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**Analysis for stakeholders on formalization
in the artisanal and small-scale gold mining sector
based on experiences in
Latin America, Africa, and Asia
“UNEP Paragraph 29 study”**

Tanzania Case Study

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1. GENERAL CHARACTERIZATION OF ASGM IN THE COUNTRY

A. Overview of the sector

Over the past three decades, the artisanal and small-scale gold mining (ASGM) sector in Tanzania has been an increasingly important sector for poverty alleviation nationally. Tanzania is currently Africa's fourth largest producer of gold (after South Africa, Ghana and Mali) and is experiencing a boom in its mining industry. ASGM activities, which take place in numerous regions of the country, play a significant role both as a direct source of employment in mining communities and in generating additional jobs and revenues in the rural economy.ⁱ

As mainly an informal sector, Tanzania's ASGM sector began to grow in the 1980s. The downturn in the performance of other productive industries, poor markets for agriculture, droughts, and other factors have been associated with the increase in the number of people working in ASGM in the 1980s and 1990s.ⁱⁱ As a report by one of Tanzania's regional small-scale mining associations notes: "The closure of state-owned mines in the 1980s and privately owned mines in Tanzania in the early 1960s forced semi-skilled people to opt for artisanal mining. Another factor is that from 1970 to 1990, the government had long and complicated processes for granting mineral rights to applicants, this obstacle increased the number of informal artisanal miners."ⁱⁱⁱ Studies also note that in the 1990s, when large tracts of land were allocated to large companies as part of a national economic reform process, many farmers became reliant on artisanal mining.^{iv} While in recent years, the rise in gold prices globally has been a factor in attracting people into the ASGM sector, researchers widely recognize that most ASGM in Tanzania is driven fundamentally by critically limited livelihood options.

Diverse types of mineral extraction currently play an important role in Tanzania's artisanal and small-scale mining sector. Operations range from semi-mechanized and mechanized mining to the extraction of minerals using simple technologies with little or no economic capital and no mechanization. Studies thus emphasize that ASGM should be accorded careful regulatory attention, to address different types of mining operations and to ensure and improve their contribution to poverty alleviation and rural development.^v These activities involve gold production from both alluvial deposits and hard rock mining, and gold rushes have taken place in multiple regions of the country, especially in the area near Lake Victoria in the North.

Estimates generally indicate that the number of artisanal and small-scale miners in Tanzania ranges from 500,000 to 1 million, and some estimates indicate that the current number could be as high as 1.5 million.^{vi} The government has also estimated that small-scale mining generates at least three jobs for each individual directly involved in mining.^{vii} Gold and gemstones are the most widely extracted minerals by artisanal and small-scale miners, and the artisanal diamond mining sector has also been a growing sector in recent years. National gold exports reached US\$1.076 billion in 2009, up from US\$932.4 million the previous year – including all large, medium and small-scale mining – and estimates indicate that artisanal and small-scale gold mining may account for approximately 10% of Tanzanian gold production,

though most of the small-scale mining activities are currently informal (i.e. not licensed officially).

B. Short history of ASGM legalization processes

The 1979 Mining Act implicitly created some opportunities for small-scale mining by allowing mining permits in areas designated for prospecting minerals that did not require large expenditures and specialized equipment. In the late 1980s, the government began to support new opportunities for small-scale mining communities when it ended the monopoly of the State Mining Company and began liberalizing the mining and selling of gold. The government's Small-Scale Mining Policy Paper of 1983 encouraged citizens to supplement their incomes by participating in mining activities. In the 1990s, the government developed a legal and policy framework for formally integrating small-scale mining into a national mineral development strategy, introducing the Tanzanian Mining Policy of 1997 and the Mining Act of 1998, which was part of a mining policy reform process that was supported by the World Bank. Among other policy aims, the reforms included the aim of legalizing and formalizing the small-scale mining sector by establishing a suite of basic environmental and safety standards for ASGM along with a new permitting system.

At the same time as passing the 1998 Mining Act, though, the government prioritized the development of large and medium scale mining as an economic strategy, leading to numerous large tracts of land being allocated to larger companies. Since then, a number of public debates have emerged on Tanzanian mining policy, highlighting a need for allocating land for artisanal and small-scale mining activities specifically and making the licensing system more equitable and accessible to marginalized groups. Although national poverty reduction papers in the early 2000s overlooked artisanal mining, the government's poverty reduction papers in 2005 began to emphasize that "the livelihoods of artisanal miners need to be balanced with commercial mining."^{viii} The Ministry of Energy and Minerals formulated strategies aimed at developing small-scale mining, initiating measures for improving information and statistics on ASGM and developing extension services aimed at assisting miners to improve technologies. Government policy papers recognized that detailed knowledge of dynamics in mining communities is vital to regulate extraction activities effectively, and the official government policy objectives have been to promote small-scale mining cooperatives, to support the improvement of equipment in small-scale mining, to encourage partnerships between small-scale miners and companies and to deliver assistance to mineworkers through technical training at selected sites.^{ix}

Responding to a number of concerns about mining laws, the President of Tanzania commissioned a high-level review of mining legislation and policies in 2008, led by the Bomani Presidential Mining Sector Review Committee.^x The findings of the Bomani Review Committee emphasized the need to amend the mining legal framework and associated mining policies, particularly so that Tanzanian citizens have greater opportunities to benefit from and participate within the mining sector. This in turn led to a new Mining Law being passed in 2010.

The analysis in Table 1 gives highlights four key evolving areas of national policy and how they generate shifting sets of possibilities and lessons for formalizing ASGM activities:

Table 1: Overview of Four Key Evolving Areas of ASGM Policy in Tanzania

1) Land Allocation Policies for Small-Scale Gold Mining

First, the Tanzanian Parliament promulgated a new mining law in 2010 which stipulated measures to allocate land areas specifically for small-scale mining. Recognizing the need for the government to significantly expand upon previous efforts at regulating ASGM, this legislative measure signals a potentially momentous development that will help to reduce conflict between small-scale miners and larger companies, develop a more equitable playing field in accessing mining permits and create a more stable foundation for local environmental planning and livelihood planning. Improving security of tenure is widely recognized by researchers as a key strategy in order to improve small-scale mining technologies and labour practices. Although most of the mineral exploitation and exploration rights in Tanzania have historically been allocated to large and medium-sized companies, the new mining law was established with the recognition that poorer artisanal and small-scale miners in Tanzania should be included more centrally in the process of allocating land and mining rights. To make this policy effective, concerted efforts are needed to conduct geological investigations in small-scale mining areas, to ensure appropriate resource viability, and policies need to ensure that poorer mining groups are not marginalized by being confined to too a narrow field of designated permit areas.

2) Decentralization of Permitting

Second, the government reformed its permitting policies by introducing a new system of decentralizing the permitting process for Primary Mining Licenses; this was done with the intention to make the small-scale mining formalization processes more efficient and more accessible within rural communities. These reforms came after the Bomani Commission, in 2008, concluded that mining sector decision-making has been too disconnected from district-level governance and cross-sector land use decision-making. The recent move to de-centralize the permitting of artisanal and small-scale mining to the Zonal Mines Office level has thus created new possibilities which may be seen as an improvement from the previous system, when the procedure for issuing licenses had to be conducted at the offices of the Commissioner of Minerals in Dar es Salaam. Evidence so far suggests that this reform could potentially be a step towards making the permitting of mining more time-efficient, reducing bureaucratic hurdles that have hampered the sector in the past and better integrating small-scale mining within the local development planning process. However, little information exists so far on the demographics and socioeconomic profiles of the local beneficiaries of recent licensing reforms in mining communities, and also, the Zonal Mines Offices still have minimal resources and limited capacities in effectively issuing and keeping track of licenses.

3) Microfinance Policies

Third, the government initiated new steps in 2011 to develop microfinance services specifically tailored for the artisanal and small-scale mining sector. This move could yield numerous benefits for enhancing capacities to adopt improved technologies across the sector, provided

that the new measures lead to the implementation of microfinance programs that target marginalized artisanal miners as well as the more established and organized small-scale miners. While past attempts at creating public-private sector linkages have been ad hoc and limited, recent efforts to encourage banks, companies and microfinance institutions to assist mineworkers could potentially lead to benefits in enabling miners to access working capital that will help improve technology and develop their operations. As artisanal and small-scale miners often lack collateral and do not qualify for credit under existing commercial banking channels, a number of strategies drawn up by the government are vital (discussed later in this report). Ongoing debates about current reform processes in Tanzania highlight the need for attention on financial empowerment strategies to support marginalized groups.

