



*Towards
Sustainable Mining:
A Catalyst for Change*

EEN Forum 2008
September 25, 2008



The Mining Association of Canada
L'Association minière du Canada



Presentation Overview



1. Introduction to the *Towards Sustainable Mining* program
2. The TSM Self-Assessment and Verification System
3. The impact: how TSM has improved member-company performance
4. Discussion





What is MAC?

- The national organization of the Canadian mining industry
- Mining, smelting and refining of base and precious metals
- Mining of iron ore, diamonds, uranium, oil sands, coal and industrial minerals
- Many associate members
- ***www.mining.ca***

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The Bottom Line for TSM



Why Towards Sustainable Mining?

- The status quo is not sustainable
- Our social licence is at risk
- The bar keeps rising
 - We must improve our performance, both operational and social
 - We must improve public opinion of our industry by taking action collectively



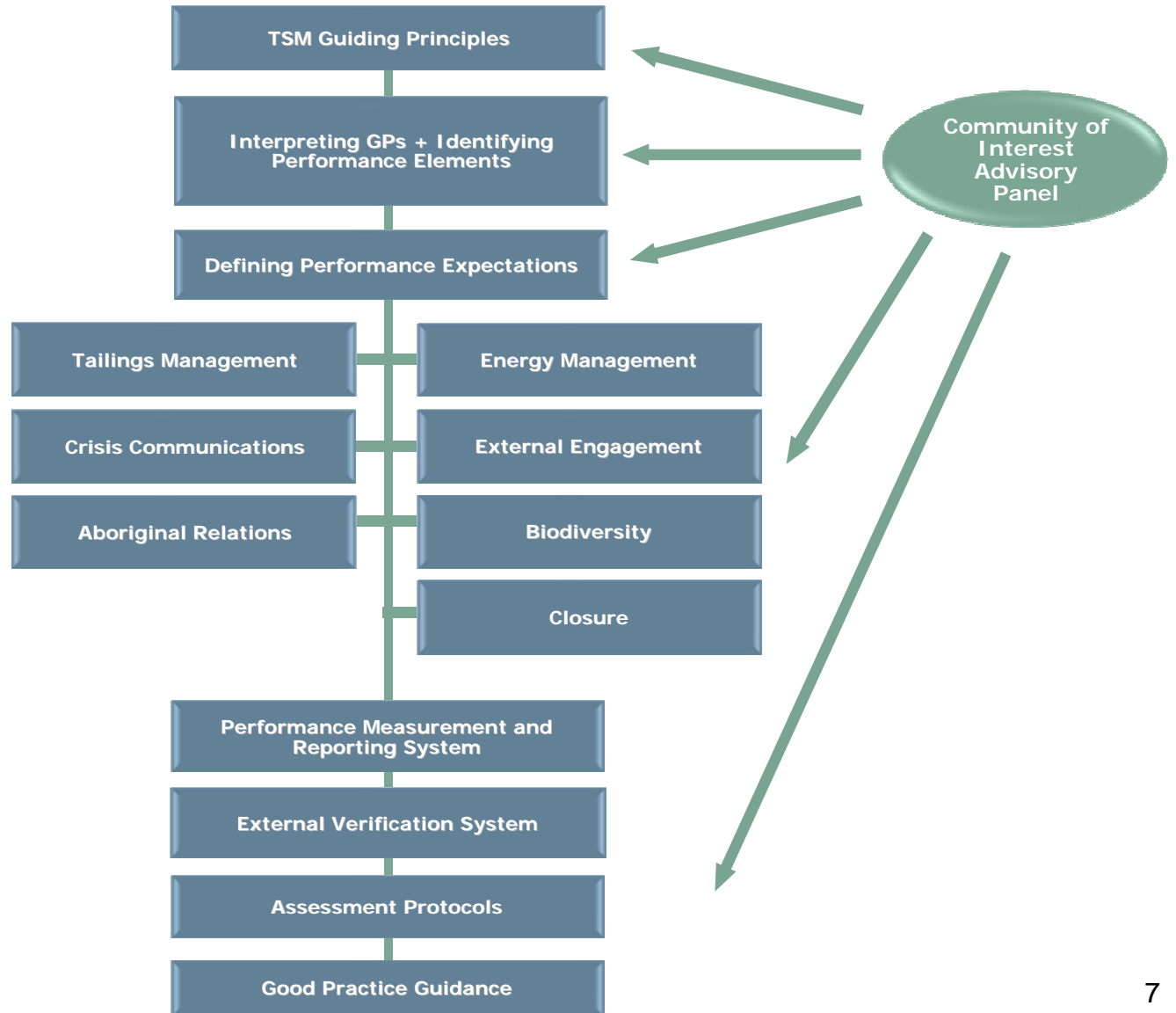


Towards Sustainable Mining



- *A strategy for improving the mining industry's performance by aligning its actions with the priorities and values of Canadians.*
- *A process for finding common ground with our communities of interest, to build a better mining industry today and in the future.*

TSM Program Architecture





TSM Performance Indicators



In addressing the TSM Guiding Principles, MAC developed performance indicators to:

- Respond to critical performance areas
- Demonstrate performance
- Facilitate continuous improvement toward recognized best practices
- Build credibility and trust with communities of interest



TSM Elements and Indicators



Tailings Management	Energy Use and Greenhouse Gas (GHG) Emissions Management	External Outreach	Crisis Management Planning
