailings Facilities*
- Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities*
- Energy Use and GHG Emissions Management Reference Guide
- Crisis Management and Communications Planning Reference Guide

*The Tailings Management Protocol requires conformance with the three tailings guides.
TSM Protocols and Indicators

Each Protocol is made up of a set of indicators designed to measure the quality and comprehensiveness of facility-level management systems and are intended to provide the public with an overview of the industry’s performance in key environmental and social areas. Several Protocols are also accompanied by framework documents that describe in detail what member companies commit to for these areas.
One of the key strengths of TSM is that mining companies are measured where the mining activity actually takes place—at the facility level. The results provide local communities with a meaningful view of how a nearby mine is faring.

MAC has established the goal of having all of its member facilities achieve a Level A or better in all indicators and meet all of the requirements of the Crisis Management and Communications Planning and Preventing Child and Forced Labour Protocols.

Level A is broadly defined as good practice and Levels AA and AAA are defined as excellence and leadership.

The goal is for each facility to achieve Level A or higher in all performance areas.
TSM Reporting and Verification Process

TSM’s primary objectives are to drive performance improvement and, through demonstration of this improvement, to build trust with communities of interest. To build this trust, TSM includes a number of checks and balances to ensure that reported results present an accurate picture of each facility’s management systems and performance.

**Self-Assessment:** Facilities annually self-assess their performance against all indicators under the TSM Protocols using the rating system above. The performance results are published in the TSM Progress Report. New members have three years to start publicly reporting, which allows them the opportunity to train employees for full implementation.

**External Verification:** Every three years, a Verification Service Provider (VSP) critically reviews a company’s self-assessments to determine if there is adequate evidence to support the performance ratings reported. The VSPs are experienced auditors who are independent of the company being externally verified. The VSPs rigorously apply the Protocols and, where required, can change the ratings to ensure they accurately reflect the facility’s management practices and performance.

**CEO Letter of Assurance:** In the year of external verification, the company’s CEO, the company’s CEO, or equivalent, is required to submit a letter to MAC that confirms the external verification has been conducted in accordance with the Terms of Reference for VSPs. The letter is posted on MAC’s website (www.mining.ca/tsm-letters-assurance).

**COI Panel Post-Verification Review:** Each year, MAC’s independent Community of Interest (COI) Advisory Panel selects a sample of companies to present and discuss their TSM results.

Through these discussions, the Panel tests to see whether and how facility systems are leading to performance improvement. The Panel explores the challenges faced by the facilities and the steps they are taking to address them.
TSM REPORTING AND VERIFICATION PROCESS

Teck Greenhills Operations located near Elkford, British Columbia.

TSM Self-Assessment Process

Each year, performance against all of the TSM Protocols is self-assessed by each operational Canadian facility. Some members are also applying these Protocols at their international facilities. The steps involved in self-assessment include:

1. **Protocol Leaders are assigned to be responsible for one or more Protocol.**

2. The Protocol Leader collects evidence to assess the level of performance for each indicator through document review and interviews with personnel. Based on available evidence, the Protocol Leader:
   - Determines the level of performance achieved for each indicator within the Protocol.
   - Documents the rationale for the assigned levels.
   - Maintains a list of evidence reviewed for each indicator and copies of evidence, where possible.
   - Protocol Leaders provide self-assessment results to the company’s TSM Initiative Leader.

3. **TSM Initiative Leader collects self-assessments from each facility and submits the results to MAC.**

4. In the year of external verification, the self-assessments are supplied to the Verification Service Provider for verification.

---

1. TSM defines a facility as a distinct operating unit of a company to which the TSM Protocols can be applied. For joint ventures, all parties need to determine the appropriate self-assessment process.

Towards Sustainable Mining 101: A Primer
ROLE OF VERIFICATION SERVICE PROVIDERS (VSP)

VSPs are essential to the ongoing success of TSM. The independence and professional judgment they bring helps to ensure that facility-level management systems are meeting the TSM requirements. Every three years, an external verifier reviews the company’s self-assessments at each of their facilities to determine if there is adequate evidence to support the reported ratings. VSPs are expected to follow standard verification methodology, which includes three phases:

1. Planning: pre-verification communication with the client to determine sample size (if applicable), verification agenda and interview questions, and ensure that all required documentation is available beforehand.

2. Execution: validation that the performance level reported by the client is consistent with the VSP’s determination based on standard auditing tools, including interviews with relevant personnel and review of relevant documentation.