4) Policies for Capacity-Building

Fourth, government has initiated policies and programs to strengthen institutional capacities to conduct outreach and training activities with artisanal and small-scale mining groups (licensed as well as informal/unlicensed workers) and improve environmental management, technology upgrade programs and regional regulatory implementation. Zonal Mines Offices have the responsibility for conducting extension services, but in the past, limited funds have hampered the capacity of Zonal Mines Offices from being able to conduct outreach programs. Future collaboration programs to support local participation and planning in mining communities (with support from international donors) could be a key opportunity for improving local capacity-building and environmental regulation. Past governmental programs to reduce mercury use and address health and safety have been most effective when they are developed through strong collaboration and partnership at the local level, for instance, through collaboration with miners associations such as the Mwanza Regional Miners Association and the Tanzania Women Miners Association. As ‘top-down’ policies and interventions have tended to be ineffective, past experiences show that local ownership and ‘bottom-up’ approaches in project designs is vital in order to achieve positive and sustainable results.

2. MERCURY AND OTHER IMPACTS OF ASGM

A. Brief assessment of mercury use and other environmental and social impacts

Due to their diversity, ASGM activities present a complex set of challenges as well as opportunities. Many perspectives exist when it comes to understanding what artisanal and small-scale mining entails as well as which issues should be prioritized in Tanzanian regulation strategies. While studies emphasize the contribution this sector can make to poverty alleviation in Tanzania, they also note that that problems of labour exploitation, smuggling and land use conflicts need to be addressed as part of policy measures to license and regulate miners.^{xi} ASGM also poses significant environmental and health risks arising from mercury use in gold extraction.^{xii} Since the application of mercury amalgamation is a simple and inexpensive way to extract gold, it is the most commonly used method.^{xiii}

Much of the gold mining boom in Tanzania has recently taken place in the Geita District region, situated near Lake Victoria in the north of the country (Figure 1). This area has been the site of a variety of government programs and donor-supported programs designed to mitigate health and environmental impacts associated with artisanal and small-scale gold mining. The population of artisanal and small-scale miners in Geita District is estimated to be 150,000, though the majority of miners are not licensed. Studies in this region^{xiv} note that effective governmental approaches to reduce the use of mercury and associated risks requires assisting small-scale miners to become legalized and improving educational services at the ASGM sites.

Figure 1: Location of Geita and Lake Victoria, Tanzania



Mercury use in this region has been regarded as a risk to the health of operators, communities downstream from the mine areas and the environment. Amalgam is burned near the rivers, including Isingile River in Rwamagasa for instance. Three specific technical concerns about mercury use in the region include the following:

- Although studies suggest that retorts can allow capturing 95% of the emissions and enable the mercury to be re-used^{xv}, only in some cases are retorts used in this region of Tanzania. Many miners have not had access to education or training programs.
- Amalgamation often takes place in areas known as “amalgamation ponds,” which are not often made of concrete, but mostly have only wood wall. Although environmental legislation (described and analyzed below) dictates that mercury contaminated mineral concentrates and tailings should be stored in settling ponds with lined structures, only some of the miners comply with it.
- Recently, more advanced milling practices have arisen in some areas where less technologically sophisticated methods of gold extraction used to take place. As Massawe (2010) notes, “Cyanide use has become popular in the Lake Victoria area, where cyanidation is used to leach tailings that were mainly discarded by ASGM.” While cyanidation can sometimes be a viable method to reduce or even replace rudimentary mercury use in gold extraction, the combined use of cyanidation and mercury is a particularly notable danger if they are used in the same operation. Past studies suggest that mitigating mercury risks needs to begin with efforts at improving awareness of the dangers of combining mercury and cyanide as well as methods of managing tailings (especially to address the disposal of tailings containing mercury into water courses).

Examining a particular mining area within Geita District, the study by Gunson et al (2006) estimated that approximately 27 kilograms of mercury is released to the environment in the Rwamagasa area each year, while atmospheric emissions from the other amalgamation burning is about 14 kilograms from the Blue Reef mine site and 7 kg from the other nearby mine sites including Nyakagwe and Nyamtondo.^{xvi}

Efforts to reduce mercury use and adopt improved methods requires building trust with workers at the mining sites and developing capacities for fabricating and accessing local equipment¹, and some programs to facilitate improved technologies have led to notable benefits, as discussed below. While miners often do not have access to knowledge about technology standards or access to capital to improve their equipment, government outreach services to assist miners have led to some important improvements, but the outreach measures to date have been minimal. Although the mandate of the Ministry of Energy and Minerals is to provide extension services to assist miners, government budgets have been limited for this; it is widely acknowledged that more human and financial resources need to be committed towards community outreach and capacity-building. While a number of studies have examined mercury use and the need for tackling mercury-related risks, many have stressed that the most effective

¹ A number of technical improvements have been made in retort designs over the past decade. In some cases miners have perceived the retort as an economically uncertain instrument, as illustrated by one miner in Blue Reef small-scale gold mine site in Nyakagwe, who stated that “gold produced by burning an amalgam in an open crucible is clean and shiny...when closed retorts are used the gold is often dark and unattractive looking, decreasing its value.” The United Nations Industrial Development Organization (UNIDO) has demonstrated a number of technologies and retort models that are more trusted by miners, and past project experiences show that close collaboration with miners is vital in order to come up with local technology solutions that are suitable and effective (see Veiga et al, 2006; Spiegel and Veiga, 2005; Spiegel and Veiga, 2010).

ways of addressing risks in Tanzania are to license ASGM and regulate practices in accordance with a set of clear, reasonable and enforceable standards.^{xvii}

Various positive and negative aspects of ASGM in Tanzania have been discussed in detail by Kitula (2006). ASGM can be a traditional livelihood activity, a full-time source of employment or a season-specific part-time job, and ASGM populations can include migrant peoples, local communities with a longstanding history of mining and people from all walks of life.^{xviii} There are rich diversities of labour practices and population demographics in Tanzania's ASGM sector.

B. National and international initiatives

The Government of Tanzania has generated key lessons in developing programs of collaboration with development institutions, researchers and civil society organizations to address ASGM practices. Assessments suggest that some pilot programs have led to some important benefits, particularly with minimizing mercury use and developing local capacities for upgrading technologies and reducing health risks. In 2006, the government partnered with the United Nations Industrial Development Organization (UNIDO) to develop a "Manual for Training Artisanal Miners"^{xix} and create training programs in selected ASGM communities in Geita District region. The program involved a "train-the-trainer" exercise^{xx} in which a team of local mining engineers, nurses, environmental management specialists and others worked together to implement a program of capacity-building in selected sites in the Geita District region. Four booklets (in Swahili) conveyed some of the main themes of the training, including:

- Mercury and health;
- How to use and re-use mercury;
- How to protect your water; and
- How to get more gold

These were distributed to stakeholders as part of education and awareness campaigns. These also involved the use posters, radio and television programs as vehicles for promoting community awareness of ways of reducing gold mining risks such as mercury misuse. The emphasis of this program was also on actively promoting cleaner technologies with miners and demonstrating the technical, social and economic benefits of mercury reduction.

The government's collaboration with UNIDO led to the development of a "Transportable Demonstration Unit" model where mobile groups of trainers travelled to multiple mining sites and demonstrated technologies to improve mining and gold processing practices. The project involved collaborations with local miner associations and local government authorities in the village council. According to project evaluation reports, this led to notable improvements in gold extraction practices, including the uptake of retorts, the construction of safely protected amalgamation ponds and related environmental management safeguards.^{xxi} These assessments indicated that about 98 retorts are currently being used by miners and gold buyers; and that four local fabricators had made more than 230 retorts for use in Geita District.²

² Various technologies have been proposed with different levels of confidence and scepticism in the overarching goal of phasing out and replacing mercury amalgamation as a means recovering gold. Combinations of equipment

There have also been some positive examples of mercury reduction in other parts of the country, including examples arising as a result of university projects. A participatory “action research” project by Jønsson et al (2009) helped to introduce retorts to miners in two mining sites in Tanzania, in Matundasi and Londoni. They explain, “During action research, retorts were introduced in two mining settlements through a thorough and participatory approach. Twenty miners were given retorts and their attitudes and receptiveness to them were studied. Of the recipients, 18 used the retorts over a period of five months, recycling 10 kilos of mercury.”^{xxii}

In 2010, a World Bank partnership program with the government, called “Sustainable Management of Mineral Resources Project” (SMMRP), has also been put into place, which aims to provide training on issues in mining such as “processing technology, environment, and health, community consultation, training, and organization and formalization of artisanal mining activities.”^{xxiii}

At the same time, some of the key lessons learned from past experiences include the following:

