



Responsible Mining Begins with Transparency

Case Study: Carrizal Mining

Responsible Mining Begins with Transparency

Case Study: Carrizal Mining

The Initiative for Responsible Mining Assurance (IRMA) offers an unparalleled level of insight and transparency into the sector.

Mined materials are in a myriad of everyday products and will form the foundation for a renewable energy transition. As customers and companies seek to better understand practices at the site where mineral resources are extracted, the Initiative for Responsible Mining Assurance (IRMA) offers an unparalleled level of insight and transparency into the sector. Through third-party verification of mine practices against a set of high-bar standards and thorough reporting, IRMA brings to mining what is now highly valued in other sectors—a credible way for purchasers to assess if the products they buy are responsibly sourced.

IRMA's certification system launched in 2019 and one of the first sites to be audited was Carrizal's Zimapan Mine in Mexico. The leadership of this small company understood the value of IRMA well before their third-party audit took place. This case study describes their journey.



WHO IS Carrizal Mining?

Carrizal Mining S.A. de C.V., headquartered in the state of Hidalgo, Mexico, was established in 2009. In 2019 it became a subsidiary of Santacruz Silver Mining Ltd (TSX:V:SCZ). The company's objective is to explore, extract, beneficiate and market non-ferrous metallic minerals: silver, lead, copper and zinc.

Deep in the mountains north of Zimapan, Carrizal extracts ore from two underground zones and then transports it almost entirely underground to the company's beneficiation plant located near the community of San Francisco. From there, concentrates of lead and zinc, both containing some copper and silver, are shipped to separate markets.



Formal mining in this region of Mexico dates back to 1632. Even in centuries prior, the Teotihuacan, Otomi and Toltec peoples extracted and worked stones and minerals in this area, now known as the mining capital of the country. Today, mining remains a regional economic driver, although the closure of some mines has led some workers to seek opportunities elsewhere.



Carrizal's operations support 630 direct employees, with millennials comprising 60% of the staff.

The company places a high priority on training and retaining workers. According to Carrizal's CEO Carlos Silva, millennials are a generation often perceived as unpredictable, yet the company has not had high turnover. "The secret is to listen to what employees want. Millennials demand new challenges and growth opportunities. We also develop our people by contributing to their education."¹

Additionally, women feature prominently in Carrizal leadership, with 29 women in executive and management positions, including technical, financial and risk analysis roles.²



Carrizal's Management

Left to right: Vioel Espino, Technical Services Manager (CM); Luz María Sánchez, General Manager (CM); Mireya Aguiar, Risk Assessment Manager (CM); Carlos Silva, CEO Santacruz Silver Mining Ltd; Sergio Duran, Technical Services Director (CM); Araceli Pérez, Administration and Finance Manager (CM); Alfonso Ramírez, Operations Manager (CM). CM is Carrizal Mining S.A. de C.V.



Unique Challenges

Several other companies carried out mining and beneficiation in the decades before Carrizal took over the Zimapan operations in January 2010. It is not uncommon for mines with a history of multiple operators to have legacy issues. In Carrizal's case, a series of old tailings impoundments existed on site, which the company is now actively working to remediate.

Beyond the site itself, operating in a mining district presents additional challenges. For example, if only one mine is making an effort to safeguard water catchments, positive social and

environmental impacts may not be fully realized.

Also, it is also not always clear to surrounding communities which mine is responsible for certain impacts. As an example, several mines transport workers and materials along the same roads as Carrizal. It is difficult for communities to differentiate between operators, as the trucks used by Carrizal and other local mines are run by contractors using privately owned vehicles. While Carrizal has instituted speed limits on its trucks to reduce dust and noise, not all mining companies have followed suit, so impacts remain

and the efforts being made by Carrizal are not clearly evident.

In an effort to increase nearby communities' understanding of the mine's contributions to either positive or negative impacts, Carrizal has increased its outreach along the transportation corridor, listening to locals' concerns and sharing information about their activities and efforts. It is hoped other regional mining companies will also soon see the value of improving practices, so communities can benefit more consistently.



It is not uncommon for mines with a history of multiple operators to have legacy issues such as old tailings impoundments.



Carrizal's Experience with IRMA

Carrizal became aware of IRMA through outreach from Tim Synnott, the first Executive Director of the Forest Stewardship Council (FSC), and Monica Cantú Cantú, a social scientist working to foster positive community benefits from mining. The duo shared the value of participating in voluntary certification schemes with CEO Carlos Silva, explaining that at its core, IRMA echoes the role of the FSC—to help communities and purchasers evaluate if producers of raw materials are operating in a socially and environmentally responsible manner, as demonstrated through a robust certification process.

Silva immediately recognized that many of the principles and requirements in the IRMA Standard were aligned with the values already held by Carrizal Mining, as expressed in its mission: To be a sustainable company, committed to the environment, while protecting the health and safety of our human capital; to comply with applicable regulations, codes of ethics, and business practice, to generate resources for our partners and society.



