

MINING, MINERALS AND INTEGRITY - INSIGHTS AND OUTCOMES OF THE MINING, MINERALS AND SUSTAINABLE DEVELOPMENT (MMSD) NORTH AMERICA PROJECT

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ABSTRACT

The purpose of this paper is to provide an overview of the program, outputs and major conclusions of the Mining, Minerals and Sustainable Development (MMSD) North America Project.

Through its 18 month existence, MMSD North America set out to generate a Strategy for Change - a blueprint that would provide specific suggestions for action that would help ensure mining and minerals contributed to society's overall transition to sustainable development. From its inception, the targets for such a Strategy for Change included industry (juniors, intermediates, seniors, services), government (federal, state/provincial, local), First Nations/Native Americans, organized labour, mining dependent communities, non-government organizations, and the academic community. MMSD North America, coordinated through the International Institute for Sustainable Development (IISD), was one of the four regional contributors to the global MMSD Project that reached its conclusion with the Global Mining Initiative (GMI) conference in Toronto on May 12 - 15, 2002.

To fulfill its mandate, participants of MMSD North America opted to pursue a four-part strategy. First, effort was put into articulating the story of North American mining and minerals from the perspective of sustainability: how a contribution has been made to human and ecosystem well-being, positive and negative. Each community of interest has a different take on the story. These differences are vital to recognize for they reflect different values at play - values that are dynamic. Matching this initial perspective, a second task group set out to describe future scenarios and their implications for the various communities of interest. A third task was aimed at developing a practical approach to assessing a project or operations contribution to sustainability. Together these three sets of activities provided the foundation for the fourth and ultimate task, production of the Strategy for Change.

BACKGROUND

The mining industry has entered a time of major transition. It is being driven by a rapidly shifting global market place and increased public concern related to environmental and social implications of mining activity. The breadth and pace of this change are without precedent.

A broad array of interrelated technical, environmental, and social issues face the mining/minerals community. Legal and financial implications have multiplied as investors, communities, non-governmental organizations and other stakeholders bring growing scrutiny to mining operations. With the immediacy of worldwide communications, local incidents become global news overnight. Not surprisingly, across the world, regulatory systems - financial, environmental, and social - are also in a state of flux.

In 1999, nine Chief Executive Officers of some of the world's largest mining companies came together in Davos, Switzerland. Driven by a concern that a disconnect had emerged between mining/minerals-related practices and the values of today's society, they voiced a concern that their "social license to operate" was in jeopardy.

Working through the World Business Council on Sustainable Development (WBCSD), they subsequently commissioned the International Institute of Environment and Development (IIED, London) to undertake a global review that would lead to the identification of how mining and minerals can best contribute to the global transition to sustainable development. The resulting project "Mining, Minerals, and Sustainable Development (MMSD)" has been driven by the following four goals:

- 1. to assess global mining and minerals use in terms of the transition to sustainable development — its track record in the past and its current contribution to and detraction from economic prosperity, human well-being, ecosystem health and accountable decision-making;*
- 2. to identify if and how the services provided by the minerals' system can be delivered in accordance with sustainable development in the future;*
- 3. to propose key elements of an action plan for improvement in the minerals system; and*
- 4. to build a platform of analysis and engagement for ongoing cooperation and networking between all communities of interest.*

As part of its delivery mechanism, MMSD Global created a suite of regional activities with partners operating in Southern Africa, South America, Australia, and North America. In North America, the International Institute for Sustainable Development (IISD) in Winnipeg has served as the regional partner working in concert with the Mining Life-Cycle Centre, MacKay School of Mines, University of Nevada, Reno.

The MMSD North America Project has been driven by the five tasks outlined in Table 1. An explicit framework was put in place for the project that provided the context for the study. This framework included recognition of:

- The full mine/mineral life cycle. This includes from exploration, through detailed site design and construction, to operation and temporary closure, to final closure, decommissioning and post closure; and
- both direct and indirect implications of mining and mineral activity (see Figure 1).