- Education and training programs to reduce mercury use and address environmental health risks need to be accompanied by long-term measures for actively empowering mineworkers to access and adopt enhanced technologies.
- Initiatives to tackle mercury-specific issues need to also take into account and actively address other community priorities, specifically to ensure that marginalized groups’ locally defined priorities are addressed. Mining accidents and health risks caused by the collapse of mine shafts, poor ventilation and lighting, poor mining methods, exposure to mercury and other hazardous substances, and the spread of communicable diseases such as HIV/AIDS are all serious causes for concern. The best way to identify and address community priorities is by promoting local planning and designing interventions through a bottom-up participatory approach.
- Barriers limiting the uptake of improved small-scale mining practices can be economic, social, institutional as well as legal.^{xxiv} Improving access to social services and access to credit, as well as access to mining permits so that miner’s labour is legally recognized (i.e. improving security of tenure), need to be part of efforts to improve small-scale mining practices. This requires developing policies to support both poorer artisanal miners – including highly marginalized groups (e.g. women miners) – as well as more established small-scale mining entrepreneurs (in accessing permits, accessing capital, developing livelihood/business plans, designing suitable risk management plans, etc).
- There must be a connection between pollution-prevention technology and economic incentives for individual miners and processing operations. Scoble et al (2007) discuss how owners of inefficient and pollution-prone sluices resisted some of the technology

that allow the efficient production of concentrated ores whose eventual conversion into marketable products takes place in a single stage, for instance, by the smelting of gold concentrates to gold and slag by the miners themselves, might find a market in some countries, provided it works and is affordable. While complete elimination of mercury is deemed by the U.N. assessment teams as unrealistic at this stage for the majority of the operations, past mercury reduction programs have been able to achieve notable improvements through a more progressive approach (Scoble et al, 2007; Veiga et al, 2006).

changes: “the reason for this situation is that washing pond owners allow miners to use sluices for free provided they leave the tailings behind for further processing. It is in the best interest of the owner to have poor [gold] recovery during the first washing. The arrangement is exploitative at best and underscores the need to ensure equity and opportunities for miners to access improved technology.”

- Stakeholders involved in community development programs in Geita District stressed the need for the government to allocate more land for marginalized artisanal miners. This is particularly needed in order to minimize exploitative and illegal mining and create a supportive and secure climate for local environmental planning and institutional engagement. Without formal legal status, poorer miners often remain ostracized from education programs and government services, and lack of security of tenure in turn may make local livelihood planning and resource regulation difficult.^{xxv}

3. KEY ISSUES IN THE ASGM MINING LAWS AND REGULATORY FRAMEWORK

In policy literature in Tanzania, the terms “artisanal” and “small-scale” mining are often used to refer to mining activities carried out by individuals, families and/or groups of local communities and/or migrant workers, the majority of whom have no formal technical training and depend on rudimentary tools. However, the current Tanzanian mining legislation does not provide a direct definition of what constitutes “artisanal” mining. Only “small-scale” mining has been defined in law, which characterizes the operations in terms of their small capital investment, low levels of technology sophistication and its ownership being exclusively to Tanzanian citizens (1998 Mining Act and 2010 Mining Act). The specifics of the law and recent reforms are discussed below.

A. Mining titles/licenses and related obligations and rights

The Mining Act gives small-scale miners the possibility to obtain Primary Prospecting Licenses (PPLs) and Primary Mining Licenses (PMLs). Under the 1998 Mining Act, a PPL was granted for a period of 1 year with the possibility for renewal, authorizing the owner to prospect for minerals within one of Tanzania’s 8 mining zones³ and a PML was granted for 5 years and provides the license holder the right to mine an area of up to 10 hectares. Under this system, a PML could be mortgaged, renewed or transferred to another holder (Mining Act of 1998).

Various changes have been made in 2010. According to the 2010 Mining Act, “A primary mining licence shall confer on the holder the right to prospect for and mine minerals as provided for in this Division of this Part” (2010 Mining Act, Division C, Clause 54). Thus, a primary mining license may now include prospecting activities for small-scale miners. Also, the 2010 Mining Act

³ The condition for awarding PPLs is that the selected prospecting area must not be occupied by other mineral rights holders. According to the 2010 Mining Act, “A prospecting licence shall not be granted to an individual, partnership, body corporate, or any one of the partner, shareholders or directors of the partnership or body corporate who owns more than twenty other valid prospecting licences, unless the cumulative prospecting areas of such other prospecting licences do not exceed 2,000 square kilometres.

stipulates that “A primary mining licence granted under this section shall be valid for a period of seven years and may be renewed” (2010 Mining Act, Division C, Clause 55). There is no guarantee of license renewal, and some analysts have suggested that the 5 year period for PMLs (as under the law until 2010) should be extended to 10 years if the miners’ application can show the merits of this. Thus, the 2010 Mining Act, by extending the period to 7 years, appears to make it only marginally easier for license holders to conduct long-term planning in their operations.

In some cases, recognizing the conflicts between small scale and large scale miners, the government has designated certain regions as small-scale mining sites. However, as the Bmani Presidential Mining Sector Review Committee noted, “There are also complaints that small miners are usually allocated tiny mining site that make it difficult to operate without interfering with each other.” While detailing multiple examples of this, the report notes, “A good example is Mirerani where the 50 x 50 meters area allocated to each small miner is too small compared to Plot C which was allocated to big miners.”^{xxvi} This concern is widely shared by researchers whose studies have also stressed that Primary Mining Licenses have been very difficult to obtain for many artisanal and small-scale miners who have tried to do so.^{xxvii}

In part, these difficulties arise because much of the mining activity in Tanzania takes place in mineral-rich land areas where companies have also been recently active in registering for licenses.⁴ Various studies note that, while attempting to find areas for securing PMLs, Tanzanian artisanal and small-scale miners have had difficulty in obtaining permits on account of competition with both large mineral exploration companies and large mining companies.⁵ The study by Fisher (2007)^{xxviii} focuses on how the PML system has been unevenly applied across the country with different implications for poorer, marginalized artisanal miners and more established small-scale miner entrepreneurs. Her conclusions stress “while legal integration can benefit certain wealthier categories of people, who fit into the model of an ‘entrepreneurial small-scale miner’, for others adverse incorporation contributes to socio-economic dependence, exploitation and insecurity.” Her study further notes that artisanal miners have been marginalized and that, “for the issue of marginality to be addressed within

⁴ In some cases (e.g. in Geita District), artisanal miners have argued that licenses are not accessible because companies have been engaging in speculative investment (not real mining), thus making it difficult to find areas where PMLs could be granted. Government officials have noted that there is a need to ensure that companies have actual business plans and that artisanal miners have improved opportunities to be permitted in the future, though this has been difficult to enforce. Speculative investment for purposes of reselling licenses to foreign investors continues to be a serious issue that prevents the allocation of territory to formalize artisanal mining.

⁵ Large and medium-sized companies currently hold most of the country’s mineral rights. This was an intended result of World Bank-supported policy reforms in the 1990s which prioritized foreign investment in the extractive industries and led to allocation of large tracts of land for mining companies in the late 1990s and 2000s. Conveying concerns about the introduction and implementation of the 1998 Mining Act, Moody (2007) contends that the mining codes in Tanzania have allowed foreign companies “to usurp land previously worked by thousands of small-scale miners, thereby jeopardizing their locally based economies” (p. 54). A study by Lange (2010) brings a similarly critical focus to the “first-come-first serve” licensing policy approach that allowed the mining sector to grow at a fast pace without due consideration for small-scale miners. This is itself an issue that the Tanzanian Government has highlighted in its policy papers and represents an important area for ongoing discussions of reform.

integration processes, the existence of local forms of organization, institutions and relationships, which underpin inequalities and discrimination, need to be recognized” (p. 735).

The cost of the license (discussed later in this report) is only sometimes a barrier to accessing the licensing system. While the cost may be prohibitive for some poorer artisanal miners, in other cases, the barriers to accessing licenses have had more to do with other factors such as the bureaucratic processes associated with the license application and/or lack of knowledge of the legal requirements and institutional procedures, and lack of understanding of their rights.^{xxix} Some of these barriers have been addressed through recent reforms in the licensing process. For many years, the only way of securing a PML was through having an application processed at the Ministry of Energy and Minerals offices in Dar es Salaam, as licenses were not processed at regional offices. This has been reformed in very recent years; now the Zonal Mines Office can process PML applications, as discussed later in this report, and this may be an important step towards making the licensing system more accessible to poorer ASGM groups. The analysis below examines recent debates about the legal classification for different types of ASGM.

B. Type of business entities to perform ASGM operations

PML holders encompass diverse types of individuals and business entities in Tanzania. The 2010 Mining Act states that a “primary mining licence means a licence for small scale mining operations, whose capital investment is less than US\$100,000 or its equivalent in Tanzanian shillings” (2010 Mining Act). This builds further on the 1998 Mining Act, which stipulated that while the mining licensing system in Tanzania generally works on a ‘first-come-first-serve’ basis (which has historically benefited large-scale enterprises which have the economic means to acquire licenses), the PML system is open to Tanzanians only. In some cases, companies - if they are owned by Tanzanians - can hold PMLs. Table 2 outlines the clauses on eligibility for PMLs.

