The Growing Popularity of Sustainable Mine Reclamation

Companies may reap potential rewards by considering the Triple Bottom Line business model, which bolsters sustainability through financial prosperity, environmental stewardship and social responsibility

By Wendy Schlett

The concept of sustainability continues to gain traction in every industry, including mining. Even though mining typically brings up ideas that conflict with the tenets of sustainability, specifically extracting non-renewable resources from the earth, it is becoming more and more possible to reconcile the two.

Sustainable mine reclamation ensures that the surface of the earth is not left to rejuvenate itself, thereby mitigating potentially contaminated and unusable land that previously lay fallow for ages by past mining reclamation practices. Now, new uses for mined land are being considered *before* mining even commences, and more opportunities and emphases are being placed on thinking about these future uses with sustainability in mind.

Sustainable practices are growing in popularity, and not just for altruistic reasons. While these practices incorporate the pace of a growing population that is informed and active in ensuring a thoughtful and careful approach to natural resources, they can also simply be more practical and fiscally sensible.

Simple Principle

This aspect of sustainability is often unrecognized, but in fact the definition of sustainability is much more pragmatic. The concept of sustainability is not based on uncompromising idealism that requires the land to be left untouched by humans. In fact, the United States Environmental Protection Agency describes sustainability as "based on a simple principle: Everything we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. Sustainability is important to making sure that we have and will continue to have, the water, materials and resources to protect human health and our environment."

A new business model, commonly known as the Triple Bottom Line, has evolved from the sustainability efforts pursued by progressive companies that focus on technology, information and new forms of value creation. The Triple Bottom Line incorporates the three pillars of sustainability—financial prosperity, environmental stewardship and social responsibility—and in this model these pillars work together to simultaneously influence business decisions.

By paying attention to the Triple Bottom Line, organizations can effect positive change that includes enhanced public support, increased profitability, reduced and better controlled risk, minimized environmental impact, increased brand value and reputation, and overall improved global standing to operate and grow. Given all of these positive outcomes, it stands to reason that sustainable business models are growing in popularity.

Once it is understood that sustainable practices work to meet several goals, it becomes easier to recommend and implement such practices. Mine reclamation can and should be re-examined from a sustainability framework. Especially given the current economic climate that has effectively narrowed the possibilities for viable mine reclamation projects, incorporating sustainable practices in mine reclamation will offer mineral producers financial, environmental and social benefits.

An option for reclaiming mined land sustainably is by creating a wetland bank. This could qualify the land to generate wetlands credits. In this scenario, a pre-approved wetland bank would allow mine operators to secure wetland mitigation credits for developments that impact wetlands in other locations.

While not always possible, greater efficiencies can be realized if mine operators think about the reclamation process before mining even begins. This allows for the possibilities of re-using certain materials and doubling positive outcomes. Understanding the natural footprint of the land to be mined is also helpful toward achieving sustainability goals—by being more realistic about what the land can and cannot accomplish once it is mined will help to keep costs low and overall production and post-production efforts less arduous.

Identifying Specific Needs

In this line of thought, it makes sense that there is a movement within sustainable mine reclamation to return the land to something not unlike its former self, rather than attempting to create something brand new and unrecognizable. In many cases, this can be achieved by working in concert with the local community to determine what their needs might be, and then repurposing the mined site to meet those needs.

As an example, the community surrounding a mined site may identify a new neighborhood park as a local need. By knowing this at the outset of developing and/or reclaiming the mined land, the organization and the community can work together harmoniously to determine the vision and potential limitations of the project. Other options a community might consider as helpful alternatives to a former mined site could include a water reservoir, viable industrial park, public recreational trails through a reforested area, or a similar project. For a mineral producer that can develop a positive relationship with the community in which it operates, and can identify a project that mutually benefits that community as well as the producer, more benefits abound. Good will and a reputation for social responsibility go a long way toward company growth and market advantage.

In addition to partnering with the local community, non-profit organizations should be considered, as they offer resources toward sustainable mine reclamation projects as well. Working with groups such as The Wildlife Federation, The U.S. Fish and Wildlife Service, The Nature Conservancy and

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other federal, state or local nongovernmental agencies can help identify the best possible end use for the reclaimed mine—whether that be the creation of habitats that encourage biological diversity, endangered wildlife protection, or an ecosystem that fosters the growth of local but rare plant species. These organizations can offer planning and expertise, and can also help with providing volunteer labor.

Additionally, partnerships between mine operators and nongovernmental organizations can provide economically positive outcomes. These partner organizations offer grant funding and tax or impact mitigation credits and incentive knowledge that can help make a sustainable mine reclamation project that much more financially feasible.

In addition to the options already mentioned, another option for reclaiming mined land sustainably is by creating a wetland bank. This could qualify the land to generate wetlands credits. In this scenario, a pre-approved wetland bank would allow developers and/or mine operators to secure wetland mitigation credits for developments that impact wetlands in other locations. The credits finance the development and maintenance of the sustainably reclaimed mine as a wetland bank. Once established, the wetland bank could then be donated to a

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non-profit organization such as the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, or the U.S. Fish and Wildlife Service for long-term maintenance and operation.

Carbon-offset opportunities are another sustainable end-use in the reclamation of mined land. Carbon offsets reduce carbon dioxide or other greenhouse gas emissions in a balancing act to compensate for a carbon emission made elsewhere. Companies, governments and other organizations that need to comply with carbon dioxide caps make up one of the markets for carbon offsets. Companies, governments and individuals can also purchase carbon offsets to offset their own greenhouse gas emissions that result from everyday activities.

