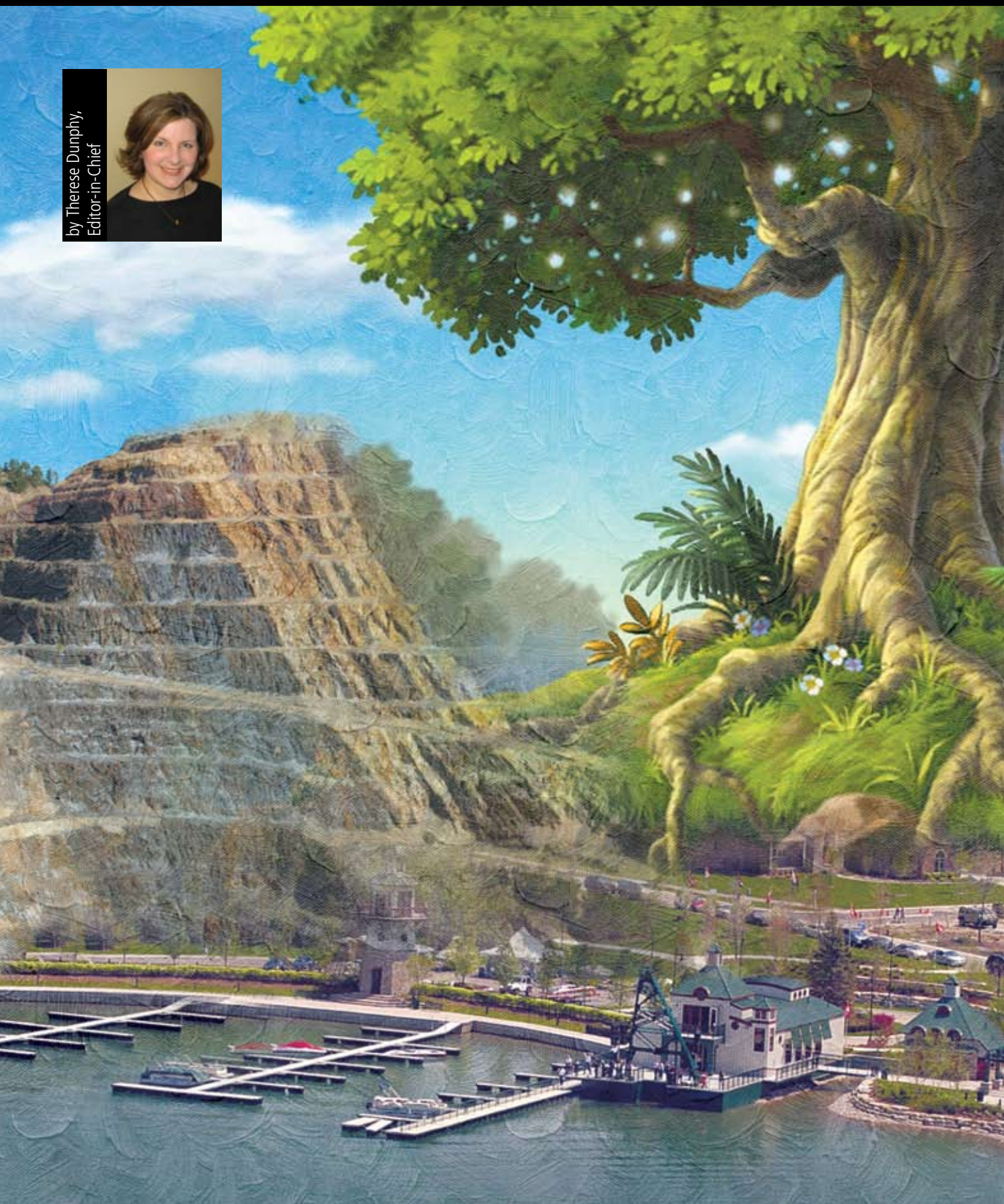


by Therese Dunphy,
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Embracing Sustainability

No longer just a buzzword, sustainability is a trend that will help provide the aggregates industry with the social license it needs to operate.

Sustainability — a concept many previously believed to be a *cause de jour* — has grown deep roots in the culture of the global population. From movies featuring former vice presidents to television commercials for household products, environmental issues also play an increasingly important role in the American conscience. For aggregates producers, it elevates the significance of environmental stewardship not only during the mining phase, but also life-cycle planning from design through final use of their sites.