Table 2: Legal Clauses on the Eligibility for Primary Mining Licenses (1998 Mining Act, Part I)

<p><i>No primary Prospecting Licence and no Primary Mining Licence may be granted to an individual, partnership or body corporate unless –</i></p> <p><i>(a) in the case of an individual, the individual is a citizen of Tanzania</i></p> <p><i>(b) in the case of a partnership, it is composed exclusively of citizens of Tanzania</i></p> <p><i>(c) in the case of a body corporate, it is a Company; and</i></p> <p><i>(i) its membership is composed exclusively of citizens of Tanzania-</i></p> <p><i>(ii) its directors are all citizens of Tanzania;</i></p> <p><i>(iii) control over the Company, both direct and indirect, is exercised from within Tanzania by persons all of whom are citizens of Tanzania</i></p>
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Some analysts have contemplated whether reforms should be made so that PMLs are available to non-citizens/foreign firms (as well as Tanzanians). The 2010 Mining Act stipulates that gemstone mining will no longer be licensed to foreign firms, as part of an effort to empower local artisanal gemstone miners. As the Bomani Commission emphasized in its 2008 report that more attention needs to be given towards empowering Tanzanian small-scale miners, the

Government of Tanzania has been searching for new ways to fulfill this goal. While the Mining Act has not provided a detailed strategy for promoting partnership between PML holders and investors, and while Act restricts foreigners from investing in PML areas, the legal clauses for PML may be perceived in different ways in different types of contexts. In some contexts, the PML holder may be a former artisanal miner who transformed an operation into a more sophisticated small-scale mine; in other contexts a PML holder may be an entrepreneur who has several artisanal/small-scale mineworkers working within the licensed area. The law does not differentiate between these realities (the law is the same regardless of the particular business entities involved), though, and little information currently exists in the government offices on the demographic and socioeconomic profiles of the PML holders.

However, it is widely known that “informal” leasing and transferring of mining titles is a common practice in many of Tanzania’s ASGM areas. In various cases, concerns have been raised that the legal holders of PMLs are dissociated too much from the mining activities on the ground. The study by Jønsson and Fold (2009) indicates that although PML owners are responsible “for hiring and paying labour, organizing the mining, and endorsing safety and environmental regulations,” this “rarely transpires.” Their study focuses on mining settlements on the border between the districts of Manyoni and Singida in central Tanzania and in Chunya District in southwestern Tanzania. It found that “most PML owners are not engaged in actual mining activities, but instead lease out the mineral access to pit holders who organize the mining activities.” Pit holders are a common feature in the organization of many of Tanzania’s mining communities, and “though sub-leasing of pits contradicts the mining legislation, formal contractual obligations between the PML owners, pit holders and workers are exceptionally rare.” Their study notes that in many cases, relations may be terminated without notice, causing the pit owners (and the mineworkers working there too) to have no job security if license holders change plans. Various studies^{xxx} have indicated this is a weakness in the legislation in its current form and the need for amendments to formalize the position of pit holders and/or find other ways of making sure that the licensing system is more connected to the on-the-ground activities.

In very recent government documents, it appears the government is considering the possibility of giving legal recognition to “artisanal miners,” though it is not yet clear what developments there may be in the licensing system and how the PML system might be adapted. In one policy document detailing future plans, the Ministry of Energy and Minerals indicates the possibility of considering a way “to categorize legally artisanal miners and small-scale miners like in Ethiopia” (Ministry of Energy and Minerals, 2010, p. 18) but the idea has not been developed further yet.

C. Transfer of rights and mining titles upgrade

The Mining Act allows the holder of Primary Mining License to convert the license into a larger mining license or to combine multiple Primary Mining Licenses together and convert them into a larger mining license. As Tesha (2000) notes, “a Primary Mining License can easily be converted into a mining license in case a small-scale miner wants to involve foreign investors in

its small-scale mining operation” (p. 2). However, the Act does not currently provide specific legal stipulations on how sub-division of larger mining companies’ concessions could work in order to create legal possibilities for sharing land areas with artisanal and small-scale miners. The 2010 Mining Act (Part II, Section 9) provides some general legal provision transferring mineral rights, noting “No special mining licence; mining licence or any undivided proportionate part thereof shall be assigned to another person without a written consent of the licensing authority.” It also notes that the mineral right holder may be “entitled to assign the mineral right or, as the case may be, an undivided proportionate part thereof to another person.” Clarification on this dimension (i.e. formalizing the sub-division of concessions) may be useful in the future, especially as the government policy papers have recognized that more land needs to be allocated and available for legalizing artisanal miners. Through interviews conducted for this study, it is unclear how the various stakeholders involved could be entitled to initiate efforts at sharing land areas and creating opportunities for transfer of titles within licensed areas.

D. Negotiation with land owners and consultation with communities

The 1998 Mining Act and the 2010 Mining Act have to be reconciled with the 1999 Land Act and the 1999 Village Land Act. According to government policy, national mining laws can overrule other laws, and whereas mining issues are dealt with at the ministry level or zonal level, land issues are primarily managed at the village and district levels. Consultation is required if there are disputes.

The law does not provide clarity in addressing compensation issues for surface land holders or other constituents in cases where compensation is needed, and the 2008 Bomani Commission report noted that the government needs to clarify compensation policies, procedures and amounts for artisanal miners in cases where resettlement is an issue. The Bomani Commission also notes that public consultation requirements for all kinds of mining need to be clarified in the future.

E. Relationship between small-scale and large-scale mining

In recent years, a number of presidential announcements and policy statements by the Ministry of Energy and Minerals have highlighted the importance of ensuring equitable policies to address concerns about land use competition, displacement, large-scale/small-scale partnerships and other issues. Partnerships can support poverty alleviation through creation of small and medium businesses, job creation; provision of health, education, water and electricity infrastructures; and availability of credit facilities to assist artisanal miners. A number of large companies have publicly advertised having community engagement strategies including programs with artisanal and small-scale miners (e.g. Barrick, AngloAmerican, etc). Government policies have generally not been put into place to monitor these partnership models rigorously or to formalize informal agreements between local artisanal mining communities and companies when it comes to strategies for sharing tracts of land. Nonetheless, sharing land has been encouraged in some cases by the government as an important way of creating equitable development plans.

A report by Hayes (2008) notes, “In 2007/2008 the Government of Tanzania has set aside 295,000 ha for small-scale mining throughout the country; however this is tiny compared to the demand and only some areas have actually been assigned.”^{xxxix} As noted above, one of the reasons for this is that, in numerous cases, areas where artisanal and small-scale miners have worked for many years overlap with areas where large companies have acquired licenses. In recent years, policy advisors have increasingly argued that government officials need to put more pressure on companies to support artisanal and small-scale mining through a number of strategies, including technology assistance, training, land allocation, and other mechanisms, while also recognizing that the promotion of partnership between artisanal and small-scale miners and large-scale companies should be linked with an effort to expand the capacities of the government to respond directly to the concerns of marginalized mining groups in contested areas. While no national policy framework is in place for governing the relation between small-scale and large-scale mining, this relation takes highly diverse forms in different districts.

In 2006, the government through the Ministry of Energy and Minerals began negotiations with some of the foreign exploration companies operating in the country in order to identify viable areas for small miners. As a result of those efforts, for example, the government in 2007 finalized negotiations with an Australian company to set aside an area equal to 48.24 sq. meters at Nyarugusu in Geita district for small miners. According to the Bomani Commission Report, which referred to this example and others, in many cases “small miners have partnerships with big miners only during the exploration period and that agreements between the two parties are usually for exploring in the small miners sites only.” The report notes that misunderstanding between small-scale and large-scale miners is common, necessitating clearer policy commitment towards long-term opportunities for small-scale miners in the agreements and the development of policies for - and more active government involvement in - mediation.