Two additional guidelines served to complete the definition of the boundaries of project analysis. First, the emphasis was set on the extractive end of the minerals cycle. Second, the emphasis was set on metals and non-metals. Activities and implications related to structural materials (e.g. sand and gravel, construction material) and energy minerals (coal and coke, oil and tar sands, uranium and thorium) were set aside except in consideration of aspects that were common to all mining.

From the beginning, MMSD North America set out an ambitious plan. However, some significant limitations need to be mentioned. For the most part, these limitations are a result of the compressed time frame for the project and the lack of sufficient resources. Of note, the inability to link substantively with Mexico was disappointing and the sheer task of trying to reach-out to all communities of interest in an equal manner proved to be a significant challenge.

Notwithstanding these challenges, substantial ground was made in meaningful and active dialogue with a large number of people and organizations (>1000) in carrying out this project. The networks created through MMSD should serve as an important resource for future work in creating the right conditions for a more sustainable industry.

When all is said and done, motivation for applying the concept of sustainability comes from a quest for security:

- > security for our communities and their families,
- > security for the environment in the hopes that the quality of life for generations to come will be even better than the quality of life we have enjoyed;
- > security for mining companies seeking greater confidence in land tenure, strong prices, and the opportunity to continue doing what has caused them to form a team in the first place; and
- > security for the local and regional economy that serves the well being of people and ecosystems.

It is in all of these elements together that is found the foundation for a social license to operate.

Table 1 - MMSD North America Work Plan Tasks and Objectives

Task 1: Story/Profile

Objective 1A: to develop a profile of the North American mining Industry (US and Canada) from the perspective of the nature of the companies that comprise the industry.

Objective 1B: to articulate the contribution and implications of mining (to people and their communities, to ecosystems, to economies) through the eyes of various communities of interest and as it has changed over time.

Task 2: Test/Guideline for Sustainability

Objective 2A: to develop a set of practical principles, criteria, and/or indicators that could be used to guide or test the exploration for, design, operation, and performance monitoring of individual, existing or proposed, operations in terms of their compatibility with concepts of sustainability.

Objective 2B: to suggest approaches or strategies for effectively implementing such a test/guideline.

Task 3: Scenarios

Objective 3A: to develop a set of scenarios that bracket the likely futures to be faced by the North American mining and minerals industry and the related communities of interest.

Objective 3B: to use the scenario-building exercise as a means to identify and discuss:

- risks and opportunities;
- issues, challenges, and areas of both consensus and disagreement on their resolution; and
- potential prescriptions (aimed potentially at any or all of the communities of interest) for adjusting mining- and minerals- related policy, practices, behavior and infrastructure.

Task 4: Strategy for Change

Objective 4: to collaboratively develop a "Strategy for Change" comprising specific actions and timelines for the North American mining industry and related communities of interest to meet in moving towards sustainable development.

Task 5: Final Report

Objective 5: to synthesize and communicate the results of MMSD North America.