“Sustainability is not a catchword anymore. It really is a value. Sustainability means that we care about people, we care about our environment, and we care about making products that help build America’s economy,” says Joy Wilson, president and CEO of the National Stone, Sand & Gravel Association (NSSGA) in a new toolkit on sustainability within the aggregates industry. “It’s the three circles of environmental stewardship, social responsibility, and economic investment that, together, combine to allow our industry help our communities achieve a sustainable future.”

Best practices — not only in mining but also in community relations — go to the core of communicating how environmental, safety, and health initiatives being used in the aggregate industry ensure a supply of construction materials for economic development, but in a way that minimizes its impact on future generations.

“We are only going to be allowed to continue to operate at the good graces of the community,” says Louis Griesemer, president of Springfield Underground,

Inc., and immediate past chairman of NSSGA. “If we don’t have their support, we might be able to continue to mine for some time or operate our operations in existing locations, but they will look very adversely at us during any kind of expansion or opening of new sites.”

Mindful of the importance of maintaining their social license to operate, many aggregate companies include sustainability and sustainable development among their core values.

Vulcan Materials Co.

Birmingham, Ala.-based Vulcan Materials Co. has demonstrated its commitment to environmental, safety, health, and sustainability issues through numerous initiatives, including several significant announcements so far this year.

In January, Vulcan joined the Global Environmental Management Initiatives (GEMI), a Washington, D.C.-based organization of companies dedicated to fostering global environmental, health, and safety excellence through the sharing of tools and information. It also promotes a worldwide business ethic in these areas through example and leadership. Companies belonging to GEMI include 3M, Bristol-Myers Squibb Co., DuPont, Eastman Kodak Co., The Coca-Cola Co., Perdue Farms, and The Procter & Gamble Co., among others.

“Given the constantly changing regulatory environment and challenges facing the industry, our safety, health, and environmental programs must continue to improve for the company to maintain its leadership position,” says Brad Rosenwald, Vulcan’s corporate vice president of safety, health, and environment. “Membership and participation in an organization of GEMI’s caliber is a cornerstone in helping our company achieve our goal of continual improvement.”

In February, the California Climate Action Registry, following certification of its 2006 inventory report of greenhouse gas emissions, designated Vulcan’s Western Division as a Climate Action Leader. That report is a single part of a larger initiative in the division to address the challenges of climate change.

The Western Division is also looking for ways to quantify the steps it has taken to reduce greenhouse gases at its facilities. One example of these efforts is the design and construction of

a downhill conveyor at its newest aggregates site in Corona, Calif. The conveyor generates electricity as it carries aggregate to the processing plant below. According to Brian Anderson, the Western Division’s director, environmental management, regulatory affairs, and sustainable development, the electricity created by the plant’s downhill conveyor will result in more than 180,000 pounds of greenhouse gas savings annually. “This project is a testament to Vulcan’s commitment to the environment, and a wonderful example of a sustainable practice that directly benefits the community by providing a material that is in severe shortage throughout the state,” Anderson says.

In Orange County, Calif., Vulcan has also partnered on a trial project with West MeadVaco and Western Emulsions to pave a service road in Irvine Regional Park with warm-mix asphalt, a paving technology used in Europe for several years, but just being tested in the United States. Warm-mix asphalt requires less heat for its use and can be poured in colder weather. Benefits include the potential for energy savings, reduced greenhouse gas emissions, and an extended paving system that could expedite construction projects.

“Environmental protection has always been at the core of our business. We are firmly committed to providing California with quality materials in a socially responsible manner that results in sustainable benefits to the communities we serve,” Anderson notes. “Projects such as these are critical for infrastructure, and having this option is a perfect example of blending business innovation with social responsibility.”

Moving beyond products and processes, the division’s Irwindale, Calif., facility was the first of its kind to receive ISO 14001 certification. In early April, it received that certification after NSF-International Strategic Registration, an independent, non-profit organization, conducted a series of audits.