Tailings management policy and commitment	Energy use management systems	Community of interest (COI) identification	Crisis management preparedness
Tailings management system	Energy use reporting systems	Effective COI engagement and dialogue	Review
Assigned accountability and responsibility for tailings management	Energy intensity performance target	COI response mechanism	Training
Annual tailings management review	GHG emissions management systems	Reporting	
Operation, maintenance and surveillance (OMS) manual	GHG emissions reporting systems		
	GHG emissions intensity performance target		



The TSM Self-Assessment and Verification System



1. Energy Use Management Systems

Purpose:

Indicator

To confirm that systems are in place to manage energy use.

Level	Energy Use Management Systems-Performance Rating
1	No formal energy use management systems in place
2	Basic energy use management system established that includes: <ul style="list-style-type: none">• written senior management commitment at facility level• facility level Energy Leaders• facility level monitoring infrastructure that measures consumption of energy with a level of disaggregation by major process activity (e.g. mill, smelter, refinery)• aggregation of facility level measured data into facility level database

Performance Level

Criteria



Generic Assessment Scheme



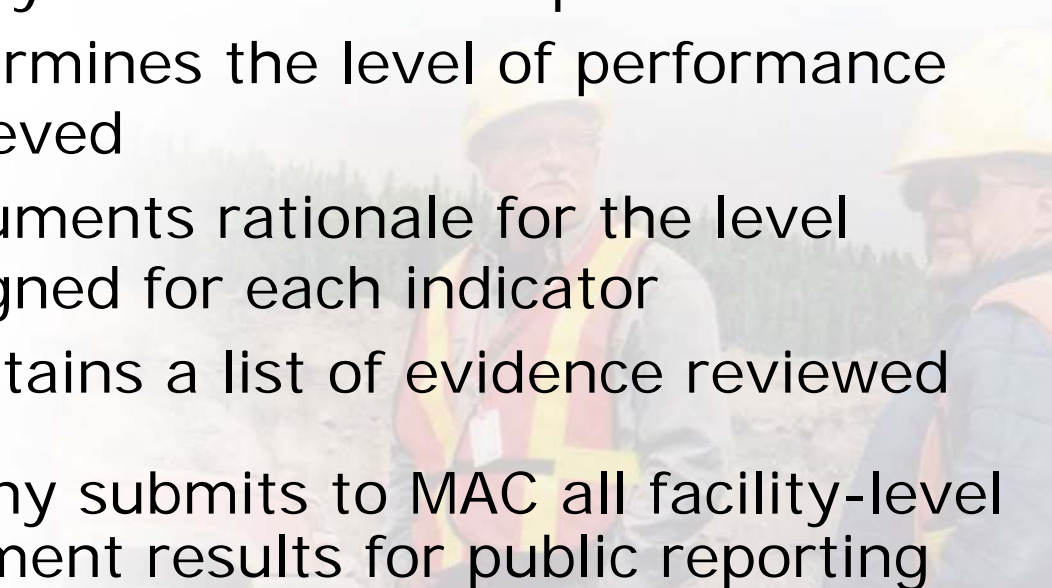
<i>Performance Rating</i>	
Level	Criteria
1	No systems in place; activities tend to be reactive; procedures may exist but they are not integrated into policies and management systems
2	Procedures exist but are not fully consistent or documented; systems/processes planned and being developed
3	Systems/processes are developed and implemented
4	Integration into management decisions and business functions
5	Excellence and leadership