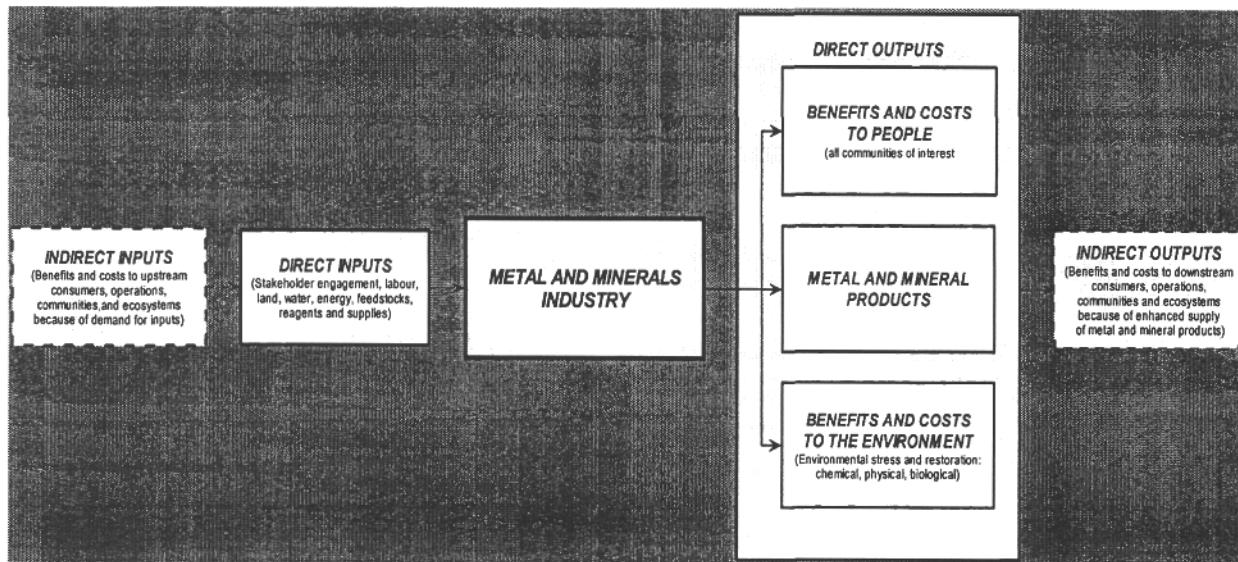


Figure 1. Direct and Indirect Implications of Mine/Mineral Activities

OVERVIEW AND OUTCOMES OF THE MMSD NORTH AMERICA PROJECT

Task 1 - The Story of Mining

Task 1 of the MMSD North America Project had two objectives, which are shown in Table 1. Objective 1A focused on chronicling a profile of the North American mining industry from the perspective of the companies (junior, mid-tier and senior) that comprise the industry. Objective IB was interested more in the "story" of mining as seen from the communities who come in direct contact with the industry. Both of these objectives resulted in reports or working papers being prepared. The profile of the industry is detailed in a published report by Alistair MacDonald called *"Industry in Transition: A Profile of the North American Mining Sector"*. The story of mining is contained within a draft working paper that was prepared by the Centre for Collaborative Action at York University and SENES Consultants Inc.. This paper is called *"Sustainability Profile: The Story of North American Mining and Minerals "*.

The Objective 1A report detailed research into North American mining to determine the nature of its corporate structures and how they relate to the global mining industry and to sustainability. The North American mining industry was defined in the study as all those companies that were publicly traded with their head offices located either in the United States or Canada.

Some of the key issues identified through this analysis of the North American mining industry included:

- the often tenuous and competing needs of junior mid-size and senior mining forms;
- the juxtaposition of the need to enhance the overall reputation of the industry and the need to maintain the healthy variation in corporate cultures of different sized firms;
- the need for the industry to address the overwhelmingly negative public perception that is reinforced through the media;
- the differences in mind-sets between the local community in which a mining company operates and the companies themselves; and,
- the differences in definitions of and levels of understanding about the concept of sustainability.

Objective IB sought to articulate in a fair and balanced way the contributions and implications of mining to people and their communities, to ecosystems, and to economies through the eyes of the various communities of interest. The communities of interest that were engaged in the study were: mining dependent communities and regions, Indigenous People, mining companies, workers and organized labour, non-governmental organizations and government. The report presents a written description of the metal mining industry (past and present) from the perspective of different communities of interest. It does this in terms of positive and negative implications for both people and the environment; and insights on what and how the industry, along with the various implicated communities of interest, could change to ensure a contribution to the transition to sustainable development. Added to the report is a general discussion of the history of mining, technological advancements in mining, societal shifts in values with respect to the environment, and a summary of public perception data with respect to mining.