3. Reporting: preparation of a report that includes, at a minimum, a verification statement from the VSP confirming the completion of the external verification and its results.

Site visits are not absolutely required for TSM verifications. However, site visits are conducted in the vast majority of cases.

SAMPLING

For a facility’s first external verification, the VSP must validate all indicators for all TSM Protocols. For subsequent external verifications, the VSP has the independence to determine the external verification sample size on the basis of standard auditing practice and professional judgment. However, the VSP must test at least one Protocol at each facility and must test every Protocol at least once.

The VSP Terms of Reference and a list of qualified VSPs can be found at www.mining.ca/tsm.
Community of Interest Advisory Panel

The Community of Interest (COI) Advisory Panel is an independent, multi-interest group comprising individuals from Aboriginal groups, communities where the industry is active, environmental and social NGOs, and labour and financial organizations. Select members of the MAC Board of Directors also sit on the Panel to provide a mining industry perspective to discussions. The Panel serves as a platform for COI and MAC members to discuss and collaborate on issues of mutual concern.

The COI Panel was formed in 2004, when the TSM initiative was established. The Panel played a key role in the program’s design from the very beginning, and continues to be integral to its evolution and implementation.

COI PANEL FUNCTIONS:

- Meets twice a year to provide support and advice for the TSM program.
- Conducts an annual Post-Verification Review of a sample of companies’ verified results to analyze company systems and practices.
- Provides critical perspectives by raising emerging issues of concern beyond those covered under TSM.
<table>
<thead>
<tr>
<th>COI ADVISORY PANEL CORE CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal</td>
</tr>
<tr>
<td>Individuals who represent the interests of Aboriginal Canadians, including First Nations, Inuit and Métis.</td>
</tr>
<tr>
<td>Environmental NGO</td>
</tr>
<tr>
<td>Individuals with environmental expertise and advocates for environmental protection.</td>
</tr>
<tr>
<td>Economic and community development</td>
</tr>
<tr>
<td>Individuals with expertise in business development at the community level and knowledge of community interactions with mining facilities.</td>
</tr>
<tr>
<td>Social NGO, including faith-based groups</td>
</tr>
<tr>
<td>Individuals who represent civil society with knowledge of social justice issues.</td>
</tr>
<tr>
<td>Finance and investment</td>
</tr>
<tr>
<td>Individuals with financial expertise and knowledge of socially responsible investing.</td>
</tr>
<tr>
<td>International development</td>
</tr>
<tr>
<td>Individuals with expertise in alleviating poverty and improving the standard of living through responsible development.</td>
</tr>
<tr>
<td>Labour and workplace</td>
</tr>
<tr>
<td>Individuals with knowledge of the interests, safety and needs of workers.</td>
</tr>
<tr>
<td>Ex-officio Members</td>
</tr>
<tr>
<td>- MAC Board of Directors</td>
</tr>
<tr>
<td>- Junior Mining Company Representative</td>
</tr>
<tr>
<td>Industry participation comprises four MAC Board members, one representative of the exploration sector, and the MAC President and CEO. Additional MAC Board Directors are strongly encouraged to regularly sit in as observers. MAC staff members also participate as resource persons.</td>
</tr>
</tbody>
</table>
Governance of TSM

Various parties, both inside and outside of MAC, have large roles to play in the TSM initiative. This section describes the roles and responsibilities of the main groups and individuals involved in the governance of TSM.

The program is spearheaded by the TSM Governance Team (GT), a sub-committee of MAC’s Board of Directors. Within each member company, TSM is supported by internal representatives called Initiative Leaders. The ongoing development and evolution of TSM is also supported by the COI Advisory Panel and other MAC committees.

**MAC BOARD OF DIRECTORS**

The MAC Board of Directors is made up of one representative per member company. With respect to TSM, the Board is responsible for setting the overall objectives for TSM as well as approving the annual budget and any changes to the program.

**TSM GOVERNANCE TEAM**

The TSM GT is a subcommittee of the MAC Board of Directors. This group is responsible for providing strategic direction on all matters related to TSM and making recommendations to the Board on proposed changes to the program.

As a signatory to TSM, representatives from the Quebec Mining Association participate on the GT.
GOVERNANCE OF TSM

TSM INITIATIVE LEADERS

Each full member assigns a senior employee as an Initiative Leader. This person is responsible for coordinating and leading implementation of TSM within the company and typically has a direct reporting relationship with the company’s Board representative. The Initiative Leaders meet three to four times per year and occasionally by teleconference. Specific responsibilities of an Initiative Leader include:

• Identifying or developing appropriate resources to implement TSM throughout the company.

