

DELVE COUNTRY PROFILE

# TANZANIA

ARTISANAL AND SMALL-SCALE MINING SECTOR



Partner Institution:



# DELVE

A GLOBAL PLATFORM FOR ARTISANAL & SMALL SCALE MINING DATA





Delve is an initiative to build a global platform for artisanal and small-scale mining (ASM) data. Its vision is a world in which ASM is recognized as an important contributor to global development.

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Cover Photo: © Pact. Members of the Tanzania Women Miners Association, TAWOMA (From left to right: Prisca, Salma, Hadija, Male Team Member) gem mining in the Umba Valley in the Tanga Province, Tanzania.

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## Definitions & Acronyms

**ASGM:** artisanal and small-scale gold mining

**ASM:** artisanal and small-scale mining

**CSR:** Corporate Social Responsibility

**FEMATA:** Federation of Miners' Associations in Tanzania

**GST:** Geological Survey of Tanzania

**LSM:** Large-scale mining

**ML:** Mining License

**NEMC:** National Environment Management Council

**OSHA:** Occupational Safety and Health Authority

**PML:** Primary Mining License

**PSA:** Production Sharing Agreement

**REMA:** Regional miners' associations

**SACCOS:** Savings and Credit Cooperative Societies

**SML:** Special Mining License

**SMMRP:** Sustainable Management of Mineral Resources Project

**STAMICO:** State Mining Corporation

**TAWOMA:** Women Miners' Association

**TMC:** Tanzanian Mining Commission

# Country Profile Snapshot: Tanzania



## MATERIALS MINED BY ASM

(in order of individuals employed per mineral from largest to smallest)

- Gold
- Development Minerals (Limestone, Sand, Gypsum)
- Colored Gemstones, including Tanzanite
- Diamonds
- Salt



## MINERAL GOVERNANCE FRAMEWORK

### Government priorities

- ASM formalization
- Fight against mineral smuggling
- Eliminate the use of mercury in artisanal gold mining

### Laws and policy

- [1979 Mining Act](#)
- [1998 Mining Act](#)
- [2009 Mineral Policy](#)
- [2010 Mining Act](#)
- [2015 Tanzania Extractive Industries Transparency and Accountability Act](#)
- [2017-2019 Amendments to the Mining Act \(Woodroffe, Genasci and Scurfield 2017\)](#)
  - [Written Laws \(Miscellaneous Amendments\) Act 2017](#)
  - [Natural Wealth and Resources \(Permanent Sovereignty\) Act 2017](#)
  - [Natural Wealth and Resources \(Review and Re-Negotiation of Unconscionable Terms\) Act 2017](#)

- [Mining \(Local Content\) Regulations, 2018](#)
- [Written Laws \(Miscellaneous Amendments\) Act 2019](#)

### Government institutions

- Ministry of Minerals
- Mining Commission
- Resident Mine Offices (RMO)
- National Environment Management Council (NEMC)
- Occupational Safety and Health Authority's (OSHA)
- Tanzanian Minerals Audit Agency (TMAA)
- State Mining Corporation (STAMICO)

### Associations and member organizations

- Regional miners' associations (REMA's)
- Federation of Mining Associations in Tanzania (FEMATA)
- Savings and Credit Cooperative Societies (SACCOS)
- Tanzania Mineral Dealers Association (TAMIDA)
- Chamber of Minerals and Energy
- Tanzania Women's Mining Association (TAWOMA)



## ECONOMIC AND DEVELOPMENT DATA<sup>1</sup>

### 2019 Population

- Total: 58,005,463
- Labor force: 27,170,342
- Women: 50.04%
- Men: 49.96%

<b>2019 Classification (GNI per capita)</b>
<p>Low Middle Income</p> <p>GNI per capita Atlas method (current US\$): 1,080</p> <p>GNI per capita PPP (current international US\$): 2,771</p>
<b>2019 Gross Domestic Product</b>
USD 63,177 Billion
<b>Poverty headcount ratio (2011 purchasing power parity)</b>
<p>Population on/below poverty line: 26.4% (2018)</p> <p>Population living on &lt; USD 1.90 per day: 49.1% (2017)</p> <p>Population living on &lt; USD 5.50 per day: 91.7% (2017)</p>