Assessment scheme customized for each indicator



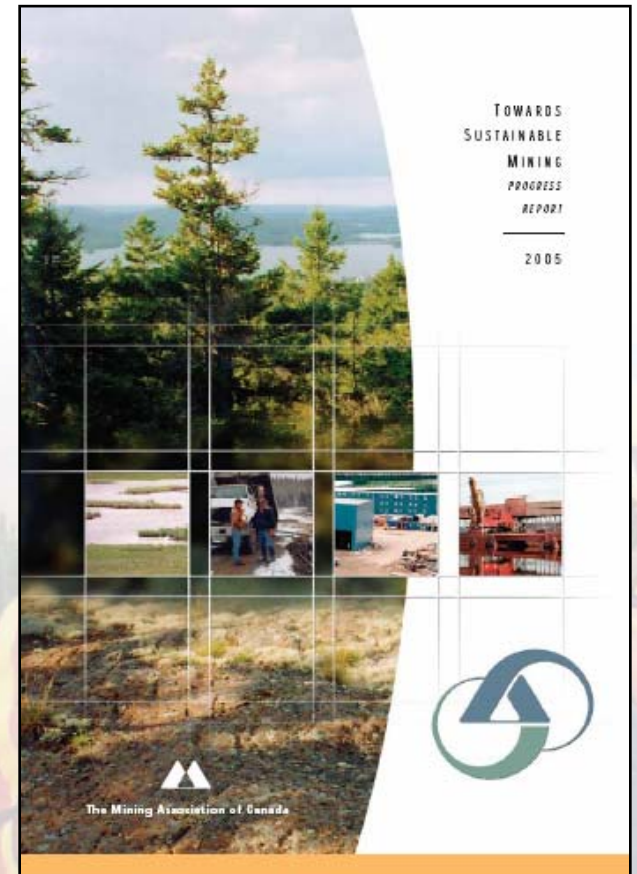
The Self-Assessment Process



- To be useful, protocols must be applied consistently by all facilities and companies
 - MAC offered training workshops
 - Based on available evidence, the company's identified lead person:
 - Determines the level of performance achieved
 - Documents rationale for the level assigned for each indicator
 - Maintains a list of evidence reviewed
 - Company submits to MAC all facility-level assessment results for public reporting
- 

What gets reported to the public?

- “Aggregate” association-wide result based on TSM self assessments for all performance elements and all indicators for all member company operating facilities
- Canadian facility-level assessments
- Voluntary reporting of international facility performance (Inmet, IamGold and Breakwater (2009))