• Understanding TSM and its components and how they will affect, and be implemented in, the company.

• Developing and maintaining communication links with MAC and other industry Initiative Leaders to ensure the application of best practices and the success of TSM throughout the membership.

• Assisting in developing or updating TSM frameworks, Protocols, indicators and criteria, or coordinating company experts’ input into these documents.

• Communicating information about TSM within the company.

• Gathering the company’s facility data for reporting on TSM.

• Coordinating external verification every three years.

OTHER COMMITTEES AND TASK FORCES

The TSM Initiative Leaders rely on the expertise and technical advice of other MAC committees and task forces to support the ongoing implementation and development of the program. For example, the Energy Committee is consulted on work related to the Energy Use and GHG Emissions Management Protocol. Similarly, the Tailings Working Group spearheads work on the Tailings Management Protocol and associated guides. New task forces and working groups may also be established as issues related to existing or new TSM focus areas arise.
HOW NEW PROTOCOLS ARE DEVELOPED

The development of TSM Protocols is a multi-staged process. The first stage typically involves the development of a policy framework. Since this sets the parameters of the performance and informs the development of performance indicators, the framework must focus on the needs of industry and external stakeholders. The process of developing a framework includes meetings and discussions with member companies, case study analysis and consultations with the COI Panel and external experts.

After the framework is established, the need for a Protocol is determined. Establishing a new Protocol involves developing indicators and criteria through a multi-step process that begins with company TSM Initiative Leaders. A working group, comprising subject-matter experts, is established to develop the indicators. The working group, in conjunction with company experts and COI Panel representatives, outlines the structure of each indicator. Afterwards, the indicator and the criteria are examined by the TSM Initiative Leaders, the COI Panel, the TSM Governance Team and, finally, the MAC Board of Directors. External subject-matter experts are also consulted on a case-by-case basis.

The TSM Initiative Leaders provide technical advice on how the new Protocol’s indicators will be implemented by facilities. This group also raises issues as facilities work through the new Protocols.

The COI Panel provides an external perspective when new Protocols (or revisions to existing Protocols) are proposed and developed. Panel representatives validate the integrity of the TSM Protocols and, when appropriate, advise on how to improve the criteria to further meet the objectives of TSM. Involving Panel members in the design of TSM Protocols has helped build trust between Panel members and the MAC Board of Directors.

The TSM Governance Team reviews any recommended changes to TSM before they are presented to the MAC Board of Directors. The TSM Governance Team then makes a recommendation to the Board on whether to accept the changes. All changes are approved by the Board before implementation.

Footnote: Frameworks have been developed for Mining and Aboriginal People, Biodiversity Conservation, Mine Closure, Safety and Health and Water Stewardship.
NEW MEMBER/NEW FACILITY PHASE-IN

New members and/or facilities that have recently entered into the production stage of the mining life cycle have three years to start publicly reporting TSM performance. This phase-in allows companies to conduct a gap analysis against the TSM criteria, implement management systems and train relevant personnel.

Year 1: Gap analysis, TSM implementation, training

The first step in TSM implementation is to ensure key personnel (company TSM Initiative Leader and Protocol Leaders) are trained on the TSM Protocols. This is an essential step in ensuring that TSM is consistently applied at all participating facilities.

Following training, facilities conduct a gap analysis of existing management systems against the TSM Protocols. This will give the facility a good indication of where the priority areas are and help them identify critical gaps. The gap analysis typically results in an action plan for the facility to meet Level A performance. Results are reported to MAC, but remain confidential and are used to identify needs for support from MAC to assist the facilities.

Year 2: Self-assessment and aggregate-level reporting

The self-assessments are reported to MAC, which publishes aggregate performance data from all MAC members in the annual TSM Progress Report. This step gives the company and its facilities an opportunity to familiarize itself with the reporting process as it continues to address gaps identified in the first year.

Year 3: Self-assessment and public facility-level reporting

The next step is to publicly report facility-level results in the TSM Progress Report for the first time. The facility-level results are posted on MAC’s website alongside a company profile that describes the results and the company’s plans to address remaining gaps.