Task 2 - A Test for Sustainability

Task 2 of MMSD North America set out to develop an approach to assessing how a mine/mineral project or operation contributes to sustainability. Specifically, the following objectives were established:

1. To suggest approaches or strategies for effectively implementing such a test/guideline.

2. To develop a set of practical principles, criteria, and/or indicators that could be used to guide or test the exploration for, design, operation, closure, post-closure and performance monitoring of individual operations, existing or proposed, in terms of their compatibility with concepts of sustainability;

Pursuing these objectives is important because meeting them:

1. leads to a clarification of what the much-debated concepts of sustainable development and sustainability mean in practice for the mining/minerals industry;
2. helps to achieve a consistency across applications and phases of a project/operation life cycle that in turn will lead to a reduction of confusion and the realization of efficiencies;
3. helps to identify the benefits, costs, and risks of bringing the idea of sustainability from theory to practice and in so doing sheds light on the overall case for sustainability in general and the business case in particular.

Over an eight-month period, a group of 35 people from a broad range of interests (industry, academic, non-governmental agencies, labor, government) worked to develop guidelines that can be applied to all phases of mining/mineral activities. This includes from exploration, through site investigation and design to operations, closure and, ultimately, post closure. The result of this effort is a framework centered on seven questions to sustainability, published in *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*.

The seven questions are shown graphically in Figure 2.

In acting on the results of any assessment, a company, community, or government will inevitably have to weigh certain trade-offs. In doing so, the rules governing such tradeoffs along with fair processes for their application need to be established. However, the starting point for all of this is the identification of the considerations that are fed into the decision-making process. It is this starting point set of considerations that is offered here, not the decision-making process itself.

This approach is offered as guidance to operators, owners, investors, insurers, communities, indigenous people, non-government organizations, and others. Potential applications include: early appraisal, planning, financing and insuring, licensing and approvals, internal corporate reviews, corporate reporting, and external reviews.

The questions are intended to be applied against any set of facilities and activities comprising an individual (existing or proposed) project or operation: exploration, mining, milling, smelting, refining, or primary metals manufacturing, fabrication or recycling. The spatial scale for application in any case will be governed by the "reach" of site-specific implications as they ripple out into human society and the environment. The full project life cycle sets the time horizon from exploration through to post closure. Operations ranging in size from small to large are targeted.

The next step in the development of the Seven Questions Framework is to carry out a series of pilot tests on real projects in various stages of development. At the time of writing, several domestic and international mining projects that cover the full range of development status (exploration through to closure) are being considered for use as pilot tests. It is expected that through these pilot studies, the framework will become further enhanced and refined. The work group that was involved in drafting the initial framework is expected to reconvene sometime in early 2003 to evaluate the findings from these pilot studies and then contribute that learning back into revisions to the Seven Questions Framework.

