

## *Improving Productivity and Efficiency in Artisanal Mining*



### **What is the problem?**

Artisanal and Small-scale Mining (ASM) is frequently inefficient in terms of its identification, exploitation, management, and processing of mineral resources. ASM is often carried out with little geological knowledge and prospecting may be based on factors such as evidence of historical workings, chance discoveries of minerals, exploitation of abandoned industrial mines, rudimentary prospecting, rumour and luck. Mines are often opened with poor understanding, if any, of the nature and presentation of the ore body, its extent or value. Exploitation techniques are often very basic with inappropriate tools and methods being employed by unskilled workers. Mineral recovery and processing techniques may be inefficient resulting in wastage, and inadequate site and waste management result in lost opportunities and doubling of effort as well as health and safety risks. Mines may be high-graded to remove the most accessible and most valuable minerals, leaving the rest behind and wasting the mine's overall potential. Mines may be abandoned as near-surface minerals are exhausted despite their having further, significant production potential.

Most artisanal miners learn their trade 'on the job' from their peers, some of whom may have some technical training but many of whom have also learned simply by experience, observation or informal skills transfer. This perpetuates bad practices as well as myths and standards which may be dangerous.

Many mines are in remote areas, far from potential technical training centres. Also, much formal training is given at a level which is too high and creates unrealistic standards for many miners. Technological solutions for mineral processing often fail to consider cost, maintenance, spare parts, fuel availability, replicability and replace-ability. Added to this, many miners find access to finance and equipment to be a serious operational challenge. Increased productivity is predicated upon making such practical inputs available.



## What can be done?

**Formalization Framework and Tools** – Artisanal miners need easy and appropriate access to a comprehensive set of information that outlines how they should operate legally and effectively. There is need for a simple curriculum and a one-stop-shop package of information to guide their entry into the formal sector. This curriculum should include how to apply for licenses, how to access geological data, explanation of the government services with which they must engage with, and legal parameters for operations including gender issues, working standards and taxation.

**Training for Productivity and Efficiency** – Training on improved production and processing techniques should be delivered via officially registered cooperatives. Training for miners in remote areas could be delivered on a mobile basis at the cooperative's own site or through a training centre which should be ideally combined with a 'model' mine and a 'model' processing unit for demonstration and hands-on experience.

**Access to Finance and Equipment** – Ultimately, artisanal miners need access to finance and equipment. There are several ways in which these can be provided on a sustainable, commercial basis. Revolving loan funds, coupled with business and financial skills training, can be an efficient way to channel investment into the ASM sector. Equipment hire or hire-purchase centres or systems, which build local procurement businesses as well as equipment maintenance skills, can have multiple positive impacts on the local economy.

### ASM Formalization Requirements At-a-Glance

- Appropriate legislation for the advancement of ASM
- Access to land and viable mineral resources
- Organization and representation of the ASM sector
- Technical support for legal, safe, efficient production and processing
- Access to responsible markets and competitive prices
- Appropriate taxation which is economically viable and responsive to ASM dynamics
- Gender balanced policies and practices
- Protection of workers' rights, prevention of abuse
- Environmental standards disseminated and enforced

## What will your support do?

*To contribute to the iTSCi Programme's ongoing field work infrastructure, contributors should also budget for an additional US\$7,500 per year for iTSCi membership.*

**US\$5,000,000** will fund a comprehensive program for ASM technical support in the GLR for 3 years to include the following components which could be funded by corporate partners as a contribution to the overall project.

**US\$30,000** will pay for geological surveys of 3 prospective ASM sites.

**US\$80,000** will fund for the development of a curriculum and training program for basic ASM geology, mine planning and management, mineral extraction, processing and trading.

**US\$300,000** will establish a mobile resource and training team in one country to operate for 3 years, visiting remote sites to train miners on legal, technical and financial aspects of mine production and mineral trading.

**US\$750,000** will establish a demonstration centre in one central mining area and fund its operations for one year after which it would function as an equipment hire/maintenance and technical training facility on a for-profit basis.

**US\$1,000,000** will create a revolving loan fund for eligible miners to access capital to invest in their operations accompanied by technical support.

## For More Information

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