

# ARTISANAL AND SMALL-SCALE MINING

## Challenges and opportunities in the Artisinal and Small-scale Mining (ASM) sector

Mining is often associated with large industrial operations run by international corporations. In many developing countries, however, ASM is equally important. Although a universally accepted definition is still lacking, ASM is commonly understood as the labor-intensive, poorly mechanized and often informal exploitation of mineral resources. The ASM sector contributes considerably to the GDP as well as economic development and diversification in rural areas of many resource-rich developing and emerging countries. Its particular importance lies in providing jobs for unskilled workers and a source of monetary income for rural areas. As per conservative estimates, in 2017 more than 40 million miners worldwide work directly in the ASM sector.

Although essential in terms of poverty alleviation and rural development, ASM is rarely incorporated adequately in legal and regulatory frameworks. Mining activities often take place informally and clandestinely without valid licenses and beyond any institutional control. Due to very basic mining skills coupled with low or no mechanization, the extraction is commonly unsystematic and ineffective. Moreover, miners often cannot overcome simple geological constraints or take advantage of scale effects because of their limited financial means. The improper use of chemical reagents, the irresponsible disposal of processing residues, and the lack of mine rehabilitation measures significantly impact the environment as well as the living conditions of miners and local communities. ASM miners frequently face dangerous working conditions, which are in conflict with human and labor rights, mining best-practices, and basic occupational health and safety (OHS) standards.

ASM often exploits deposits of 3T minerals (tin, tantalum, tungsten), gold, cobalt, or gemstones, which in many regions of the world have been linked to financing armed conflicts and criminal networks. In rural and remote areas, ASM is often the only employment alternative for poor, uneducated people besides traditional subsistence farming. Unfortunately, migrant ASM miners sometimes do not respect private, indigenous or corporate property or protected areas, which can result in severe conflicts among the different stakeholders. Moreover, ASM communities may suffer from social disruptions coming along with migration, corrupt local authorities, armed groups, and inconsiderate mining companies. Irrespective of applicable law, children are often involved in mining activities and women suffer discrimination in multiple areas. Disregarding the ongoing debate as to the extent, to which the mining sector is a net contributor to sustainable development, failures and inefficiencies in fighting poverty have contributed to ASM activities as these are, by and large, poverty-driven. Therefore, in countries rich in mineral resources, ASM is a highly relevant topic for development cooperation in terms of poverty alleviation, rural development, and environmental protection.



## PROJEKT-CONSULT'S CONCEPT FOR ASM PROJECTS

Projekt-Consult GmbH has been pursuing a holistic approach to implementing ASM projects for more than 30 years. Integral solutions are always developed in close collaboration with ASM miners, mine owners, cooperatives, civil society organizations, mining authorities, regional initiatives, and international development agencies according to their specific needs. Besides consulting on all geo-technical aspects of ASM, Projekt-Consult analyzes legal and regulatory frameworks, assesses the environmental and socio-economic impacts, supports access to finance and designs formalization strategies for demarginalizing and transferring the ASM sector into an engine for local development. Due to its worldwide unique ASM sector experience and its global network of highly qualified experts and partners, Projekt-Consult elaborates realistic measures, which are tailored to the local conditions and have a sustainable impact on ASM operations and communities on the ground. The guiding principle is to create win-win situations by combining economic benefits with positive environmental and social effects.

# RESPONSIBLE MINERAL EXTRACTION



## OUR SERVICES

### ENVIRONMENTAL BEST PRACTICE

In order to face the challenges and dynamics of the ASM sector, a sound and up-to-date knowledge base containing technical, environmental and socio-economic data is crucial. It forms the basis for selective, demand-responsive assistance measures and strategies, including formalization approaches. Projekt-Consult acquires first-hand information through detailed field mappings and assessments, on-site interviews and discussions with the key stakeholders. According to the client's needs, spatially referenced geo-data and ASM knowledge databases are set up and maintained.

### MINING

Mineral resources can be exploited in various ways. Depending on the geological features of the deposit. In order to improve the miners' working conditions while increasing production, Projekt-Consult introduces responsible mining practices as well as essential OHS and environmental standards. Projekt-Consult provides geo-technical assistance and hands-on training to ASM operations, cooperatives, and individual miners regarding systematic mine site planning, more efficient extraction methods and engineering for responsible mining operations including preventive mine safety features.

### MINERAL PROCESSING

Projekt-Consult analyzes and optimizes each processing step to maximize the efficiency of the processing and, thus, the quantity of the ore concentrate obtained, while mitigating the negative effects for the miners' health

and the environment. Miners are trained on the job in using advanced and efficient processing technologies, e.g. amalgamation retorts, which require only a small fraction of chemical reagents, consume less water and are more energy efficient. Pragmatic tailings and mining waste management strategies are developed considering the miners' technical capacity and environmental conditions.