TSM Verification System



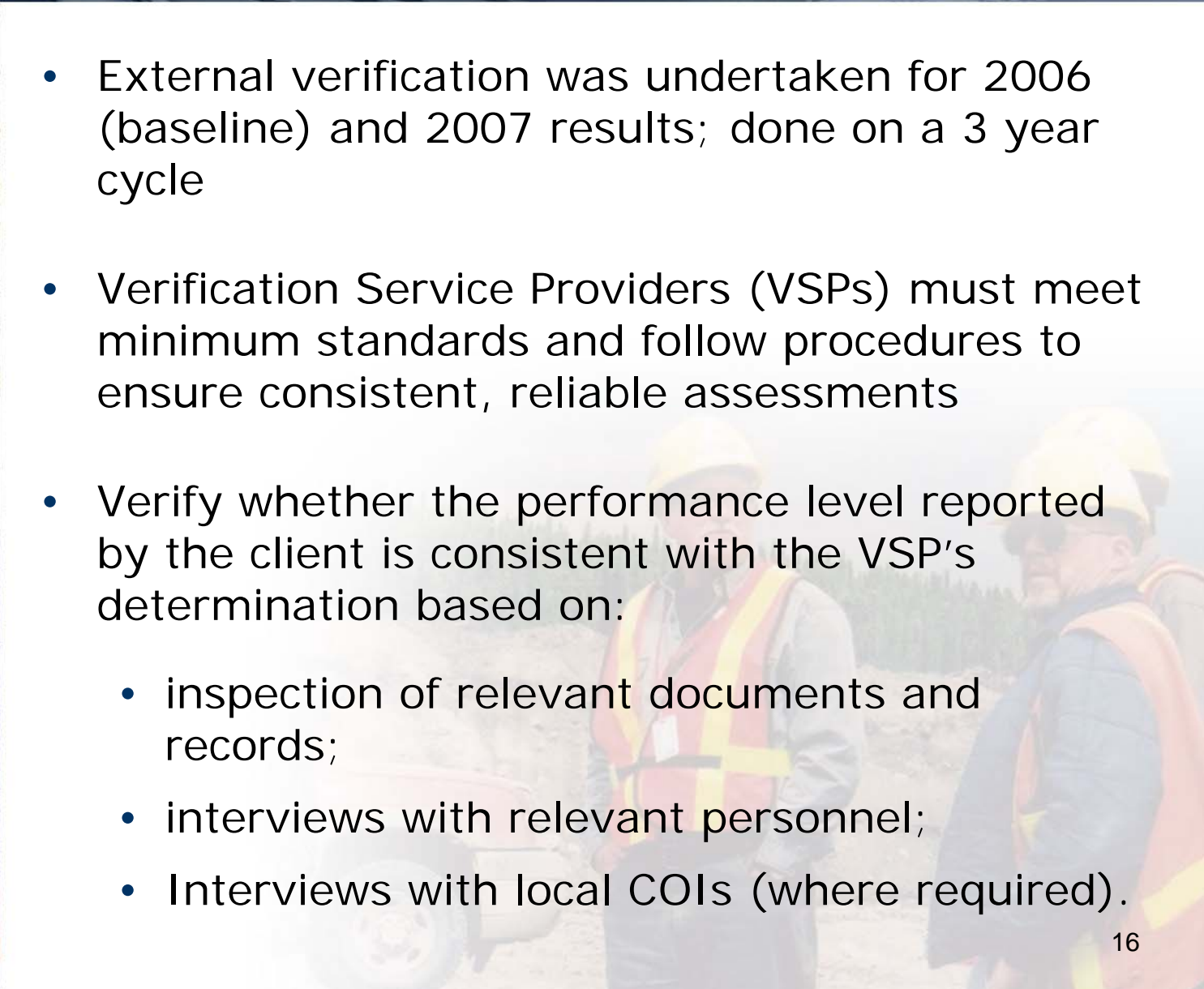
- Purpose: to build member company, COI, and public confidence in the validity of the self-assessments
- 3 Key components of the TSM Verification System:
 - External verification
 - CEO Letter of Assurance
 - Post-verification presentation and discussion with TSM COI Panel
- External verification process and report is a pre-requisite for the CEO to produce the CEO Letter of Assurance – 2007 on MAC website



External Verification Process



- External verification was undertaken for 2006 (baseline) and 2007 results; done on a 3 year cycle
- Verification Service Providers (VSPs) must meet minimum standards and follow procedures to ensure consistent, reliable assessments
- Verify whether the performance level reported by the client is consistent with the VSP's determination based on:
 - inspection of relevant documents and records;
 - interviews with relevant personnel;
 - Interviews with local COIs (where required).