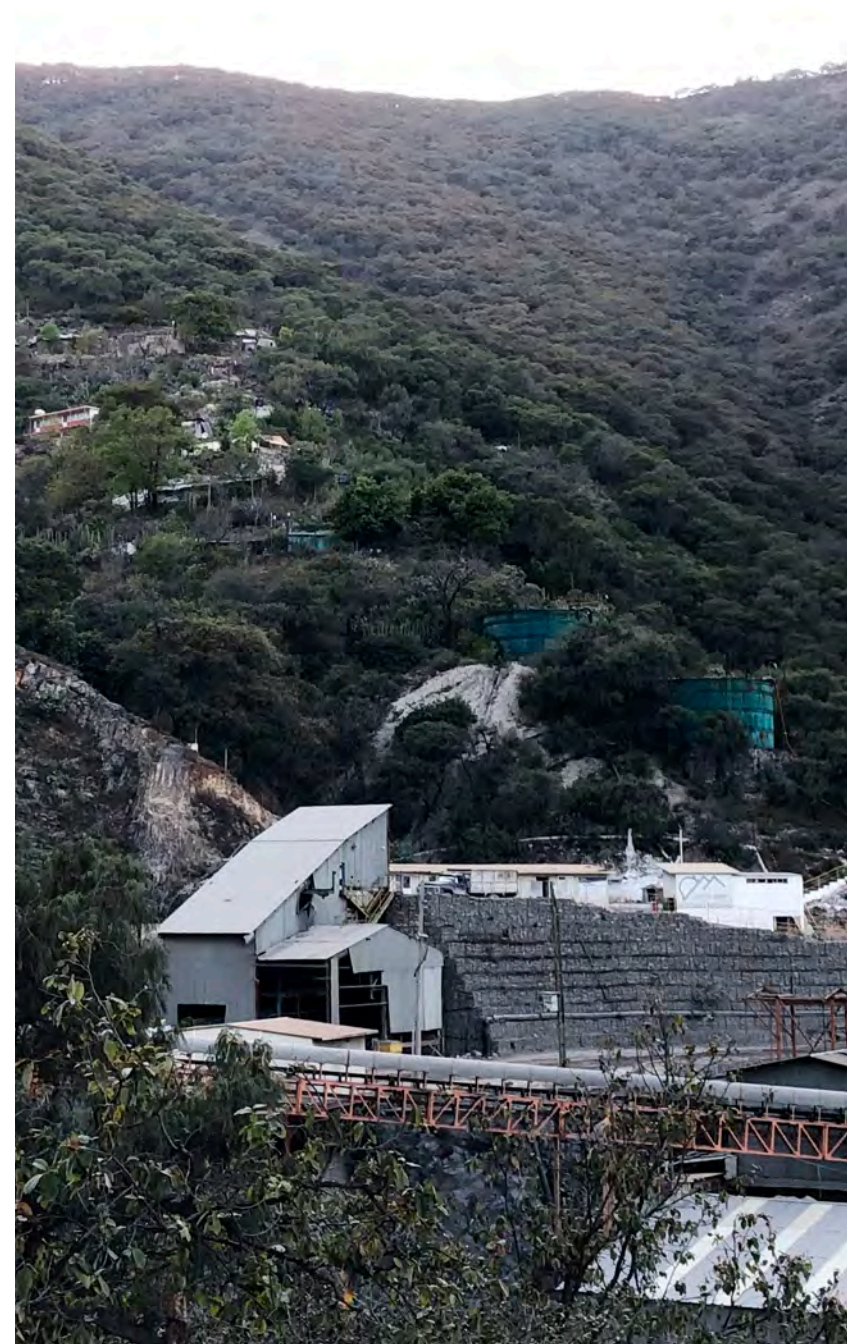
That said, as Carrizal's leadership became familiar with IRMA's specific requirements, they learned of certain important social and environmental issues that had not been on their radar.

Now, only two years after learning about the initiative, positive impacts from the company's engagement in IRMA are already evident.

When Carrizal conducted its IRMA self-assessment in preparation for the third-party audit, the company invested a great deal of time and effort into first identifying gaps—such as

human rights due diligence, biodiversity, water quality and reclamation—and then beginning the work needed to address them. In several cases, mine management used the IRMA Standard for Responsible Mining as a playbook to guide their efforts.

While always perceiving its work as community-minded, upon joining IRMA Carrizal elected to expand its outreach even further, engaging with new communities and providing trainings on issues such as human rights and water monitoring.





On other topics, the company used IRMA to understand where global best practice exceeds national regulations. For example, IRMA's requirements on worker representation are more comprehensive and robust than what is required in Mexican law. As will be the case with other mines undergoing an IRMA audit, these practices were not previously identified as priorities for Carrizal because they were not legal requirements.

This is where the IRMA Standard can be a powerful tool. It lays out global best practice expectations so that all mines, anywhere on the planet, can have similar positive outcomes.





Leadership in Transparency

As the first mine to release its public audit report in IRMA's system, Carrizal has taken a bold, brave step.

Is every practice at the Zimapan mine in perfect alignment with IRMA's Standard for Responsible Mining? No. However, the company is a perfect example of how a mining operation committed to improving social and environmental performance can use IRMA.

For smaller companies like Carrizal, where cash flow can prevent simultaneous progress on all issues, the audit results will help leadership prioritize where to focus—whether it be on requirements deemed most critical in the IRMA Standard or by consulting workers and community stakeholders to first address the issues they view as most pressing.



Through a third-party independent audit, Carrizal Mining has now learned where its mining practices do and do not measure up with global best practice, as defined in IRMA's Standard.

Additionally, by publicly sharing the mine's audit results, the company has demonstrated its willingness to be open about its operations—an essential step to enabling an authentic conversation about possible changes.

Finally, and perhaps most importantly, the mine has made a commitment and is working on a plan to improve its performance over time.

FOR MORE INFORMATION

Carrizal's public audit report summary can be viewed on the IRMA website³, and also on the Responsible Mining Map⁴.

LEARN MORE

carrizalm.com and facebook.com⁵



1 <https://mexicobusiness.news/mining/news/new-silver-giant-born>

2 <https://mexicobusiness.news/mining/news/operator-puts-csr-heart-mining>

3 <https://responsiblemining.net/what-we-do/certification/mines-under-assessment/>

4 <https://map.responsiblemining.net/site/62>

5 <https://www.facebook.com/Carrizal-Mining-714388131914486/>