Importantly, existing policies do stipulate measures for relinquishing concession areas and limitations on exploration (by limiting area and duration of licenses). These policies, if carefully pursued, could have an impact in the future on improving opportunities for ASGM legalization. Given these legal dimensions, it is important to note that a recently emergent priority in government policy papers is “to demarcate some of relinquished areas after PL renewals for small-scale mining” and “to publicize areas that fall vacant to help other applicants, in particular small-scale miners apply for those vacant areas.” While the government aims to “promote cooperatives and joint venture in SSM [small-scale mining] to improve their performance” it also seeks “to discourage hoarding of licences areas by LSM [large-scale mining].”^{xxxix}

4. ENVIRONMENTAL LEGAL FRAMEWORK

Unlike large mining companies, which must complete environmental impact assessment (EIA), owners of PMLs do not have to complete such assessments. A more streamlined and specifically tailored set of environmental and safety requirements are codified in the legal framework for small-scale mining. According to the 1998 Mining Act, the holder of the PML is

responsible for basic environmental and safety requirements, which include the usage of retorts to contain mercury vapour on mining sites, for example. The list of requirements for the PML holder is shown below in Table 3:

Table 3: Mining Regulations (Environmental Management and Protection), 1999

Requirements for Primary Mining License Holders	
<u>Issue</u>	<u>Regulation</u>
Settling ponds	1. The holder of a Primary Mining Licence shall ensure that washing or settling ponds are constructed in his Primary Mining Licence area to provide for washing and sluicing, and no such washing and sluicing shall be done along or close to rivers, streams or any other water sources. Where a settling pond is used as part of the mine drainage system, all channels discharging into the river system must be covered and the slopes protected from erosion.
No vegetation clearing	2. Vegetation clearing will NOT be undertaken within twenty metres (20m) from any stream or riverbank.
Use of a retort	3. The holder of a Primary Mining Licence shall NOT heat mercury amalgam to recover the gold without using a retort.
No cyanide leaching	4. The holder of a Primary Mining Licence shall NOT use cyanide leaching without the written approval of the Chief Inspector.
Abandoned workings to be backfilled or fenced	5. No holder of a Primary Mining Licence shall commence development of new workings in his primary mining licence area without backfilling or fencing the abandoned previous workings developed by himself or his agent.
Damaged areas to be inspected	6. Prior to the commencement of mining in any area that may have been environmentally damaged, the Primary Mining Licence holder shall request an inspection of the same area by an inspector to confirm environmental disturbance. Any area, for which the authorities have not received a request for an inspection, shall be considered as normal.
Tailings disposal	7. The holder of a Primary Mining Licence shall ensure that tailings are disposed of at a proper place in a manner approved by the inspector.
Children not to be employed	8. No holder of a Primary Mining Licence shall allow children below the age of 16 to be employed or be engaged in any mining or processing

	operations in his primary mining licence area.
Pit latrines to be constructed	9. Every Primary Mining Licence holder shall ensure that pit latrines are constructed and maintained at a distance of not less than one hundred (100m) metres inland from any water source other than washing or settling ponds.
Protective gears to be used	10. Every Primary Mining Licence holder shall ensure that each employee is provided with protective gear and no person shall handle any toxic substance without using appropriate gear.
Offences	11. Any person who contravenes any provision under this part shall be guilty of an offence and shall be liable, on conviction, to a fine not exceeding Tshs.50, 000 (approximately US\$31.29) or imprisonment not exceeding 3 months, or both.

Some analysts have suggested that a set of complementary guidelines (or additional regulatory clauses) should be developed in the future to clarify some of the specific measures in the above 11 requirements. For example, it may be useful to stipulate with respect to construction of washing ponds (Requirement #1) that there should be a specific distance in the regulation from which the ponds should be constructed rather than stating only that pond should not be constructed “close to” the river. (The term “close to” may attract different interpretations, making it difficult to enforce.) A set of accompanying guidelines might also help to clarify the specific design of the washing ponds to be constructed (perhaps including measures stipulating the design for concrete lining to prevent seepage).

Government plans have been initiated to review the above requirements and there may be further amendments to these in the future. In one sense, the general approach in the existing system is highly advantageous because it keeps the regulatory requirements (11 requirements) simple and un-complicated. A problem encountered in numerous other countries is that too many environmental laws and requirements make the small-scale mining regulatory process far too complicated. As the study by Mutagwaba points out, “the [Tanzanian mining] regulations recognize the inability by small-scale miners to conduct formal environmental impact assessments and prepare environmental management plans. The miners lack the technical know-how and the financial requirements to carry out such studies.”^{xxxiii} At the same time, while this observation is important, current laws do not stipulate requirements for the applicant of PMLs to state the intended gold processing method in detail before the license is granted. Further specification in this regard may be advantageous in the future.

In 2008, the Government of Tanzania developed a Mercury Code of Practice, which provides a general set of guidelines on mercury management, including measures on how to reduce risks from amalgam burning, standards for technology, guidelines on tailings management, and

other measures. The Mercury Code of Practice was developed at the same time as UNIDO-supported pilot programs were conducted in gold mining communities in Geita District, where, in collaboration with the government, key standards for targeting regional challenges were formulated. For instance, the standards include measures to prevent the combined use of mercury and cyanide and the prevention of whole ore amalgamation.^{xxxiv} As there are multiple different types of artisanal and small-scale mining that occur, some analysts have recently suggested that it would be beneficial to create multiple categories of “artisanal” and “small-scale” mining with different types of corresponding environmental guidelines and regulatory requirements in addition to this Mercury Code (as long as there remains a simplified set of requirements for artisanal miners).

5. KEY ISSUES ON INSTITUTIONAL ASPECTS AND LESSONS LEARNED

A. State function and initiatives in the formalization of small-scale mining

i. National Ministries

Since the passage of the Tanzanian Mining Act in 1998, government authorities have increasingly emphasized that small-scale mining is a poverty-driven activity. As the Ministry of Energy and Minerals is principal agent responsible for managing the development and regulation of this sector, its responsibilities have increased in recent years. The National Environmental Management Council (NEMC) deals with environmental issues. The Ministry of Finance oversees the allocation of the revenues collected by Tanzania Revenue Authority (TRA). The Ministry of Energy and Minerals conducts a range of functions in permitting and monitoring, and coordinates activities of the Zonal Mines Offices (ZMOs) and Resident Mines Offices (RMOs). The mandate of the Ministry includes the provision of extension services to improve mining methods, and significantly, accentuating the importance of these services, Tanzania’s Poverty Reduction Papers have drawn attention to the need for institutional support in artisanal and small-scale mining communities.^{xxxv} However, due to budgetary limitations, many of the extension services have been restricted in their scope and reach.

The Ministry of Energy and Minerals has taken an important step in initiating the development of a Small-Scale Mining Development Division under the Commissioner for Minerals. This division acts a national centre-point for small-scale mining management and includes the mandate of coordinating an expanded set of outreach programs at mining sites. Efforts to strengthen the capacities of the Ministry over the past decade have yielded important lessons. Within the past five years, projects supported by the World Bank and the Nordic Development Fund have sought to equip the Ministry with technical, managerial and material support for implementing national policy objectives and regional coordination on mining affairs. The major focus points of these projects, in terms of their budgets and their objectives, have been on addressing issues related to the development of large and medium-scale mining nationally. Thus, a renewed focus on strengthening government capacities for licensing, monitoring and

conducting education, training programs and technology upgrading services is needed in poorer rural areas with artisanal and small-scale miners.

Recent World Bank-led programs have focused on the development of a national cadastral system which has provided technologies and geographic information systems to conduct the mapping of areas for large and medium-scale mining. While the new cadastral program creates a national information system that does not take into account all information about geology and Primary Mining Licenses for artisanal and small-scale mining, this program, combined with augmented focus on boosting institutional roles in the licensing of minerals generally, has led to an increase in the issuance of Prospecting Licenses and Primary Mining Licenses (Table 4).

Table 4: License Granting Trend (for PLs and PMLs) in Tanzania

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Prospecting Licenses	218	199	186	225	263	515	782	167	624	553	704
Primary Mining Licenses	35	2,602	549	668	654	1,532	558	741	1,798	2,349	3,932

Source: Ministry of Energy and Minerals, 2010^{xxxvi}

Performance assessment reports note the Ministry of Energy and Minerals has been overstretched, finding it difficult to keep up with the number of license applications in recent years. As of 2009, 10,000 outstanding applications from 2007 had not yet been processed.^{xxxvii} While these challenges are being addressed, the Ministry continues to pursue the following among its objectives:

- Improve information and statistics on artisanal and small-scale mining;
- identification and allocation of exclusive areas for small-scale mining;
- training and extension services;
- facilitating geological investigations in small-scale mining areas;
- improving credit and financing;
- promoting value addition;
- improving marketing;
- streamlining the fiscal framework; and
- enhancing regularization and addressing cross-cutting issues such as environment, health and safety, gender, HIV/AIDS, and social responsibility.