“Having the first combined asphalt and aggregates facility in California to be certified as ISO 14001 compliant provides independent confirmation of Vulcan’s



The Alameda County Juvenile Justice Center took top honors in the sustainability category during the Third Annual Cemex U.S. Building Awards, announced March 14, during ConExpo-Con/Agg in Las Vegas. “We are pleased that more and more architects, builders, and contractors are finding ways to not only build their projects better, but to use cement, concrete, and aggregates to build a sustainable while achieving amazing designs,” said Gilberto Perez, president of Cemex USA, in announcing the winners. The 379,000-square-foot facility set national standards for serving the community’s troubled youth and is the first LEED Gold-Certified facility of its kind in the United States. Hensel Phelps Construction Co. was the builder and concrete contractor. Hellmuth, Obata, and Kassabaum was the architect/engineer for the project.



commitment to the environment and demonstrates to our customers and to our neighbors how we integrate sustainability into our operations,” says Alan Wessel, president of the Western Division. “We are proud of the management systems framework we established to ensure continuous improvement in our environmental practices.”

The team at the Irwindale plant developed an array of methods to reduce and prevent pollution, including re-powering large equipment and giving contractors access to the facility’s power grid. This allows contractors to eliminate the use of outdated equipment and generates a corresponding decrease in diesel and nitrogen oxide emissions.

Holcim

Sustainability plays a key role in various initiatives at companies that are part of Holcim Group. In areas ranging from the development of environmentally friendly building products, to emission-reducing transportation strategies, to well-designed plants, the company considers its long-term social license in its business decisions and strategies.

For several years in a row, the Dow Jones Sustainability Index has recognized Holcim for having the best sustainability performance in the building materials industry. It also partnered with the U.S. Environmental Protection Agency in the SmartWay Transport program, which was designed to reduce greenhouse gas emissions by increasing efficiencies in the freight industry. And, the company’s plant in Theodore, Ala., was recognized with the 2007 Gulf Guardian Award for a stormwater conservation project.

The Holcim Foundation for Sustainable Construction — supported by Holcim, but free of its commercial interests — promotes sustainability in the construction industry by supporting innovations around the world. For example, it conducts an international sustainable construction competition, provides financial support for research and construction projects, and promotes collaboration through publications and exhibitions.

“Holcim has long been a leader in sustainable construction,” says Susana Duarte de Suarez, vice president, communications, for Holcim (US) Inc. “We continue to invest in sustainable efforts both in our plant communities and globally because it is the right thing to do.”

During the 2006 Greenbuild International Conference and Expo, Holcim introduced a series of products named Envirocore. The environmentally friendly products meet various levels of Leadership in Energy and Environmental Design (LEED) certification and have been used in projects such as the 7 World Trade Center and the Freedom Tower, both located at “Ground Zero” in New York City. The 7 World Trade Center has been called the city’s first “green” office tower after receiving a gold Green Building Rating System certification.

Aggregate Industries, a wholly owned subsidiary of Hol-

The Kyoto Protocol

Many aggregate companies, particularly international ones, strive to meet the requirements outlined in the Kyoto Protocol. According to the United Nations Environment Programme (UNEP) — which coordinates the United Nations environmental activities, assists developing countries in implementing environmentally sound policies, and encourages sustainable development through sound environmental practices — the Kyoto Protocol is an agreement under which industrialized countries will reduce their collective emissions of greenhouse gases by 5.2 percent compared to the year 1990. The agreement was negotiated by more than 160 nations in 1997 and went into effect in February 2005.

“The goal is to lower overall emissions of six greenhouse gases — carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons averaged over the period of 2008-2012,” UNEP said in a press release. “National limitations range from 8-percent reductions for the European Union and some others to 7 percent for the United States, 6 percent for Japan, 0 percent for Russia, and permitted increases of 8 percent for Australia and 10 percent for Iceland.”

Source: United Nations Environmental Programme

cim, has been a member of the U.S. Green Building Council since 2005. It also entered into a partnership with the U.S. Environmental Protection Agency’s (EPA) Climate Leaders program. The program is an industry-government partnership that works with companies to develop comprehensive climate change strategies. Partner companies commit to reducing their impact on the global environment by completing a corporate-wide inventory of their greenhouse gas emissions based on a quality management system, setting aggressive reduction goals, and annually reporting their progress to the EPA.

Similar to Vulcan’s foray into warm-mix asphalt, Aggregate Industries formed a partnership with the Cool Climate Concrete (C₃) program. C₃ is a monitored and verified carbon dioxide offset program based on the use of blended cement concrete in construction and civil works projects. Program participants create offsets by decreasing the use of Portland cement and receive financial benefits for their efforts.

Reclamation efforts have also provided strong returns for the company. Aggregate Industries’ West Central Region won the state of Colorado’s Sustainability Champion Award for reservoir projects at its Morrison Quarry and the Thornton/Hazeltine sand and gravel site.