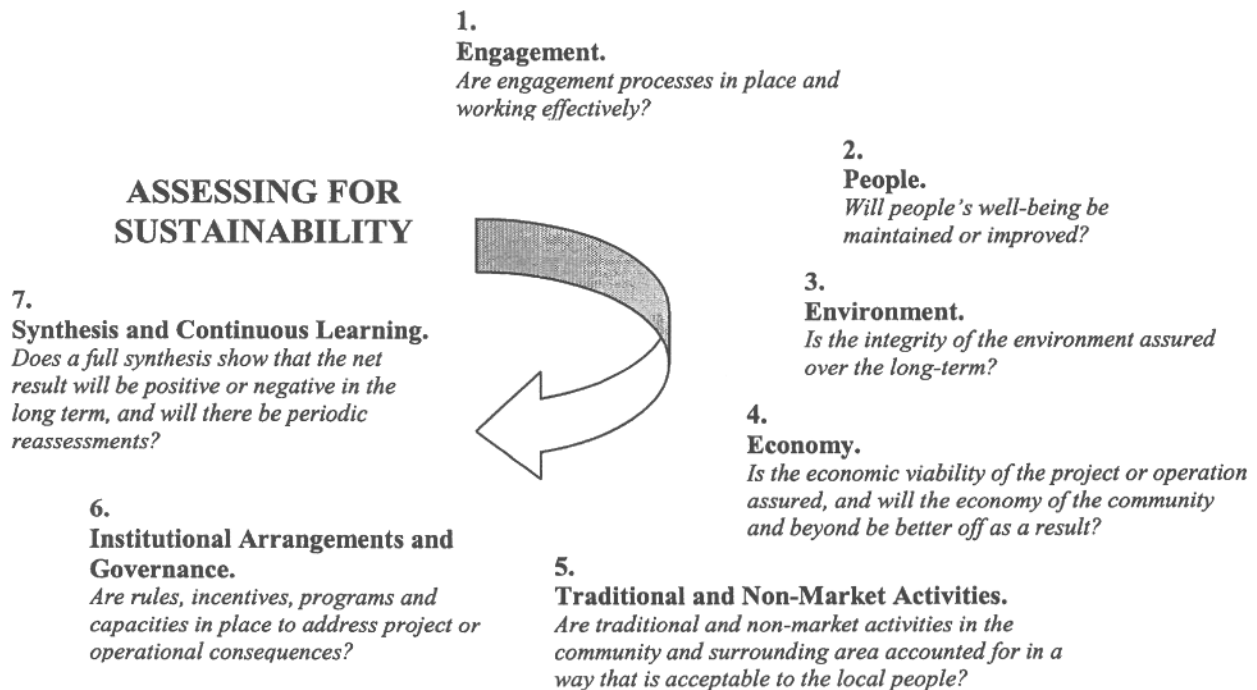


Figure 2. The Seven Questions at a Glance

Readers are encouraged to contact the authors of this paper if they are interested in learning more about the Seven Questions Framework or about the pilot studies.

Task 3 - Future Scenarios for the North American Mining Industry

In the Fall of 2001, 25 individuals, men and women with diverse backgrounds and perspectives from across Canada and the USA, came together to talk about the future of the mining industry in North America. Using the same techniques that allowed Shell to anticipate the OPEC oil embargo in 1973, the group identified and elaborated four possible future scenarios for mining in North America. Told as stories, these alternative descriptions of the future focus on the social and economic forces driving change, and the critical uncertainties leading to different possible future outcomes.

New Horizons - In which renewed economic strength and shifting values drive change towards a future marked by optimism and growth.

Phoenix Rising - In this vision, depressed economic conditions and increasing public environmental and social pressures push industry to the brink of survival. Over time, changing social context and collective industry action lead to new relationships and improved performance, which allow mining to survive and prosper.

Perfect Storm - With depressed economic conditions and alienated from the public, the industry falls into a downward spiral. Without thinking, and without allies, mining is headed for extinction.

Money Divides - Financial prosperity reinforces a go-it-alone mindset for the industry which creates rising conflict and distrust among other communities of interest. Circumstances create the paradoxical situation of a prosperous industry in decline. Such a situation is not sustainable: a cyclical downturn is inevitable. The scene shifts to escalating conflict and shrinking margins, which threaten to sink the industry in a perfect storm.

The four stories are a powerful way of communicating complex and often subtle ideas. In a sense they are thought experiments, and by broadening thinking on the future they can help improve decisions and actions taken today.

The Scenarios Report: *Alternative Futures for the North American Mining and Minerals Industry*, is an essential source of ideas and information for the industry, government, academic researchers, civil society, and any individual with an interest in mining.

Task 4 - A Strategy for Change

At the heart of this initiative lies the need to identify specific steps that would contribute to further aligning mining/minerals related activities with the broad societal shift to sustainable development. MMSD North America has used the lens of sustainability to look at the past (Task 1), the future (Task 3), and to think in concrete terms about what it means today for an operation or project (Task 2).

The lens that has been used is one that calls for consideration of implications to people and ecosystems, positive and negative, over the short and long terms. Most importantly, it is a lens that forces consideration of not only *what* is done (the substance), but also *how* it is done (the process).

Suggestions for action emerged from each of our tasks. Ten of these actions rose to the top as the most urgent priorities. They are listed in Table 2.