Complementing the role of the Ministry of Energy and Minerals, the State Mining Corporation (STAMICO) provides professional mineral services, such as drilling, land and mine surveying, mineral exploration and investment promotion, promotion and modernisation of the ASGM sector. A widespread concern is that geological assessment processes have not yet benefited poorer groups of miners due to the primary focus on more modernized and formalized mining associations in the government programs to date. The Ministry of Energy and Minerals has initiated steps to establish the Mineral Development Fund for mine development; payment for

geotechnical investigation and advice; and for purchase and hire of mining equipment. It has also established the Mineral Revolving Fund for mining services in small-scale mining centres such as customer milling services, value addition and mineral trading (this institutional objective, i.e. expanding microfinance services, is discussed more in the later section of this report that examines economic instruments).

ii. Distribution of responsibilities at the Provincial and Municipalities levels

As noted in earlier analysis, an important recent institutional reform is the decentralization of responsibilities in the permitting process for Primary Mining Licenses. As part of an effort to simplify the licensing procedures for small-scale mining, the Ministry of Energy and Minerals now processes license applications and issues permits at the Zonal and Resident Mines Offices. This replaced the previous set-up where the license application, evaluation and issuance process for all PMLs was based only at the Dar es Salaam offices.

As part of the ongoing *Sustainable Management of Mineral Resources Project*, the Ministry of Energy and Minerals aims to develop institutional reforms and capacity-building measures to “enable local governments to integrate mining into district economic and administration planning” ((SMMRP, 2010, p. 4). Although local government authorities have often been limited in their capacities and involvement on mining issues in the past, local governments are responsible for working with the Ministry of Energy and Minerals, especially through the Zonal and Resident Mines Offices, when complaints or other concerns arise. In recent years policy evaluations in Tanzania have highlighted the need for building capacities of local government authorities, improving their ability to collect revenues at a standardized level while being involved in monitoring of the sector and playing a role in responding to concerns about conflicting licensing claims.^{xxxviii}

In recent years, multiple different policy advocacies have emerged when addressing the roles of local village leaders with respect to exercising governance over different kinds of artisanal and small-scale mining. In 2008, the United Nations Human Rights Council (UNHCR) drew attention to some of these complexities when offering an analysis of a set of recommendations made by the Global Mercury Project regarding the policing of migrant miners. The UNHCR reported noted, “The Special Rapporteur endorses most of the recommendations made by the Global Mercury Project team. He would like to inject a note of caution, however, concerning the recommendation that was made on giving more power to local village leaders to deal with irregular migrant miners. This could lead to exclusionary practices and create tensions or conflicts between migrants and their hosts.”^{xxxix} This insight suggests that the roles of village leaders need to take into account the growing importance of ASGM to migrant populations and that governance structures in turn need to be designed to recognize these cross-district labour patterns and socioeconomic pressures among groups that are “migrant” as well as “local.”

B. The role of miners’ organizations in the formalization process

Informal and formal local organizations of artisanal and small-scale miners have historically played a crucial role in Tanzania. Diverse informal organizations exist among groups of pit holders, diggers, gold processors and others at any given artisanal and small-scale mining site, even if they do not have licenses, and their organizational capacities in working together to address environmental health, safety and well-being are vital for the success of the community.

Knowledge-exchange between different groups of miners' organizations is an important strategy in generating lessons and sharing insights about organizational development, technologies, business practices and livelihood challenges and solutions. For example, on various occasions in recent years, knowledge-sharing activities and training activities have taken place at the Blue Reef Mine in the Geita District region, where established small-scale miners have shared insights with less experienced artisanal miners (who were not "formally" organized). The owner of Blue Reef Mine invited numerous informal miners in the area to his mine, as part of a government-supported initiative in 2007 that emphasized practical demonstrations covering; grinding, sluicing and retorting as well as health and safety issues for small-scale mining and organizational and business strategies. A Miner's Fair in Nyarugusu is also a popular event for bringing miners together and sharing knowledge and experience.

As associations that are primarily responsible for advocating for the interests of artisanal and small-scale miners, regional miners associations such as the Mwanza Regional Miners Association (MWAREMA) also play major roles in coordinating miners and facilitating organization and capacity-building. MWAREMA was formed on 6th September, 1986 after the government in 1983 directed Small Scale Miners in each region to establish their associations in order to link miners and government institutions. MWAREMA is based in Geita District at Nyarugusu village where the main office is located. To date the association has more than 700 members, and the association reports note that Geita District covers 579 licences for small scale mining (Hainga, 2010). The association has various significant roles, including:

- Training artisanal and small scale miners to abide to the mining laws;
- Helping ASM to acquire good Mineral markets for their products (gold);
- Advising her members to sell their products (gold) to the legalized mineral brokers and dealers; Advising ASM to conduct feasibility studies to their mining plots in order to simplify acquisition of loans from commercial banks and other financial institutions; and
- Advising ASM to enter into joint venture agreements for easy capital fundraising

The Tanzanian Women Miners Association (TAWOMA) is another key organization, one with a national scope while serving as an umbrella organization in representing the interests of women in Tanzanian mining communities. It was formed in 1997 with 350 active members (miners, mineral brokers and dealers, service providers and mineworkers). Headquartered in Dar es Salaam, TAWOMA has 16 regional branches and 15 local branch offices, representing all of the major mining areas. TAWOMA currently plays an active role advocating for small-scale miners, giving input into legal reforms and providing a platform for networking and information and knowledge exchange.

C. Roles of academic, research and technology centres in formalization

The Ministry of Energy and Minerals has formed partnerships with the Small Industries Development Organization (SIDO), a parastatal organization now under the Ministry of Trade, Industry and Marketing, with the mandate to develop, create, promote and sustain, indigenous entrepreneurial base in the small scale industries. SIDO has played a role in disseminating technology and education in small-scale mining and current initiatives of the Ministry of Energy and Minerals (SMMRP, 2010) envision further partnerships with SIDO as well as the Mineral Resource Institute (MRI); Vocational Education and Training Authority (VETA); Southern and Eastern African Mineral Centre (SEAMIC); the University of Dar es Salaam (UDSM); Dar es Salaam Institute of Technology (DIT); and the College of Business Education (CBE), with the aim of providing courses and services to small-scale miners.

5. ECONOMIC INSTRUMENTS IN THE FORMALIZATION OF THE ASGM SECTOR

A. Fiscal systems and their role in the gold production chain

A PML is acquired subject to payment of application and preparation fees of Tsh 10,000 each (approximately US\$6.3) plus an annual rent of Tsh 100,000 (approximately US\$63). The cost of the fees is, as noted above, only one of numerous barriers to accessing formal licenses. Some environmental analysts have suggested that revenues from mining license fees and taxes should be used directly for community development and mining community assistance programs. However, small-scale mining experts widely caution that taxing the small-scale mining sector too much would be a deterrent to formalization in poorer mining communities.

The 2010 Mining Act increased royalties paid on gold to 4% (from 3% previously). The government is in the process of reforming mechanisms for audits for royalty payments and related fiscal issues. Currently, there are certain types of taxes that apply to large-scale mining and not to small-scale mining, including corporate income tax and various specific levies. The Bomani Report notes that the taxation system needs to be revised, noting that the contribution of the large-scale mining sector to the national economy and community development is not meeting the citizens' expectations. The Bomani Report notes, in particular, that various exemptions on duties and taxes in the large-scale mining sector have weakened the country's revenue base and that future amendments could be beneficial to increase government collection of taxes. The 2010 Mining Act requires all mining companies to list on the Dar es Salaam stock exchange, representing one step towards ensuring that more revenues from mining stay in the country.

Under the Mining Act, gold *brokers* are authorized to trade minerals within Tanzania provided they have a broker license issued by the Commissioner for Minerals; and licensed *dealers* are permitted to export gold. However, no formal legal rules currently govern the distribution of profits amongst claim holders, pit holders and mineworkers. Carstens et al (2009) note, "In Geita District the usual division of profits is around 30% for the workers and 70% for the claim holder," though different situation assessments reflect multiple diverse local profit sharing

arrangements (Mwaipopo et al, 2004). Table 5 illustrates the value of national gold exports between 1998 and 2005, but the distribution of benefits from this revenue has been highly uneven at the community level.

Table 5: Value of Exported Gold - 1998 to 2007 (US\$ Million)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
US\$	3.30	39.80	120.50	256.80	274.33	504.14	596.62	639.63	772.06	888.87

Ministry of Minerals and Energy, 2008

B. The role of credit mechanisms and lessons learned

Numerous studies emphasize that improving access to micro-loans and microfinance services is a fundamental necessity in order to manage the ASGM sector more effectively, maximize the sector's contribution to poverty alleviation and upgrade mining practices.^{xi} The government has developed a number of microfinance policies specifically tailored for this sector, and while past attempts at creating public-private sector linkages have been ad hoc and limited, recent efforts to encourage banks, companies and microfinance institutions to assist mineworkers could potentially lead to benefits in enabling mineworkers to access working capital that will help support the transfer to improved, cleaner technology. Various vital strategies appearing in the 1997 Mining Policy are shown in Table 6.