Afforestation and reforestation of a mining area are both specific types of carbon offset projects well-suited for sustainably reclaiming mined areas. In addition to the environmental benefits these projects produce—improved air and water quality, reduced soil erosion, and a generally lessened impact of global warming through carbon storage—afforestation or reforestation projects can also offer new jobs, new streams of revenue, and improved local economies.

In one example, abandoned and previously reclaimed coal mines in the Appalachian region were reforested through a project that brought together the University of Kentucky, the U.S. Forest Service and the Office of Surface Mining and Reclamation Enforcement. These sites proved excellent locales for enhanced terrestrial carbon sequestration.

Financial Rewards

Sustainably reclaiming a mine can also benefit mine producers financially through their eligibility for other tax credits (especially the Brownfields tax credit), and through an increased value of the land. In one example, by transforming the land into an ecological landscape that promotes long-term preservation through land restriction and charitable donation, the land qualifies for a tax credit that can offset corporate profits. This type of project will also positively restore the land's ecosystem, which will in turn increase the overall value of the land. If the land is then donated to the local community or a charitable organization, a higher tax credit for the land could be realized.

With the multitude of possibilities available toward reclaiming mined lands sustainably, it is no wonder that sustainable mine reclamation is growing in popularity. Sustainable mine reclamation projects allow a mine producer to develop something new and worthwhile, that supports the organization's goals and the betterment of the community in which they operate. Sustainable mine reclamation projects also create financial prosperity, environmental stewardship, and social benefits—thereby creating a positive Triple Bottom Line for the producer, the community and the environment.

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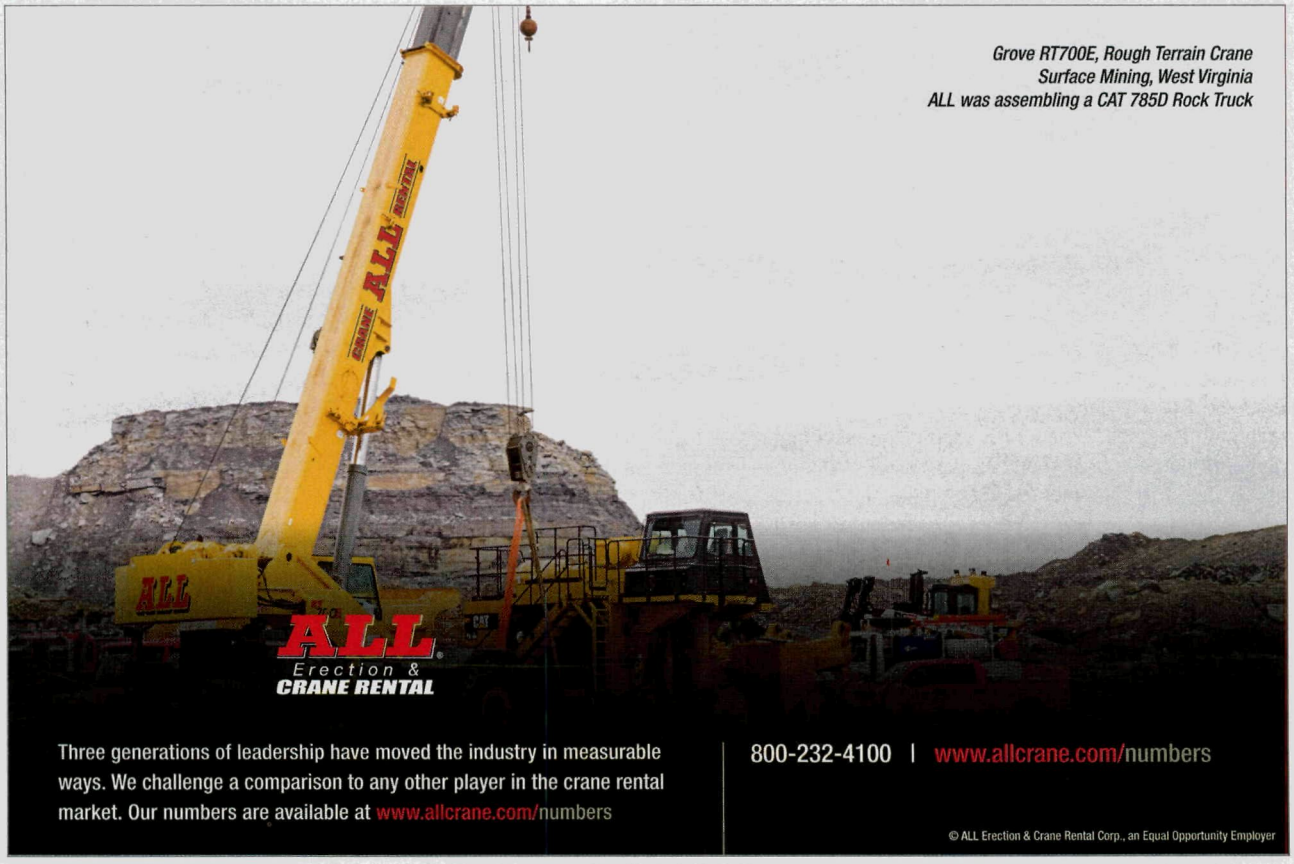

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