### ENVIRONMENT

Projekt-Consult sensitizes ASM miners and communities to environmental protection and makes them aware of the hazardous short to long-term consequences of mercury, cyanide, dissolved heavy metals, and siltation to the environment in the vicinity and downstream. For decades, Projekt-Consult has been involved in comprehensive programs on mercury reduction in mining; a challenge that is again appearing prominently on the international agenda through the Minamata convention. In cooperation with ASM communities, environmental and civil society organizations, and public institutions, Projekt-Consult supports miners in elaborating and implementing environmental impact assessments and environment management plans. Projekt-Consult's services also include the introduction of more environmentally friendly or alternative processing techniques, as well as the development of strategies for the adequate storage of mining waste and processing residues.

### SOCIO-ECONOMIC ASPECTS

Projekt-Consult balances each stakeholder's interest in order to mediate conflicts between ASM, large-scale mining operations and local or indigenous communities. The basic principles of human rights and international labor

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standards are introduced to miners and their families with the aim of raising livelihood quality, and to reduce the worst forms of child labor and the discrimination of women in mining. The guiding principle is to create sustainable solutions, which can be accepted by all involved stakeholders in the long run. Projekt-Consult advises structural adjustment in mining regions, in order to maximize the positive impact of ASM as local engine for sustainable rural development.

## FORMALIZATION

Although essential in terms of poverty alleviation and rural development, ASM is rarely compliant with national and international standards. Projekt-Consult supports governments and development agencies in formalizing ASM and developing long-term strategies for integrating this sector in the country's overarching development goals. Besides an in-depth technical and socio-economic assessment of all ASM related activities, the current mining legislation and associated regulations are duly analyzed and appropriate recommendations or adjustments are proposed always considering the specific characteristics of the country's ASM sector.

## CERTIFICATION AND DUE DILIGENCE

Due diligence in order to ensure responsible mineral supply chains has become a mainstream topic in recent years. Projekt-Consult was involved in the development of innovative initiatives such as the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, and supports governments, development agencies, and supra-regional organizations in auditing and certifying ASM sites and developing transpar-

ent value chains from mine to market. Moreover, Projekt-Consult assists key stakeholders in the value chain's upstream sector in guaranteeing conflict-free mineral products, transparency and traceability, humane working conditions, and basic environmental standards. With the assistance of Projekt-Consult, our clients are able to meet the requirements of the different national and regional certification mechanisms – ICGLR Regional Certification Mechanism, Better Gold Initiative for ASM (BGI), FairMined, Certified Trading Chains (CTC), ITRI Tin Supply Chain Initiative (iTSCI), etc. – that are already in place, as well as the new European regulation on conflict minerals that will come into effect soon.



## PROJEKT-CONSULT AT WORK



### SUSTAINABLE DEVELOPMENT OF MINING IN RWANDA DFID, 2017 – 2020

The SDMR program aims to contribute to the economically and environmentally sustainable growth of Rwanda's mining sector. It will do this by improving the overall business-enabling environment and piloting mining service centers for ASM companies and cooperatives. As technical partner in a consortium led by CARDNO, Projekt-Consult particularly supports the Rwandan Mining, Petroleum, and Gas Board in managing its existing geological data, and in optimizing the mining license management system. Moreover, technical support services for ASM operations are provided to miners on-site and at two service centers on district level.

Contract value: € 4,700,000

### SWISS BETTER GOLD INITIATIVE FOR ASM, PHASE II – PRIVATE-PUBLIC PARTNERSHIP COLOMBIA, BOLIVIA, AND PERU, SECO, 2017 – 2020

The BGI for ASM, phase II is an integrated supply chain project that focuses on supporting ASM operations so that they can meet standards that enable them to ensure the sale of their production at a fair price to buyers who value compliance with environmental, social and labor standards. The goal is to make ASM an engine for better living conditions and sustainable development. The BGI is promoted through a private-public partnership between the Swiss State Secretariat for Economic Affairs and the Swiss Better Gold Association, a non-profit organization with important players from the Swiss gold value chain.

Contract value: € 7,500,000

### SOCIO-ECONOMIC AND ENVIRONMENTAL DIAGNOSIS OF THE ASM SECTOR, BRAZIL, WB, 2016 – 2018

In Brazil, ASM represents the largest share of mining operations with a significant number of people employed. Official statistics currently available

regarding the sector are incomplete, in part outdated, and spread between different administrative institutions. In order to close this knowledge gap, the Ministry of Mines and Energy envisions an extensive and updated inventory of the sector with the objective of better understanding its socio-economic dynamics, and is offering a comprehensive set of recommendations to improve the legal and regulatory framework of the sector.

Contract value: € 1,700,000

### AUDITING OF ASM OPERATIONS BASED ON THE CTC STANDARD, DR CONGO, BGR, 2014 – 2017

As a result of the Dodd-Frank Act, ASM operations require recognized certificates to legally export minerals out of the crisis-torn eastern Congo. Therefore the Congolese government has ratified the Certified Trading Chain (CTC) standard, which focuses on traceability, accountability, human rights, OHS, environment, and community relations. Within this scope, baseline and certification audits are performed, which also include the development of recommendations and measures for the ASM mining operations to meet the requirements.

Contract value: € 240,000

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