Table 6: Microfinance Policy Objectives under the 1997 Mining Policy

Policy Objectives for Microfinance Promotion in the Artisanal and Small-scale Mining Sector	
a)	Supporting the formation of formal entrepreneur groups such as miners associations with commercial companies
b)	Formalizing traditional funding systems by promoting the following: hire-cum purchase system, forward sales, and mutual group savings schemes
c)	Encouraging financial institutions to formulate affordable credit schemes to the miners as well as establishment of mobile banking systems
d)	Promoting the use of third-party guarantees to enable other institutions to assist miners to get loans
e)	Facilitating the creation of mineral property markets to enable discoverers to sell their properties to developers at competitive prices
f)	Encourage NGOs to establish miners' cooperative banks and informal financial institutions such as rotating savings and credit associations

Not all the measures in the above list of microfinance strategies have been implemented to date. For example, with respect to Objective “f” (i.e. the last objective in the list), NGOs have not been closely engaged to date in the development of microfinance programs. However, according to the Ministry of Energy and Minerals, TSH 345 million (approximately US\$ 215,876) have recently been given out in soft loans to small-scale mining companies to improve extraction ability; this is part of a TSH 5 billion fund (approximately US\$ 3.13 billion) for small-scale mining specifically.^{xli} The government has developed a grants program that could help improve credit access as well as an equipment loan programs that could be used to offer hire-purchase loans with crushers, compressors, ball mills, concentrating tables, jackhammers, and other equipment and tools that are commonly used and identified as priorities by miners. The government is still in the process of developing microfinance pilot programs, acquiring experiences and lessons in this dimension of sector assistance and figuring out the types of programs that work best with different types of ASGM groups.

As poorer miners often lack collateral and do not qualify for credit due to lending restrictions in conventional commercial banking channels, there is a significant need to target highly marginalized groups of miners (as well as the more established and organized small-scale miners) with a suite of different strategies. Informal lending arrangements can make miners accumulate debts, presenting challenges for workers by limited their sets of choices when it comes to economic planning as well as technology choice. Miners who have tried to seek formal lending opportunities through official banking/microfinance channels have often been unable to secure formal credit, even in remote rural regions where formal microfinance institutions are present.^{xlii} In cases where miners have licenses, miners associations have advocated that they should be allowed to use their existing licences as collateral with banks and requested assistance from the government to work with banks to facilitate credit access.

In some cases, small-scale miners have formed registered cooperatives, creating Savings and Credit Cooperative Societies (SACCOS). The SACCOS model is an important example of how miners have mobilized together and created an organizational structure that allows the acquisition of credit. The SACCOS model is a particularly important example in Tanzania where cooperatives form to develop skills and capacities with regards to savings mobilization as well as credit acquisition and loan repayment. A report by Mutagwaba (2006) examines some of the experiences in Geita District, mentioning that the Government, through District Cooperative Offices, can provide assistance measures which can include:

- Sensitization on how to form and run a SACCOS
- Assist to prepare by-laws
- Assist members to get registration with the Registrar of Cooperatives
- Organize a meeting to elect board members
- Give training to board members on how to run the SACCOS

According to experiences of the Geita District Cooperative Officer, some miners in the Geita District area are aware of the advantages of the SACCOS. Mutagwaba (2006)^{xliii} examined examples of SACCOS experiences in mining areas in Geita District and they are summarized in Box 1.

Box 1: Savings and Credit Cooperative Societies (SACCOS) in Small-Scale Mining Communities

- (i) **TUPENDANE:** – based at Rwamgasa small-scale mining site, almost 50 kilometres from Geita town (this is the site for the GMP project. This SACCOS was registered on 13th June 2001 and by September 2005 it had 40 members. The SACCOS started by raising, through share sales, \$7,000 and at the time of the visit they had \$5,300 in the bank. The SACCOS has been somehow successive and has used the interest gained through lending to members to build a modern office (with burnt bricks and corrugated iron sheets and has furniture). All its members are small-scale miners.
- (ii) **MSHIKE-MSHIKE:** - This SACCOS is based at Mugusu small-scale mining site, almost 25 kilometres from Geita town. The society was registered on 5th August 2004 and has 18 members all of which are small-scale miners. Most of these miners however, are not licenced miners but those who retreat tailings at Mugusu mining area. They started the SACCOS with \$940 raised through the sale of shares to its members. The SACCOS has been very erratic in its operations and as of September 2005, there were no records of their recent transactions. This is probably reflective of the nature of the business at Mugusu which is a contested site where the small-scale miners have not been fully legalized. Government representatives have allowed them to work there, since many small-scale miners have been there for many years (see Mwaipopo report). A company that has acquired a mining license has attempted to use the judicial courts to evict the artisanal and small-scale miners in Mugusu, and ongoing debates about the legality of the miners make it difficult for long-term planning in this area, creating difficulties for the development of cooperatives and microfinance strategies.
- (iii) **KATOMA – MTAKUJA GOLD AND SILVER COOPERATIVE LTD:** - This is a SACCOS of jewellers based in Geita town. It has a membership of six jewellers who also has a small-scale gold mining licence in the Katoma – Mtakuja area, north-east of Geita town. The Society was registered on 19th June 2003 and by September 2005, they had a balance of \$1,860. The group conducts both gold mining and jewellery business within Geita town.
- (iv) **KWAMARWA MINING COOPERATIVE SOCIETY** – this SACCOS that is based Rwamagaza, and was registered in June 2005. They started with a membership of 29 members all which were small-scale miners and were able to raise \$1,800 through sale of shares to its members. There are indications that the number of members have since increased although it has not been communicated to the District Cooperative Office.

A number of key lessons should be highlighted:

- The existence of SACCOS within the small-scale mining areas is an encouraging sign that savings and credit societies can work with small-scale miners.

- Lessons to date also indicate that empowering women miners with microfinance is a particularly important opportunity for strengthening livelihoods, as women are recognized as good savers and decision-makers for family planning.
- Lessons to date also indicate that PML holders are not the only people who should be targeted in microfinance programs; there should also be focus on the artisanal mining workers themselves who may or may not be license holders.
- Experiences to date also highlight that existing commercial banking models are limited in their reach and often charge interest rates that are high while demanding collateral or evidence of sophisticated business plans. As most miners cannot meet the bank's requirements, new types of innovative microfinance services are needed. Microfinance strategies need to be tailored to the diverse kinds of artisanal and small-scale mining situations. Government assistance in strengthening ASGM groups' economic planning and in educating banks about this sector could, for example, but one useful step (among other steps) towards making credit services more accessible to the poor.

Studies in Tanzania and elsewhere in Africa suggest that it is particularly important to develop pilot programs that combine targeted training - to encourage savings mobilization and business development plans including plans for meeting repayment requirements - with the delivery of sector-specific microfinance services. This could evolve through initial focus on supporting a number of small groups of miners, using a model that can be adapted from the popular Grameen Bank microfinance model; such types of programs may emerge with the involvement of institutions that have an explicit on pro-poor development goals (including NGOs that could act as third party guarantors, for example).^{xiv} Given the importance of microfinance in upgrading small-scale mining practices, and given the growing recognition of this importance in mercury reduction efforts specifically, there are numerous reasons to suggest why microfinance programs should be a major focus in future government programs and international development assistance programs in Tanzania's mining communities.

C. The role of ethical market initiatives

National and international initiatives to develop ethical markets have an important role to play in linking public sector and private sector goals in the small-scale mining sector. However, as a study by Schroeder (2010) warns, analysts and policymakers need to be cautious when discussing the idea of "fair trade" and "ethical" production in mining communities. Schroeder examines the case of tanzanite in the context of commodity chains in Tanzania, concluding that certain international certification models (for tanzanite and also for diamonds) can sometimes be antithetical to the interests of marginalized groups in the artisanal mining sector.^{xiv} Creating "ethical brand" gold markets needs to be done in a way that respects informal sector workers and takes into account carefully the ways in which mining communities operate. Some concerns have been raised that, recently, simplistic "conflict-free gold" campaigns have the effect of demonizing unlicensed ASGM communities in an indiscriminate fashion. Thus, it is important that any initiative to support and "ethical" brand does not create over-simplistic

notions of “ethical” and “unethical” in the process, and it is important to include unlicensed miners in the processes of developing these initiatives.

