

Most people sing the praises of **renewable energy** and see it as a perfect alternative to coal, oil and gas. While **fossil fuels** do contribute strongly to climate change, solar panels, wind turbines and electric vehicle (EV) batteries also cause environmental damage. There is no way around it: these forms of technology all contain valuable metals miners must extract from the ground. **Mining** will always pose an **environmental impact**, but some techniques make it less damaging.

One problem lies in outsourcing mining to other countries, a practice that poses two main problems. The first is the metal has to travel a vast distance to reach its destination. Manufacturers often ship it to one country for refinement into battery-grade metal, another country to put it into a battery and another for installation in an EV.

The result is the metals often travel over 50,000 nautical miles by the time they reach a battery cell factory. Because cargo ships run on fossil fuels, shipping metal around the globe is wasteful and contributes to climate change. Local mining and manufacturing reduce emissions.

The second issue is an **ethical quandary**. The proposal to build mines near people's homes often generates an outcry — nobody wants the noise, air pollution and environmental degradation posed by having a mine in their own backyard. But how is it any better to build the mine overseas?

Mining in foreign countries allows people to put the issue out of sight and mind. It creates a mental disconnect where people simultaneously denounce child labor and clamor for a new iPhone, with the old one languishing in a drawer.

Outsourcing also allows mining companies to skirt laws regulating working hours, slavery and employability age. Local mining reduces human rights violations and improves transparency.

Rehabilitating mining sites

One of the strongest arguments against mining is it degrades the environment. At abandoned mining sites, tailings — mining residue — leach toxins into the surrounding land and water. The mineral soils exposed to the air are effectively sterile, containing no organic matter or nutrients plants need to regrow. Unstable ground contributes to landslides and sinkholes.

But it is possible to restore abandoned mines. In the United States, the Surface Mining Control and Reclamation Act of 1977 funds the cleanup of mine areas. Some organizations specializing in mine reclamation restore topsoils and plant trees in abandoned mines. By promoting and enforcing reclamation efforts, governments can make mining more sustainable.

Another way to reduce the impacts of mining is to use electric mining equipment. According to a McKinsey report, a fully electric mine using renewable energy sources could lower its carbon emissions by 60% to 80%. Of course, it is ideal if miners use electric equipment to produce the EV batteries in the first place, but the process has to start somewhere.

Reusing mining waste

Rather than leaving tailings and rocks behind at a mine site, manufacturers can use them for various processes. This could include road construction materials, bricks, paint extenders, concrete and glass. Treated mine water is helpful for dust suppression, industrial use, irrigation and as a coolant. Some processes even allow manufacturers to extract minerals and metals from mine waste.

Particular mining techniques are devastating to the environment and surrounding communities. Mountaintop removal kills at least 1,200 people in Appalachia annually, and contributes to congenital disabilities and cancer. It also buries and pollutes freshwater streams.

In contrast, in-situ leaching is one of the least environmentally damaging forms of mining. Although only possible when the ore is below the water table, it should be the technique of choice in areas with a low risk of water contamination.

Mining in more resilient areas

No area on Earth is entirely devoid of life. Still, some areas have less ecological impact than others. Rainforests are one of the worst places to mine due to their high biodiversity and ability to act as a carbon sink. The Amazon Rainforest is home to millions of unique species, with many found nowhere else.

In contrast, mining in the desert has a lower — although still not zero — impact on the surrounding ecosystem. It is important to remember extracting oil and gas also damages the [environment](#), so no resource extraction method leaves the planet unscathed. There is always a tradeoff between immediate and long-term impact.

The demand for mining continues to grow alongside the desire for more renewable energy. Solar panels and [electric car batteries](#) cannot exist without mining, so industry leaders are looking for ways to make the process more sustainable.

By switching to electric mining equipment, reducing metal shipping and using more sustainable mining techniques, mining companies can reduce their environmental impact while meeting the world's growing need for metal.

Source: Sustainability Times