Year 4: External verification of self-assessment

The company Initiative Leader will coordinate the external verification process and is responsible for selecting a qualified professional from MAC’s approved list of Verification Service Providers.
Optional Reporting and Verification Process

OPTIONAL PROCESS FOR HIGH-PERFORMERS

In 2014, a revised reporting and verification process was developed for facilities that consistently achieve high levels of TSM performance. For facilities that follow this optional process, these changes reduce reporting burdens and provide more flexibility to align TSM verification requirements with other audit and verification commitments.

The new framework is applied as follows:

Externally Verified Level A or AA

When a facility achieves an externally-verified Level A or AA across all indicators of a Protocol (or meets all requirements of the Crisis Management and Communications Planning Protocol), the annual self-assessment becomes voluntary for three years for the Protocol(s) that reach these levels. The facility must then undergo external verification before the end of that three-year period. During the three-year period, facilities will remain at the same level for each indicator, but they can voluntarily report annually if they choose to demonstrate improved performance.

Two Cycles of Level A or AA/Externally Verified Level AAA

When a facility achieves a Level A or AA in two consecutive external verification cycles, or a Level AAA in one verification cycle, the facility can move to a reduced verification cycle for the Protocol(s) that reach these levels. This means that the facility would conduct an internal verification and submit a letter of assurance from its CEO after three years. The facility would then undergo an external verification after six years.
Training

To support the implementation of TSM at member company facilities, MAC provides both onsite and online training. The onsite program provides participants with an overview of how TSM works as well as an opportunity to work through the Protocols using case study examples. The online training program includes eight courses that prepare learners to consistently apply the TSM Protocols in an e-learning format.

In addition to the standard TSM training program, MAC also provides Protocol-specific sessions that explore the subject matter at a deeper level. For example, MAC regularly delivers full-day workshops on tailings management where participants learn how to apply the information within MAC’s three tailings guides, which are available in English, French, Spanish and Portuguese. To date, however, training is only offered in English, French and Spanish.

Visit www.mining.ca/tsm for online training.
A TSM Leadership Award is granted only when a facility meets or exceeds a Level A ranking for all indicators under the Tailings Management, Energy Use and GHG Emissions Management, Aboriginal and Community Outreach, Biodiversity Conservation Management, Water Stewardship and Safety and Health Protocols, and meets all requirements of the Crisis Management and Communications Planning and Preventing Child and Forced Labour Protocols. To be eligible for a TSM Leadership Award, a facility’s results must have been externally verified in the previous year.

TSM EXCELLENCE AWARDS

The TSM Community Engagement Excellence Award and the TSM Environmental Excellence Award honour companies, facilities and individuals that have implemented projects and initiatives that expand and promote sustainable development within the mining sector. The TSM Excellence Awards are presented at the annual CIM Awards Gala.
Global Uptake of TSM

MAC is helping to build capacity within the global mining industry by sharing its expertise in sustainable mining practices. One of the most effective ways MAC and its members have been doing this is by freely sharing the TSM initiative with mining associations in other countries that are seeking tools to improve the environmental and social performance of their mining industries.

In 2015, TSM achieved an important milestone with the Finnish Mining Association’s (FinnMin) adoption of TSM for its members’ operations in Finland. Although organizations in other jurisdictions have shown interest over the years, this was the first time a mining association outside of Canada officially signed on to the program. In 2016, the Argentinean Chamber of Mining Entrepreneurs (CAEM) became the second association outside of Canada to adopt TSM. Argentina’s adoption of TSM represents a significant step forward in cooperation on responsible mining standards between Canada and a very significant mining jurisdiction in Latin America.

The recent adoption of TSM by the Philippines, Botswana and Spain clearly show that there is a growing desire to ensure that minerals and metals are being produced responsibly.

While each jurisdiction has the ability to tailor its performance areas so that they reflect the unique aspects of their domestic mining sector, there are seven core components that must be implemented when adopting TSM. The implementation of TSM in other countries is being guided by these core components to ensure that each jurisdiction implements TSM to the same high standard that it is applied in Canada.

The core components of TSM include:

1. Guiding Principles: Associations must commit to a set of Guiding Principles that reflect the environmental and social goals of the industry and its communities of interest.


3. Facility-Level Reporting: Associations must have measures to track progress against the performance indicators at the facility level, where the mining activity takes place.

4. Independent Verification: Associations must implement an appropriate framework for independent verification of performance to ensure that reported self-assessed results accurately reflect performance.


6. Condition of Membership: TSM must be a condition of membership in the implementing association.

7. Community of Interest Advisory Body: Associations must ensure that a Community of Interest Advisory Body, which represents challenging interests and a broad spectrum of societal perspectives, is in place.