Verification Experience

- Determined the majority of self-assessment results were accurate
- Verifications led to the adjustment of anywhere from 1 – approx. 11 results at the facility level
- Verification has led to:
 - greater understanding of the detailed criteria in each protocol
 - more consistent application
 - additional scrutiny and discussion of TSM performance
 - additional TSM “ambassadors” who can extend the program’s influence



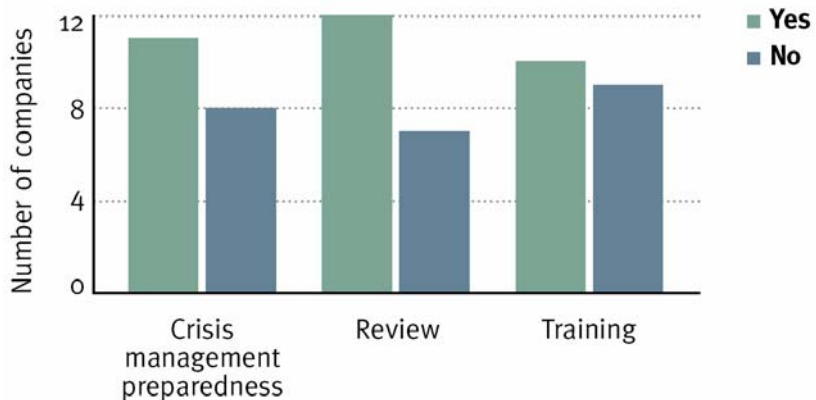
TSM Results: The impact TSM is having



TSM Aggregate Results – Crisis Management Planning

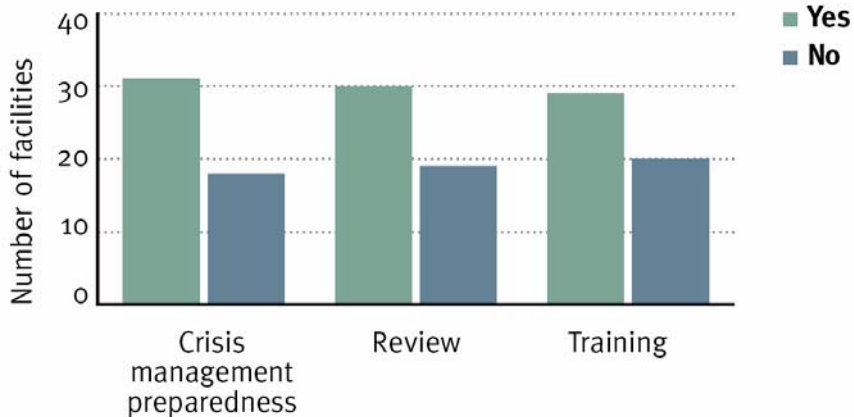


CRISIS MANAGEMENT PLANNING ASSESSMENTS CORPORATE-LEVEL REPORTING



- Solid improvement reported at the corporate level across all three indicators.

