

# Illuminating Small-Scale Mining in Rwanda

## BACKGROUND

The Illuminating Small-Scale Mining in Rwanda (ISMR) project (2021-2025) shines a light on one of the world's most marginalized and hidden mining workforces. ISMR addresses key market system failures that leave many of Rwanda's approximately 70,000 small-scale mining workers without affordable and appropriate lighting needed to work below and above ground safely and effectively. ISMR worked with local lighting and solar energy providers to replace disposable battery-powered hand torches with rechargeable headtorches, with the aim of improving the occupational and personal safety of women and men while also contributing to greater security, efficiency, and productivity in Rwanda's mining sector. ISMR resulted in improved, more resilient livelihoods for miners and communities; and more sustainably and responsibly mined tin, tungsten, and tantalum (3Ts), which are critical materials for the manufacture of consumer electronics.



Angelique Yankurije, mine engineer at GMDC, where ISMR-supported mines with access to LED lights and rechargeable head torch. Credit: Brian Clark/Pact.

## RESULTS

Working alongside Rwanda Mines Petroleum and Gas Board (RMB) and partnering with Mesh Power, Equity Bank, Rwanda Women In/And Mining Organization (WIAMO), Generation Mining Development Company, and Inter-African Mining Corporation, ISMR achieved substantial results, enhancing the livelihoods and resilience of miners and their communities through improved occupational health and safety and gender inclusion. These results will be sustained beyond the life of the project through the increased capacity of stakeholders, the institutionalization of effective rules and processes, and improvements to financial assets and physical infrastructure, among others:

- **Disposable battery hand torches have been almost completely replaced by rechargeable headtorches at the two ISMR mining sites.** ISMR's headtorches proved to be brighter than the alternatives on the market, and combined with increased access to energy, ISMR has almost doubled the number of miners who own their own headtorch. This has significantly reduced the number and type of lost time incidences, trips, slips, falls, and fatalities that are usually caused by poor lighting, and contributed to increased daily production and reduced electricity costs.
- **ISMR increased the energy efficiency at mine sites with an overall 70% reduction in electricity costs:** from \$133 to \$35 per month. This will enable the mine to operate more profitably and be financially sustainable, securing jobs of miners and reinvesting savings into improved lighting, working conditions, equipment, and safety and productivity.



ISMR received an award during Rwanda Mining Week (December 2024) for its dedication to advancing responsible mining practices. Credit: Pact.

- **ISMR increased the number of women working at mining sites by 50% and alleviated fears of working in tunnels.** Women mine workers noted that they were more confident to work underground because of the ISMR workshops. In addition, ISMR almost halved the number of people concerned working in tunnels between baseline and endline as a result of improved lighting conditions.
- **ISMR resulted in increased capacity of miners and communities.** **1,258 individuals** increased their knowledge of health and safety, environmental protection, gender inclusion in mining, and financial literacy. ISMR left a legacy for the future: ISMR capacitated and built a network of skilled trainers from the government, associations, industry, and education sectors who can drive capacity-building initiatives within their respective organizations and communities, ensuring sustainable knowledge transfer and improved practices. ISMR also produced a handbook on lighting and energy, health and safety, environmental protection, and gender inclusion in mining.
- **ISMR resulted in increased use of banking services.** After ISMR financial literacy trainings, **100% of participating miners** opened savings accounts: **431 miners** opened savings accounts with formal banks and **146 miners** opened accounts with savings and credit cooperatives. None of these miners had accounts at the beginning of the project. Now, they can manage their cash flow, have inclusive access to loans and credit, and can purchase rechargeable headtorches and other inputs needed to improve their livelihoods and increase their productivity.
- **ISMR improved physical assets and installed two solar mini grids to provide sustained access to affordable energy.** The mini grids supply electricity to mining site facilities, including in tunnels, and enable miners to charge headtorches. The mini grids considerably contributed to the improvement of lighting in tunnels by increasing the use of personal rechargeable headtorches and by increasing the number of common LED lighting. It also improved the performance of heavy mining equipment like jackhammers.



ISMR Handbook in Kinyarwanda and English has user-friendly content.



Installation of solar mini grid at women-owned and run GMDC mine outside Kigali. Credit: Pact.



*"... We used to have problems with low electricity and mining machines often did not work properly. Getting solar energy has allowed us to have sufficient electricity."*

*"The number of headtorches needed have been decreased because the distance between consecutive LED bulbs in tunnels has been reduced due to the increase in electricity."*

- **ISMR institutionalized improved relations for sustained success** between private banks, government agencies, energy companies, and mining companies, one of which is fully owned and operated by women. ISMR leveraged the critical role and contributions of each stakeholder to bring a holistic approach to improving lighting solutions in mines, ensuring programmatic sustainability. As a result of its approaches to sustainability, **ISMR was recognized as a finalist for the prestigious sustainability in business "Edie" award**, the United Kingdom's leading award that celebrates organizations making a significant environmental and social impact.

## RECOMMENDATIONS

ISMR looked to the future and planned for sustainability from the first day. As it came to a close, the project team identified scale-up recommendations for consideration by stakeholders to advance inclusive, sustainable energy access and community empowerment in Rwanda among mining communities:

1. **Expand to more mining locations and miners.** This would enable more miners to benefit from affordable and sustainable lighting solutions. Future interventions could consider identifying new partner mines and engaging with local communities to assess needs and co-design appropriate solutions.
2. **Increase community outreach to broader areas surrounding the mines.** Expanding energy access to rural households and businesses would address persistent energy poverty and promote the adoption of solar energy solutions across a wider population.
3. **Adopt a savings and loans program that includes financial literacy,** such as Pact's signature WORTH program. This would advance community development and economic empowerment, holistically supporting ISMR objectives. Pact's WORTH model helps families, particularly women, control their finances and builds networks, contributing to community cohesion.
4. **Expand access to solar energy.** The success of ISMR's introduction of solar mini grids demonstrates how much solar can help provide sustained access to affordable energy and thereby incentivize miners to adopt rechargeable solutions and increase tunnel safety. There is potential to scale up solar energy access in surrounding communities. Exploring innovative financing mechanisms and forming strategic partnerships could enable the installation of solar panels for homes, small businesses, and community institutions.
5. **Develop more microfinance models available to mining communities.** Establishing tailored financial services in partnership with local financial institutions (e.g., Equity Bank) could empower miners and community members. This would help improve access to capital and encourage long-term financial planning and investment.



Miners participating in ISMR training. Credit: Pact.



WIAMO enumerator interviewing mine worker for ISMR endline survey. Credit: Pact.

## MORE INFORMATION

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*Pact is an international nonprofit that works in nearly 40 countries building solutions for human development that are evidence-based, data-driven and owned by the communities we serve. Founded in 1971, Pact works with partners to build resilience, improve accountability, and strengthen knowledge and skills for sustainable social impact.*