Spearheading an effort to develop fair trade systems in mining communities, the Alliance for Responsible Mining (ARM) focused on gold mining areas in Geita District as part of its effort to develop a fair trade certification system. This system would offer small-scale miners a premium for their gold output conditional on established standards^{xlvi} though has not yet been implemented in Africa. ARM’s initial phase of scoping out potential fair trade mining communities focused on Africa Precious Metals Ltd in a trial assessment for the certification standards. The government licensed Africa Precious Metals Ltd to establish buying centres in Geita District, after having invested in gold refinery plants to add value to gold exports from small-scale miners. Africa Precious Metals created a business plan for its refineries to target miners, “who without a defined market-have been loosing out to middlemen and businessmen in the black market, to smugglers and through money laundering.”^{xlvii}

Bank representatives have indicated that the refinery aims to cater to small-scale miners by “improving the quality of their gold and subsequently their standards of living” and that the objective is to collect raw gold through the regional miners associations at attractive prices and refine it to a finished product quality of above 99.5% before exporting it as bullion gold. In the early stages of the developing the refinery, UNIDO provided advice on the development of mercury management guidelines, safety and related technical dimensions to ensure gold refinery facilities adopt best practice standards.^{xlviii} According to the website of the Alliance for Responsible Mining, Africa Precious Metals “has constructed five Fair Trade Centres with a view to improving the business environment for many of the miners operating in the informal sector.”^{xlix} Experiences to date indicate that carefully thought out partnership models between private sector institutions, ASGM groups and government policymakers are needed in order to develop a certification system that can respond to the diverse needs and goals of mining communities themselves. As only a very small percentage of ASGM activities in Tanzania are formalized, it needs to be recognized that ethical certification models are very limited (even though they may be very important) since they only target formalized miners.

6. CONCLUSIONS AND RECOMMENDATIONS

Over the past two decades, as the artisanal and small-scale mining sector in Tanzania has become an increasingly important sector for poverty alleviation, the diverse elements and dynamic nature of the sector have presented many idiosyncratic opportunities and challenges for rural development. The evolution of the mining sector policies over this period has yielded many important lessons. The objectives articulated by the 1997 Mining Policy created a vision for developing small-scale mining which, in turn, opened up new possibilities for allocating permits, creating capacity-building policies and implementing international collaboration projects in sites where rural communities depend on mining as a livelihood. The Government of Tanzania has often been praised internationally for incorporating ASGM issues within its national poverty reduction policy papers since 2005 and encouraging support for the sector.

However, there have been highly uneven results with policy implementation in different regions of the country. In some districts, the national policies to license miners have led to positive results, but experiences to date indicate that governmental institutional mandates for licensing, outreach, monitoring and rural support in mining areas have been funded at a very minimal level or not at all in some regions. Many of the official national policy objectives in the ASGM sector have not yet been implemented, leading the Bomani Commission in 2008 to emphasize the need for policy reforms that support ASGM in new ways. Experiences to date highlight the importance of taking into account diverse aspects of marginalization that can affect livelihoods – and working with poorer mineworkers in developing policy strategies that tackle social, legal, economic and environmental challenges in mining communities.

Overall Suggestions for Amending Mining Law and Regulation Approaches

A key conclusion is that although important reforms were passed in the Mining Act of 2010, the legislation still does not fully recognize the diverse realities of ASGM in the field and the complexities of different types of labour arrangements. Although the Government emphasizes the importance of licensing individuals, the reality is that landlords and license holders often lease out land informally to unlicensed groups. While the PML system has sometimes tended to be suited best for wealthier entrepreneurs, new policy adjustment and institutional innovation is needed to meet the needs and concerns of poorer mining communities, to make licenses more accessible to artisanal miners and to make regulation more effective. Two main recommendations in relation to the legal framework are as follows:

- *Developing specific legal definitions and categories for “artisanal mining” would likely be an important step in the future in order to make the mining legislation and regulatory framework more responsive to local priorities.* Since there is no definition of “artisanal” mining under the 1998 Mining Act or the 2010 Mining Act and no licensing option for ASGM workers besides the restrictive Primary Mining License system, the lack of differentiation between types of ASGM activities makes it unclear how to target and engage different groups. It is beyond the scope of this report to prescribe exactly how future mining titles and policies should be structured. However, experiences indicate why it would be important to adapt laws and policies in order to give legal recognition to multiple types of artisanal and small-scale miners, recognizing that different categories can help focus the requirements for the specific size of the operations. New policy options could include formalizing the roles of “pit holders” at ASGM sites, to make the actual people running the mining sites more secure in their job function (and less reliant on informal/insecure agreements with PML holders). This would be a useful step in addition to creating new mining categories and legal titles to give formal legal recognition to types of “artisanal” mining that are not currently formally recognized.
- *Related to the above, it is recommended that different environmental and safety requirements be developed for different kinds of ASGM.* Under the existing system, Primary Mining License Holders often are not held accountable and the requirements are vague in some cases. For miners who are able to successfully acquire PMLs, the

environmental regulatory requirements are relatively simple and un-complicated when compared with other regulatory systems elsewhere in other countries. While simplicity is a virtue in some respects (the 11 environmental and safety requirements are easy to understand for the most part), future adjustments would be advisable to create a more specific and clear set of targets for different categories of ASGM operations. This may help to clarify some of the roles and responsibilities for license holders including measures to address tailings management, mercury use, cyanide management and related labour practices and standards at mine sites.

Other Suggestions for Strengthening the Licensing System and Related Institutional Policies

Experiences to date show why it is vital to ensure that administrative policies and institutional roles are designed in ways that improve the accessibility of licenses in marginalized ASGM communities and create realistic expectations. This can be done by pursuing a number of new strategies to link government planners with groups who rely on ASGM, including migrant workers as well as local village settlements. While it is too early to draw conclusions regarding the impact of very recent reforms to decentralize the permitting process, it appears that the recent policy reform that decentralizes the institutional process for issuing PMLs - to the Zonal Mines Office level rather than the Dar es Salaam office - has been an important step in developing a more regionally situated management system that can respond to local contextual needs. Future studies will clearly be essential to help develop an understanding of what kinds of conditions make decentralized institutional arrangements for permitting successful, how adjusting the permitting systems can improve the accessibility of mining licenses among poorer miner groups specifically, and how to strengthen institutional capacities in strategic ways.

One way to help make the decentralization policies work more effectively is to closely follow the recommendations of the Bomani Presidential Mining Sector Review Committee of 2008, which recommended involving local regional authorities more in future mining sector governance processes while raising awareness of small-scale miners' rights and needs. In this respect, the newly established Division for Small-Scale Mining at the Ministry of Energy and Minerals can take a strong leadership role in enhancing institutional capacities in different levels of government and creating stronger linkages between national planning and local planning processes. It should be emphasized that new and important experiences/lessons are currently being developed in Tanzania with evolving policies for designating land areas for legalizing/permitting Tanzanian small-scale miners. Additional specific suggestions are below:

- Rigorous research is needed to support national and regional policy development and priority-setting, and should aim to strengthen knowledge on social, economic, environmental and institutional challenges at specific areas where ASGM is taking place. This could be linked with rigorous community consultations to create practical labour formalization and land management plans. Focus could be placed on generating information about miner's organization dynamics; lessons on different spatial arrangements for permitting small-scale miners in different districts; regionally-specific

lessons on how to implement national legal requirements for relinquishing portions of mineral exploration concession after feasibility studies, or for sharing/dividing ownership of contested gold-rich land areas; and taking other measures to clarify policies on land use and ways of addressing misunderstanding between stakeholders. Recent reports suggest that the government needs to re-negotiate mining contracts with companies to develop equitable rural land use and development plans (UNHCR, 2008, Bomani Commission, 2008). Detailed research is needed on each of these contextual priorities. Policy strategies that are driven by participatory bottom-up approaches and informed by detailed knowledge of local challenges are usually more effective than top-down strategies without such knowledge.

- It is recommended that future policies focus on supporting informal miners, recognizing that formalization should not be seen as a prerequisite for accessing public services. It should be stressed that the government has already achieved some successes in pilot projects to work with unlicensed mineworkers (as well as licensed miners) on capacity-building initiatives to date, as seen for instance through the positive experiences of the UNIDO-supported education and capacity-building program in Geita District. Further steps to engage unlicensed artisanal mining groups and adapt policies to support livelihood security could yield considerable benefits, recognizing that formalization challenges are linked with local technology practices and economic constraints.
- It is recommended that the government continue to develop new microfinance services and economic empowerment programs and keep track of the strategies that work best. Multiple types of credit facilities and support services are needed to enable artisanal and small-scale mineworkers to invest in cleaner technology and improve working conditions. As tackling economic marginalization requires innovative approaches and clear knowledge of what works, future studies and policy reviews will be highly useful in ascertaining which types of microfinance programs, SACCOS models (and other credit and savings programs), equipment loan programs and/or third party loan guarantee systems work best with different groups of miners, and how they can be best linked with technology transfer and livelihood planning processes. Multiple partnership models could be developed to address credit constraints in different ASGM contexts.
- Finally, international donors have a key role to play in supporting the engagement of mining communities in participatory consultation processes during development planning and policy development. Recognizing that social, economic, legal and institutional dimensions of ASGM are inextricably connected to technologies and environmental practices, international programs seeking to address technical issues should support the government in addressing these inter-linked realms of policy development, public engagement and dialogue, institutional innovation and outreach.

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