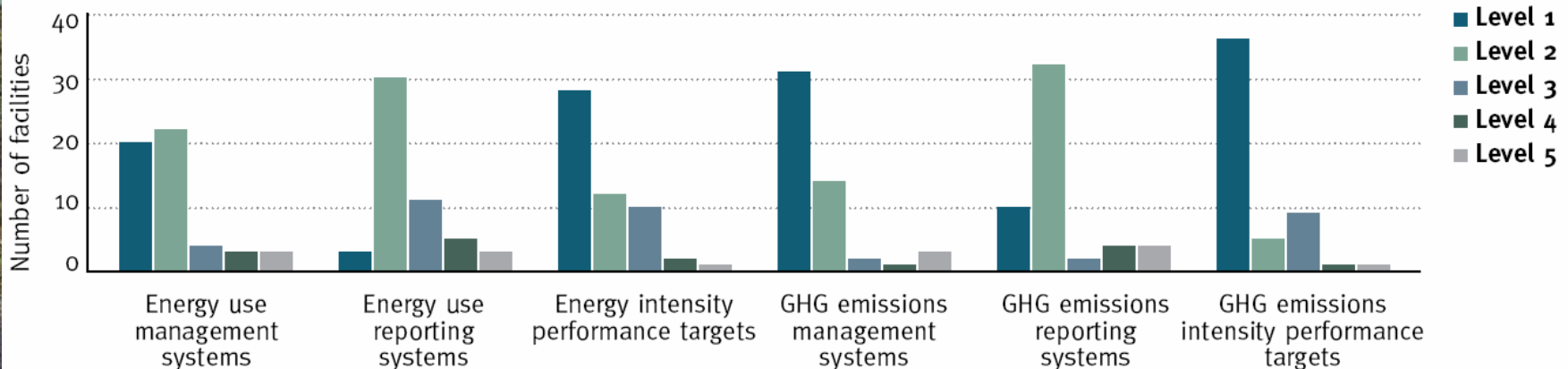
CRISIS MANAGEMENT PLANNING ASSESSMENTS FACILITY-LEVEL REPORTING



- More facilities responded “yes” to having a complete crisis management plan and conducting annual training exercises.
- Small decrease in the number of facilities that have met the requirements to review and update their plan and test the notification system.

TSM Aggregate Results – Energy and GHG

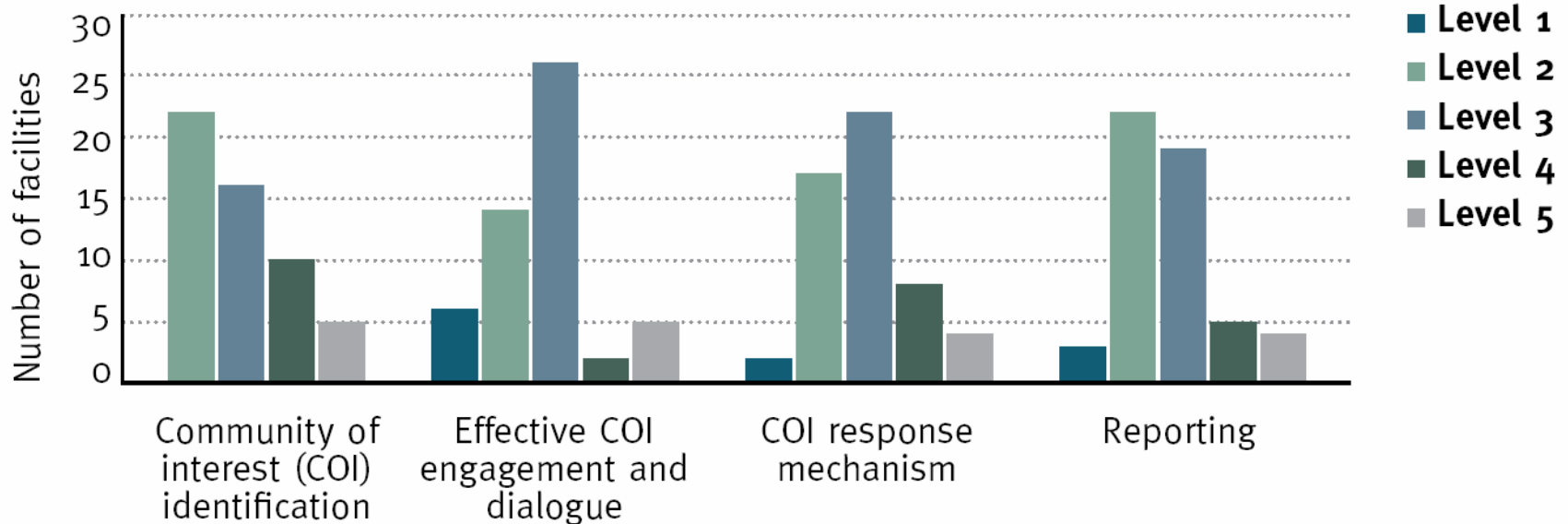
ENERGY USE AND GREENHOUSE GAS (GHG) EMISSIONS MANAGEMENT ASSESSMENTS



- Performance on energy use and GHG emissions management remains the weakest overall area on an aggregate basis.
- Some improvement in the number of facilities with energy use reporting systems and targets in place, the majority of reporting facilities are at Level 1 or 2.
- More facilities setting energy and GHG intensity performance targets, which signals more management attention to improving this area.