Throughout the life of MMSD North America, one clear message was articulated time and time again: to re-establish industry credibility, there needs to be hard evidence of progress and change, not just talk. The creation of MMSD itself is a significant step and in the short life of MMSD North America, a momentum for change has been generated. Now there is an opportunity to further nourish that momentum. If this process now peters out as occurred after Canada's Whitehorse Mining Initiative, the degree of cynicism will mount dramatically. In recognition of the need for timely progress and follow-up, the time horizons for each action item generally targets initiation of follow-up action before the end of 2002. Further, there is a call for concrete results to be shown by the end of 2003.

Work is underway to ensure adequate resources to support the application and fulfillment of the strategy.

Table 2

Actions Items Arising from the MMSD Strategy for Change The

Legacy Issue

Immediate Priority

1. Enhance effort to address the legacy of past mining and mineral activities.

Longer Term

2. Strengthen the basket of legislated rules, market incentives, and voluntary programs to prevent the same from happening in the future.

Improving Practices

Immediate Priorities

3. Initiate a series of pilot tests as the next step in the collaborative development of the Seven Questions to Sustainability Framework.
4. Design and implement effective approaches for rewarding good and discouraging bad performance within the context of sustainability as indicated by the Seven Questions framework.
5. Design and implement a set of effective dispute resolution mechanisms tailored for application across the full life cycle of mining and mineral projects.
6. Review and optimize the rules and systems for designating and controlling recyclable material and hazardous waste to encourage recycling while maintaining safety.
7. Develop and implement a practical approach to addressing the equity issue at the project/operational level.

Longer Term

8. Initiate a review of the current financial - business - economic decision support model and the processes used in its application in the mining and minerals industry to identify how ecological and social costs, benefits, and risks can be more effectively incorporated than at present.

Enhancing Capacity

9. Strengthen the learning and research/development system in support of the North American mining and minerals industry to avoid serious human resource problems within the next decade.

Monitoring and Reporting on Follow-up

10. Create a mechanism to facilitate follow-up activities and report on MMSD North America outcomes, 2002 - 2007.

Notes: Table taken from the July 31, 2002 Draft "Towards Change" Report of MMSD North America. These final recommendations may be revised in the final Report for the project.

CONCLUSIONS

The global MMSD initiative, of which MMSD North America was a part, had a substantial mandate and series of objectives to pursue. The project, which took place over a very short time period with only modest resources, focused on finding ways to re-position an entire, very diverse, industry sector to meet the challenges and opportunities associated with sustainable development. There is no other industry sector in the world that has, collectively, attempted such an ambitious undertaking and for that, the global and North American mining industry deserves to be commended.

However, in addition to providing answers to many questions about how an industry or company might change in order to become more sustainable, the outcomes of MMSD North America identified a number of significant challenges and issues that require immediate and sustained attention. Failure to address these issues in a meaningful and substantive way would serve to further degrade the perception of the industry with the public. Furthermore, a failure to act has the potential to generate a degree of cynicism within all stakeholders that may become impossible to overcome.

A number of tools, e.g. the Seven Questions Framework, and resources, e.g. the Scenarios Report, that can be used by the industry and others have been provided through the MMSD North America Project. These tools have been designed to help industry and other interested stakeholders in their consideration of the direction that the industry might be moving in and how to assess the contribution of an existing or proposed activity to sustainability. From these, specific actions that apply to the industry, an exiting operation or a proposed project can be identified and implemented with a goal of moving the entire industry in a more sustainable direction.

It will take significant leadership and dedicated resources to fully realize the goal of an industry that is operating in a manner consistent with the ideas of sustainable development. It is hoped that the dedication and commitment demonstrated by the contributors to the MMSD Project will be followed up with verifiable actions such as those outlined in the Strategy for Change. If so, the momentum that has been built through the project will help to move the industry forward into a prosperous and sustainable future that gives full recognition of the contribution of mining and minerals to the well being of both people and the environment.

For copies of all of the reports of the MMSD North America Project please refer to the USD web site at <http://www.iisd.org/mmsd>. For information about the global MMSD initiative, visit <http://www.ied.org/mmsd/>.

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