The quarry reclamation project was a team effort with the town of Morrison to provide water storage for the Denver metro area. When the award was announced, Morrison Mayor Allen Williams said, “Sustainability for the town of Morrison is essential, and our partnership with Aggregate Industries has virtually guaranteed the survival and the future of the town of Morrison.”

The second reservoir reclamation project, located at a former sand and gravel site, includes three water reservoirs for the cities of Thornton and Arvada. A specialized mixture of clay and water was trenched into bedrock to create a watertight containment area that provides 2.6 billion gallons of water to the two communities.

“Our entire team of employees in the West Central Re-

gion has long been committed to the issue of sustainability,” says Regional President Pat Ward. “We have been working on these water reservoir projects for many years, even before sustainability became a buzz word.”

Lafarge

Lafarge, another industry leader in sustainable development, reiterated its commitment to ensuring environmental protection, social responsibility, and corporate governance last May when it launched its Sustainability Ambitions 2012 report. For years, Lafarge has published a sustainability report, but the new paper combines the results of in-depth conversations with stakeholders and the company’s management team. Its intent is to define major issues for the group and outline where Lafarge can positively influence the industry.

“In a changing world, the building materials sector is undergoing a substantial transformation,” said Bruno LaFont, Lafarge chairman and CEO, in announcing the new report. “Global economic and population growth, coupled with the new environmental and social issues that are emerging, give

us new responsibilities.”

Three main priorities have been identified as part of the report.

Lafarge reiterated its voluntary commitment to reduce its greenhouse gas emissions by 20 percent of carbon dioxide per ton of cement worldwide between 1990 and 2010. Set in cooperation with WWF International (an independent conservation organization formerly known as the World Wildlife Fund), that goal is well underway. Lafarge is now targeting emissions during the entire life cycle of a building. Noting that 80 percent of carbon dioxide emissions are emitted during a building’s use, Lafarge launched an ancillary project with United Technologies Corp. Under the auspices of the World Business Council for Sustainable Development, the program — Energy Efficiency in Buildings (EEB) — will strive to identify innovative solutions for developing sustainable, carbon-neutral buildings.

On the aggregates front, Lafarge will promote biodiversity in its 1,000 quarries around the world. The company has committed to screen its quarries according to criteria developed by WWF International and to introduce a biodiversity develop-

NSSGA Guiding Principles for Sustainable Aggregates Operations

Members of the National Stone, Sand & Gravel Association (NSSGA) define sustainability as a business approach that integrates environmental stewardship, social responsibility, and economic prosperity to ensure the long-term supply of aggregate materials to society. The association says its overarching practices are necessary to preserve the potential for a high-quality life for future generation. Those practices include the following items:

- Member companies sustain the communities in which they operate by providing raw materials as natural building blocks for the quality of life.
- We are conscious of the need to provide economic, social, and environmental value for future generations and the communities in which we operate.
- We demonstrate a strong and unwavering commitment to safety, health, and the environment at our operations.
- We work with appropriate governmental bodies to establish effective, responsible, and balanced laws and other requirements based on sound science.
- We encourage life cycle re-use of products during manufacturing and post-consumer use.
- We maintain adequate aggregates resources in locations that minimize the life cycle impacts of the resource’s extraction, delivery, and use.
- We encourage proper land-use development and planning within communities to ensure long-term aggregates resource availability.
- We adhere to the highest ethical business practices and transparency in all aspects of our operations.
- We recognize that profitability is essential to a sustainable industry and its continued ability to contribute to communities.

During the mining life cycle of an aggregates operation, members are encouraged to implement the following strategies:


PLANNING PHASE

- Develop a site-specific plan for post-mining land use and/or reclamation that engages stakeholders in planning for future needs and interests.
- Plan for the prevention and/or minimization of environmental impacts.
- Adopt and implement an environmental management system program to properly manage potential environmental risks and requirements, and improve overall environmental performance.

OPERATIONAL AND CLOSURE PHASE

- Pursue new technologies and practices to improve the operational, safety, health, and environmental efficiency of our operations.
- Invest in the personal and professional development of employees to ensure a strong work force into the future.
- Ensure that employees are treated in a respectful and positive manner and provide them with competitive compensation programs consistent with performance and industry practice.
- Identify, control, and/or eliminate risks associated with occupational injuries and illnesses.
- Encourage employees and contractors to interact responsibly within the communities in which we operate.
- Work in partnerships to promote beneficial post-mining land use, including industrial, commercial, and residential and community development, agricultural production, and wildlife conservation, habitat creation, and restoration.