TSM Aggregate Results – External Outreach

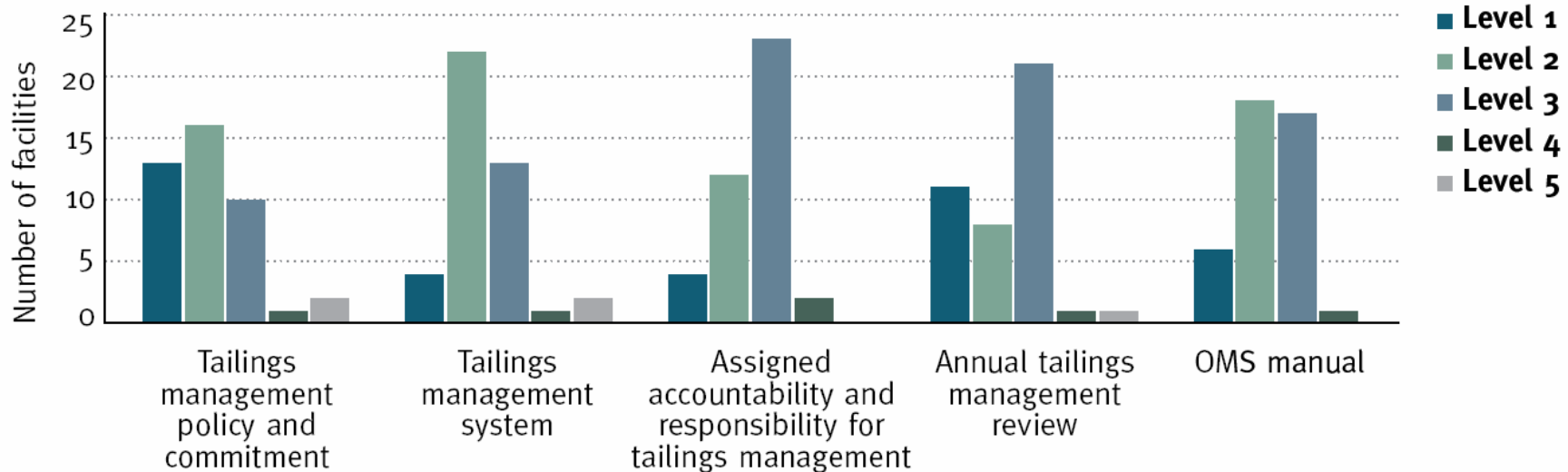
EXTERNAL OUTREACH ASSESSMENTS



- Results for external outreach remain strong.
- Steady improvement in how facilities identify communities of interest affected or perceived to be affected by their operations.
- No facilities reported at Level 1 for this indicator, and for every indicator, more than half of reporting facilities achieved Level 3 or higher.

TSM Aggregate Results – Tailings Management

TAILINGS MANAGEMENT ASSESSMENTS



- The results for tailings management continue to improve
- Most notable increase being in the number of facilities that have assigned accountability for tailings management to an executive officer.
- Under the indicator for tailings management policy and commitment (Indicator 1), there was a decrease from last year in the number of facilities reporting Level 3 or higher.



TSM AWARDS 2007



Tailings	Energy and GHG	External Outreach	Crisis Management
<ul style="list-style-type: none">• Syncrude Canada Ltd. (Level 3)	<ul style="list-style-type: none">• Syncrude Canada Ltd. (Level 3)	<ul style="list-style-type: none">• Syncrude Canada Ltd. (Level 5)• Teck Cominco Trail Smelter -- Highland Valley Copper (Level 4)• Williams Operating Corporation (Level 3)	<ul style="list-style-type: none">• Syncrude Canada Ltd.• Teck Cominco Trail Smelter• Williams Operating Corporation



