Contributions to mitigating climate change

Mining is a fundamental productive activity that meets current requirements for energy generation, construction materials, the development of new technologies, and especially for overcoming the challenges of energy transition. It is also one of the primary economic activities worldwide. Additionally, artisanal and small-scale mining (ASM) provides a livelihood for over 100 million families globally, primarily in developing countries. Therefore, it needs to be carried out responsibly, efficiently, and sustainably.

This is why the Alliance for Responsible Mining (ARM) supports miners in designing and implementing good practices aimed at strengthening Environmental, Social, and Governance (ESG) criteria. This fosters a favorable environment for their integration into the formal economy of their mining operations, while also increasing the resilience of communities and addressing global challenges such as extreme poverty, climate change, and biodiversity loss.

Sustainability in ASM (Artisanal and Small-Scale Mining) ESG Criteria

**E Environment**
- Environmental compliance
- Water, soil, and waste management
- Pollution control
- Biodiversity
- Climate change
- Circular economy

**S Social**
- Working and socio-economic conditions
- Mine safety
- Human rights, diversity, and equality
- Empowerment of ASM (Artisanal and Small-Scale Mining)
- Social management
- Reward plan management

**G Governance**
- Mitigation of legislative, technical, and commercial impacts
- Sustainable business models
- Ethics and risk management
- Organizational
- Capacity Index (ICO)
- Corporate partnerships
Climate challenges in ASM (Artisanal and Small-Scale Mining) communities

Climate change affects the entire global population, with notable disruptions to national economies and various ways of life (SDG - Climate Action Agenda, 2019). Hence, ASM communities are particularly impacted by climate change and biodiversity loss, as they have a lower capacity to respond and adapt to structural challenges in infrastructure, institutional, and economic realms. Currently, there is evidence of an increasing population dedicated to this activity, coupled with changing climatic phenomena (droughts and extreme floods), as well as decreasing available mining areas, leading to greater interventions in water and soil resources, increasing deforestation rates, and escalating the use of non-conventional machinery and/or indiscriminate use of chemical substances.

This situation impacts the quality of life of mining communities by affecting their operations, monthly income, and increasing their social and environmental vulnerability.

Given the above, ARM, through its core Sustainability Strategy, has been developing programs and indicators that strengthen mining processes, adapt to current conditions, and promote dignified and responsible livelihoods in the three dimensions of sustainable development: environmental, social, and economic.
Our strategy to address climate change and biodiversity loss

Through the Sustainable Mines Program (SMP), ARM undertakes measurement, diagnosis, and implementation actions tailored to address the challenges of water pollution, deforestation, biodiversity loss, use of chemical contaminants, and greenhouse gas (GHG) emissions faced by the mining communities it supports. To achieve this, SMP develops lines of work focusing on education and research, technical, social, and environmental support, innovation development, and the use of new technologies to propose concrete and feasible responses for ASM (Artisanal and Small-Scale Mining).

Among the prioritized lines of action to address the challenges of climate change are: formalization of the sector, reduction and elimination of the use of mercury and other greenhouse gas (GHG) pollutants, rational use of energy, water management and natural resource management, implementation of nature-based solutions, waste management and circular economy strategies, landscape restoration actions, increased traceability and transparency of operations, and promotion of alternative livelihoods in ASM (Artisanal and Small-Scale Mining).

Approaches of our strategy

- Carbon footprint calculation
- Forest-smart mining
- Sustainable Mines Program
- Mercury processing and disposal
- Environmental management of water, soil, and waste
- Circular economy
- Water footprint calculation
Tools and methodologies developed by ARM

**CARBON FOOTPRINT CALCULATION**

**Objective:** To calculate and generate strategies to reduce or offset emissions generated by the mining process.

**Features:** This tool provides reliable information that allows for the quantification of CO2 emissions generated in each mining process and establishes a clear roadmap for emission reduction, as well as the setting of energy transition goals.

**WATER FOOTPRINT CALCULATION**

**Objective:** To calculate and generate strategies to minimize water consumption and discharge in the mining operation process.

**Features:** Strategy to account for water consumption and discharge in the development of the mining operation, assessed independently, allowing for improvement plans to reduce the water footprint, making ASM a much more responsible organization with water resources.

**FOREST SMART MINING:**

**Objective:** An adaptable standard that includes Principles, Criteria, Indicators, and a Guide for Smart ASM with Forests.

**Features:** Standard based on 3 principles: 1. Protection of forest ecosystem and resilience (biodiversity, carbon, and ecosystem services), 2. Focus on human rights (local and global communities and livelihoods), and 3. Commitments to work under a mitigation hierarchy (practical approaches to avoid, mitigate, and rehabilitate forest impact). The application of the standard ensures that ASM generates positive outcomes for forests, and for the protection and conservation of biodiversity.

**MAPE PROGRESS APP**

**Objective:** To calculate and generate strategies to minimize water consumption and discharge in the mining operation process.

**Characteristics:** A strategy to account for water consumption and discharge in the development of the mining operation, evaluated independently, will enable improvement plans to reduce the water footprint, making ASM a much more responsible organization with water resources.
More information:

www.responsiblemines.org
arm@responsiblemines.org