Source: *The National Stone, Sand & Gravel Association*



Burkholder Middle School, in Henderson, Nev., was one of the finalists in the sustainability category of Cemex's awards program. Ramco Masonry, Inc. was the concrete contractor on the project.

ment plan on all sites with potential in terms of rare animal and plant species, in partnerships with local environmental associations. In North America, that goal often involves a partnership with the Wildlife Habitat Council (WHC). Prior to the 2012 report, Lafarge announced its intention to secure certification through WHC at 50 of its North American operations by 2010.

The final top priority identified in the new report is to ensure the health and safety of its workforce. Lafarge says that it will roll out a comprehensive health care program that will ensure that every employee will receive — at the very least — regular medical checkups, including in third-world countries where that is not standard practice.

“Regardless of how ambitious these goals are, we are committed to achieving them. We are committed because achieving our goals will make a real difference,” LaFont said. “When we have achieved our goals, we will have contributed to a better environment and society.”

Good business sense

While many companies have embraced concept of sustainability, others may wonder if the time, effort, and expense is worthwhile. The NSSGA offers the following points in making the business case for sustainability.

Sustainability is a developing issue. Public resource agencies are implementing frameworks based on sustainability development. Companies will increase their abilities to compete effectively by implementing sustainability guidelines.

The long-term viability of the industry is dependent on obtaining and maintaining a social license to operate. These licenses are based on discretionary decisions by local government bodies that are heavily influenced by political and public opinion. Companies will enhance their ability to obtain these licenses when applying sustainability guidelines.

Sustainability emphasizes the efficient use of resources, which reduces costs (by reducing waste) and contributes to profitability. Implementation of sustainability principles can reduce the risk of adverse legal and regulatory actions.

Sustainability is an integrated concept. Implementing sustainability guidelines will help to coordinate and improve the effectiveness of multi-disciplinary functions such as community relations; environment, safety, and health; operations and legal.

In the NSSGA toolkit, Jami Gaboriau, environmental manager for Aggregate Industries, points out that many companies are already incorporating sustainability concepts in their everyday practices; they simply may not have communicated them in that manner.

“As an industry, we do so much that can be viewed as sustainable, however, we’ve never quite promoted it that way,” she says. “This is more than a trend going into the future. This is going to be a way of life that our business has to adapt to (in order) to extend into the future.” **AM**

7 Questions to Sustainability

Concerns about public perceptions of mining have long been one of the drivers toward an increased focus on sustainability. In 1999, nine CEOs from some of the world's largest mining companies met in Davos, Switzerland, to address their concerns about their perceptions of an emerging disconnect between mining/minerals-related practices and the values of today's society. They voiced unease that their “social license to operate” was in jeopardy.

Working through the World Business Council on Sustainable Development (WBCSD), they commissioned the International Institute of Environment and Development to undertake a global review of practices related to mining and minerals and the development of solutions for mining and minerals and the many interacting communities of interest contribute to a global transition to sustainable development. The resulting project was “Mining, Minerals, and Sustainable Development (MMSD)” and included both global and regional segments.

The North American work group of MMSD brought together a group of 35 individuals representing a broad range of interests and charged them with developing a set of practical principles, criteria, and/or indicators that could be used to guide or test mining/minerals activities in terms of their compatibility with concepts of sustainability. That group developed the Seven Questions to Sustainability Assessment Framework.

ASSESSING FOR SUSTAINABILITY

- **Engagement.** Are engagement processes in place and working effectively?
- **People.** Will people's well-being be maintained or improved?
- **Environment.** Is the integrity of the environment assured over the long term?
- **Economy.** Is the economic viability of the project or operation assured, and will the economy of the community and beyond be better off as a result?
- **Traditional and non-market activities.** Are traditional and non-market activities in the community and surrounding area accounted for in a way that is acceptable to the local people?
- **Institutional arrangements and governance.** Are rules, incentives, programs, and capacities in place to address project or operational consequences?
- **Synthesis and continuous learning.** Does a full synthesis show that the net result will be positive or negative in the long term, and will there be periodic reassessment?

Source: *The International Institute for Sustainable Development*