Benefits of TSM Performance Measurement

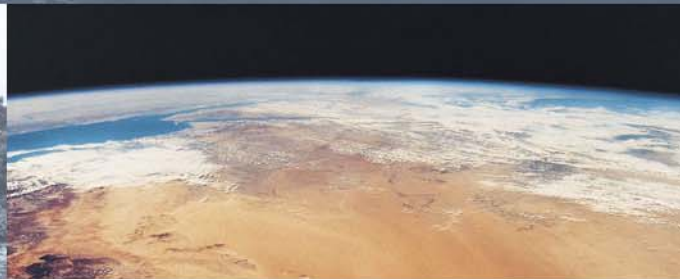


- Driving performance
- Refocusing and stimulating activity on performance gaps
- Drawing attention to goals and targets
- Creating a culture of achievement
- Identifying trends and comparing with others (peer pressure)
- Transparency
- Earning our social licence
- National policy impact



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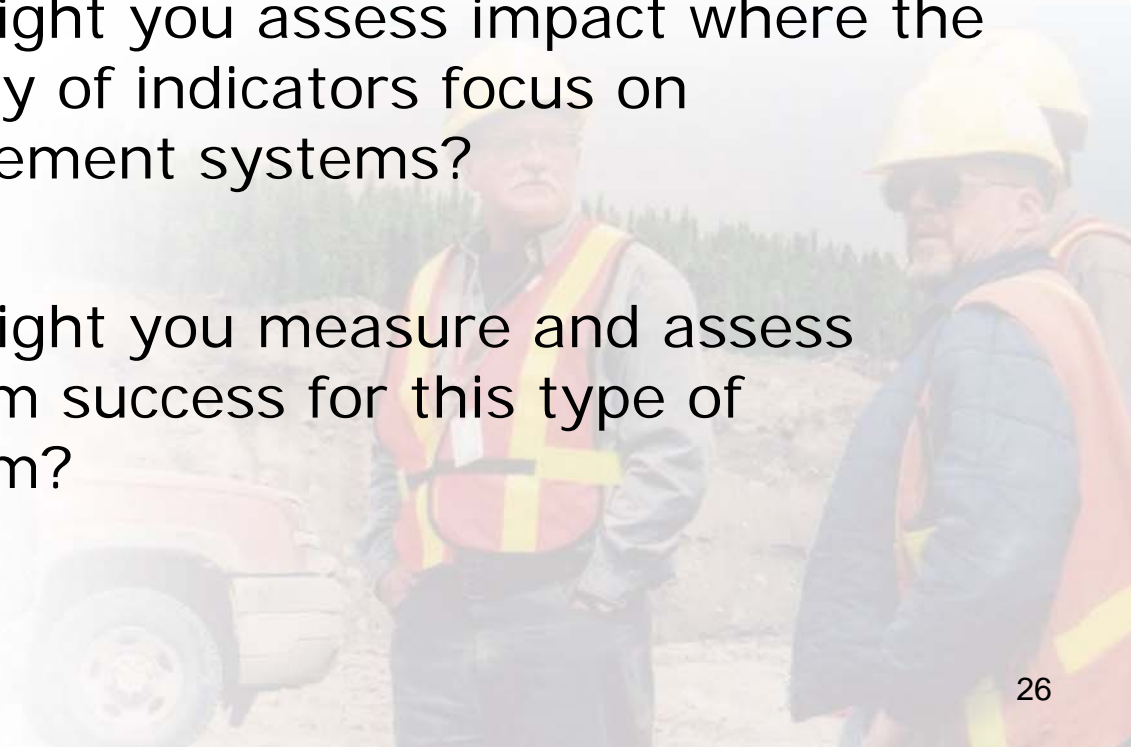
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Discussion



1. How do you strike the balance between self-assessment and external verification?
2. How might you assess impact where the majority of indicators focus on management systems?
3. How might you measure and assess program success for this type of program?



How Towards Sustainable Mining is leading to improved performance



Behaviour change:

- Improved performance across the TSM protocols for tailings management, external outreach, crisis communications, and energy & GHG emissions management
- Greater acceptance of external oversight and verification
- Enhanced transparency and dialogue

Success factors:

- A reasonable pace
- Clear expectations
- Consistent interpretation
- Public reporting and Advisory Panel review

Challenges:

- Integrating TSM within corporate strategy and systems
- International application

