

Mining, Minerals and Sustainable Development North America

Seven Questions to Sustainability

How to Assess the Contribution of Mining and Minerals Activities



In 1999, Mining, Minerals and Sustainable Development (MMSD) was initiated globally to develop suggestions on how mining and minerals can best contribute to sustainable development. The International Institute for Environment and Development (IIED, London) was commissioned to undertake the project working on behalf of the World Business Council for Sustainable Development (WBCSD). In North America, the International Institute for Sustainable Development (Winnipeg) has facilitated the MMSD project in partnership with the Mining Life-Cycle Center at the Mackay School of Mines, University of Nevada, Reno.

As part of its work, MMSD North America has developed a way to:

1. assess a project's or operation's contribution to sustainability; and
2. determine whether the net contribution is positive or negative over the long term.

Over an eight-month period, a group of 35 people from a broad range of interests worked to develop guidelines that can be applied to different phases of the mining/minerals activity including:

- exploration (typically 1–10 years);
- site investigation, design, estimating and construction (typically 1–3 years, designing for post-closure);
- operation (2–100 years, progressive rehabilitation);
- temporary closure (from weeks to several years);
- final closure and decommissioning (1–5 years); and
- post-closure (in perpetuity).

The result of this effort is a framework centred on seven questions to sustainability, published in *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*.

The Seven Questions at a Glance



3. Environment: Is the integrity of the environment assured over the long term?

Question (goal)	Ideal Answer (objectives)	Example Indicators	Example Metrics
3. Environment. Will the project or operation lead directly or indirectly to the maintenance or strengthening of the integrity of biophysical systems so that they can continue in post-closure to provide the needed support for the well-being of people and other life forms?	The project or operation will lead directly or indirectly to the maintenance or strengthening of the integrity of biophysical systems as indicated by:		
	3.1 Ecosystem Function, Resilience and Self-organizing Capacity. All communities of interest hold a reasonable degree of confidence that ecosystem function, resilience and self-organizing capacity will be maintained or improved over the long term.	<ul style="list-style-type: none"> Projected long-term well-being of water systems and renewable resources in the area of the activity. 	<ul style="list-style-type: none"> Population effects of project on indicator species.
	3.2 Ecological Entitlement	(examples)	(examples)
	3.3 Full Ecosystem Costs, Benefits and Risks	(examples)	(examples)
	3.4 Responsibilities and Sureties	(examples)	(examples)
	3.6 Environmental Stress and Action to Ensure Ecosystem Integrity	(examples)	(examples)

The Seven Questions Framework in Detail

In the full report, *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*, each question is articulated in a detailed form; an “ideal” answer is offered; and a hierarchy of objectives, indicators and specific measurements is suggested as a starting point for application. In this way, the single initial motivating question—is the net contribution positive or negative in the long term? —cascades into progressively more detailed elements that can be tailored to the activity being considered and its own particular site-specific conditions. An example for the environment—extracted from the full report—appears to the left.

The Seven Questions in Action

In acting on the results of any assessment, a company, indigenous group, community, government or other interest will inevitably have to weigh certain trade-offs. In doing so, the rules governing such trade-offs and 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*.

Why is the Seven Questions Framework Important?

The Seven Questions framework:

- clarifies what the concepts of sustainable development and sustainability mean in practice for the mining/minerals industry;
- can bring consistency across applications and phases of a project/operation life-cycle that will reduce confusion and achieve efficiencies; and
- 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.

Applications of the Seven Questions Framework

The Seven Questions approach can be used to aid in:

- *Early appraisal*: can/should a project be acquired or implemented?
- *Planning*: what do we do and whom do we involve?
- *Financing and insuring*: is the overall risk within an acceptable range?
- *Licensing and approvals*: does the project pass or fail?
- *Internal corporate reviews*: how are we doing?; what is missing?; how do we do things better?
- *Corporate reporting*: how do we communicate?
- *External reviews*: how is the project/operation performing from the perspective of an external interest?

Who Will Be Interested in the Seven Questions Framework?

The Seven Questions framework will interest the following people and sectors in developing and developed countries:

- the mining/minerals industry (juniors, intermediates and seniors);
- industry and professional associations;
- service companies: consultants, technical support and construction;
- the financial services industry including banks and insurance companies;
- mining-dependent communities;
- indigenous people;
- labour;
- non-government organizations;
- governments at all levels;
- international organizations like the United Nations, the World Health Organization, the World Bank and other development organizations; and
- teachers, students and researchers.



World Business Council for Sustainable Development

Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities is available in its entirety online at http://www.iisd.org/pdf/2002/mmsd_sevenquestions.pdf.

Print copies are available for CDN\$15 each (plus shipping and handling) by calling 204-958-7700 or sending an e-mail to info@iisd.ca.

Further information about Mining, Minerals and Sustainable Development North America is available at <http://www.iisd.org/mmsd/>. For information about the global MMSD initiative, visit <http://www.iied.org/mmsd/>.