Throughout the implementation process of TSM, mining associations must work in conjunction with their Community of Interest Advisory Body.

International interest in TSM continues to grow. MAC is currently engaging with other governments and associations across the globe.
### TSM Milestones

<table>
<thead>
<tr>
<th>YEAR</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992-94</td>
<td>Whitehorse Mining Initiative</td>
</tr>
<tr>
<td>1999</td>
<td>MAC Board establishes a Task Force to consider a sustainability initiative, which is a precursor to the TSM Governance Team</td>
</tr>
<tr>
<td></td>
<td>• TSM Guiding Principles are developed</td>
</tr>
<tr>
<td></td>
<td>• Development of TSM Protocols begins</td>
</tr>
<tr>
<td>2002</td>
<td>Multi-stakeholder design team advises MAC on the establishment of a TSM COI Advisory Panel</td>
</tr>
<tr>
<td>2003</td>
<td>TSM is launched with four original Protocols (Tailings Management, Crisis Management, External Outreach and Energy and GHG Emissions Management) and TSM COI Advisory Panel is formed</td>
</tr>
<tr>
<td>2004</td>
<td>MAC wins the Globe Foundation Award for Environmental Excellence</td>
</tr>
<tr>
<td>2005</td>
<td>First round of external verification by all MAC member facilities</td>
</tr>
<tr>
<td>2006</td>
<td>Two new TSM Protocols are introduced:</td>
</tr>
<tr>
<td></td>
<td>• Biodiversity Conservation Management Protocol</td>
</tr>
<tr>
<td></td>
<td>• Safety and Health Protocol</td>
</tr>
<tr>
<td>2011</td>
<td>MAC wins the PDAC Environmental and Social Responsibility Award</td>
</tr>
<tr>
<td>2012</td>
<td>MAC and Stratos are recognized with joint Excellence in Corporate Social Responsibility Award for TSM</td>
</tr>
<tr>
<td>2013</td>
<td>TSM Excellence Awards are launched</td>
</tr>
<tr>
<td>2014</td>
<td>FinnMin (Finnish Mining Association) adopts TSM</td>
</tr>
<tr>
<td>2015</td>
<td>The Argentinean Chamber of Mining Entrepreneurs (CAEM) adopts TSM</td>
</tr>
<tr>
<td>2016</td>
<td>The Chamber of Mines of the Philippines and the Botswana Chamber of Mines adopt TSM</td>
</tr>
<tr>
<td></td>
<td>• Preventing Child and Forced Labour Protocol introduced</td>
</tr>
<tr>
<td>2017</td>
<td>Confederación nacional de empresarios de la minería y de la metalurgia, the national mining association in Spain, adopts TSM</td>
</tr>
<tr>
<td>2018</td>
<td>New TSM Protocol, the Water Stewardship Protocol, introduced</td>
</tr>
</tbody>
</table>
Value of TSM

**Performance improvement:** The primary purpose of TSM is to drive performance improvement in each indicator area.

**Risk management:** TSM enables mining companies to understand and manage risks, reduce avoidable losses and identify emerging issues.

**Access to capital:** Institutional investors believe that social and environmental risk management can greatly improve a company’s long-term market value. The investment community increasingly regards corporate social responsibility programs, such as TSM, as a sign of a company’s “quality of management.”

**Social licence:** Through TSM, MAC members can build trust with their communities of interest and demonstrate their commitment to responsible mining practices.

**Recruitment and retention:** Most people want to work for a company whose values are consistent with their own, and there is growing evidence that more people want to work for responsible organizations. TSM helps companies attract and retain a talented and diverse workforce.

**Innovation and learning:** TSM stimulates innovation and learning within companies by helping to identify new market opportunities, establish more efficient business processes and maintain competitiveness.

The Sandhill Fen Watershed reclamation research project at Syncrude’s oil sands facility near Fort McMurray, Alberta.
For more information about the TSM initiative, visit:

The Argentinean Chamber of Mining Entrepreneurs (CAEM)
www.caem.com.ar/hms

Botswana Chamber of Mines (BCM)
www.bcm.org.bw

Confederación nacional de empresarios de la minería y de la metalurgia (CONFEDEM)
www.confedem.com

Chamber of Mines of the Philippines (COMP)
www.chamberofmines.com.ph

Finnish Mining Association (FinnMin)
www.kaivosvastuu.fi/in-english

Quebec Mining Association (QMA)
www.amq-inc.com