LIVELIHOODS

**Employment**

**ASM:** Most recent studies estimating the ASM population could reach 1 million ([Hruschka 2015, 110](#)) to 1.5 million people across the country ([UNECA 2011, 69](#))

**LSM:** Reported as 8,733 in Tanzania in 2008 (URT 2008 cited by [Nyankweli 2012](#))

Formal employment in mining and quarry sector<sup>ii</sup> estimated at 35,900 people in Tanzania in 2016 ([TEITI 2019, 9](#))

**Gender participation in ASM**

Estimated 137,500 women were directly involved in ASM in 2002, representing 25% of the ASM workforce ([Hentschel, Hruschka, and Priester 2002, 21](#))

Women account for 20% of the workforce in Northwest Tanzania ([Merket 2019, 45](#))

# MINING SECTOR SUMMARY

## General Mining Context

Mining activities in Tanzania have a long history that started with Arab traders during the precolonial era (SID 2009). Tanzania's vast mineral wealth, however, began to be identified during the colonization period, through German prospection initiatives. In the last decade of the 19th century, gold was discovered in the Northwest of Tanzania near Geita (Bryceson et al. 2012). Its exploitation started shortly after but was significantly slowed down by the impact of World War I. Artisanal and small-scale mining (ASM) emerged with the country's first gold rush towards the area of Lupa, in Southwestern Tanzania, where gold was discovered in 1922 (Bryceson et al. 2012). Primarily invested in by European settlers, the ASM sector expanded after the 1929 Mining Ordinance, which allowed Tanzanians to access mining and prospecting rights (Bryceson et al. 2014). In the 1930s, large-scale mining (LSM) of gold expanded around Lake Victoria (Bryceson et al. 2012). With the discovery of diamonds in Mwadui in the early 1940s, exploitation of gold declined and by the end of the 1940s, most of the important gold mines from the war period had shut down.

The pre-independence period was characterized by a traditional mixed state-market model on mineral extraction (SID 2009). After Tanzania became independent in 1961, President Nyerere decided the country should develop its mining capacities before attracting foreign companies (Kinyondo and Huggins 2019). The 1967 Arusha Declaration paved the way to a nationalization and state-planning process. In 1969, the mining ordinance bill was introduced and provided the basis for the nationalization of mining enterprises (Hundsbaek Pedersen et al. 2016). The State Mining Corporation (STAMICO) became the operator of numerous mines. The nationalization, and hence the withdrawal of foreign companies, resulted in a decline in extraction and by the early 1970s, Tanzania's official gold production had dropped from three and a half tons in the mid-1960s to 10 kilos (Bryceson et al. 2012).

As a result of the shrinking LSM sector, a large number of miners shifted to artisanal and small-scale mining. ASM activities intensified in the 1970s with the decline of industrial gold and diamond production and the discovery of several gemstone sites by small-scale miners (SID 2009). However, the sector remained outside the legal framework with extracted minerals being smuggled out of the country, mostly to Kenya (Bryceson et al. 2012). The 1979 Mining Act opened licensing opportunities to small-scale miners which led to recognition and further growth of the ASM sector (Merket 2019, 45). The Act offered small-scale mining new legal recognition, and ASM-dedicated areas were officially demarcated (SID 2009). Low agriculture commodity prices further led many Tanzanians seeking alternative livelihoods to enter the ASM sector (Schoneveld et al. 2018). In 1983, the government's Small-Scale Mining Policy Paper encouraged citizens to engage in mining as a source of income and to establish associations in each region to connect miners with government institutions (UNEP 2012). Tanzania estimated 100,000 small-scale miners in 1987, a number that increased to 300,000 in 1992 and 550,000 in 1995 (Ministry of Energy and Minerals 1996, i). It is estimated that about 95% of Tanzania's mineral production originated from ASM in that period (World Bank 2015, 3).

Promoted by international financial institutions, the 1997 Mineral Policy Act followed by the 1998 Mining Act constituted a turnabout in Tanzanian resource management. The new legal framework focused on foreign investments and granted economic and fiscal concessions to attract multinationals in the LSM sector (Kinyondo and Huggins 2019). A rapid development of LSM occurred and from 2000 onwards,

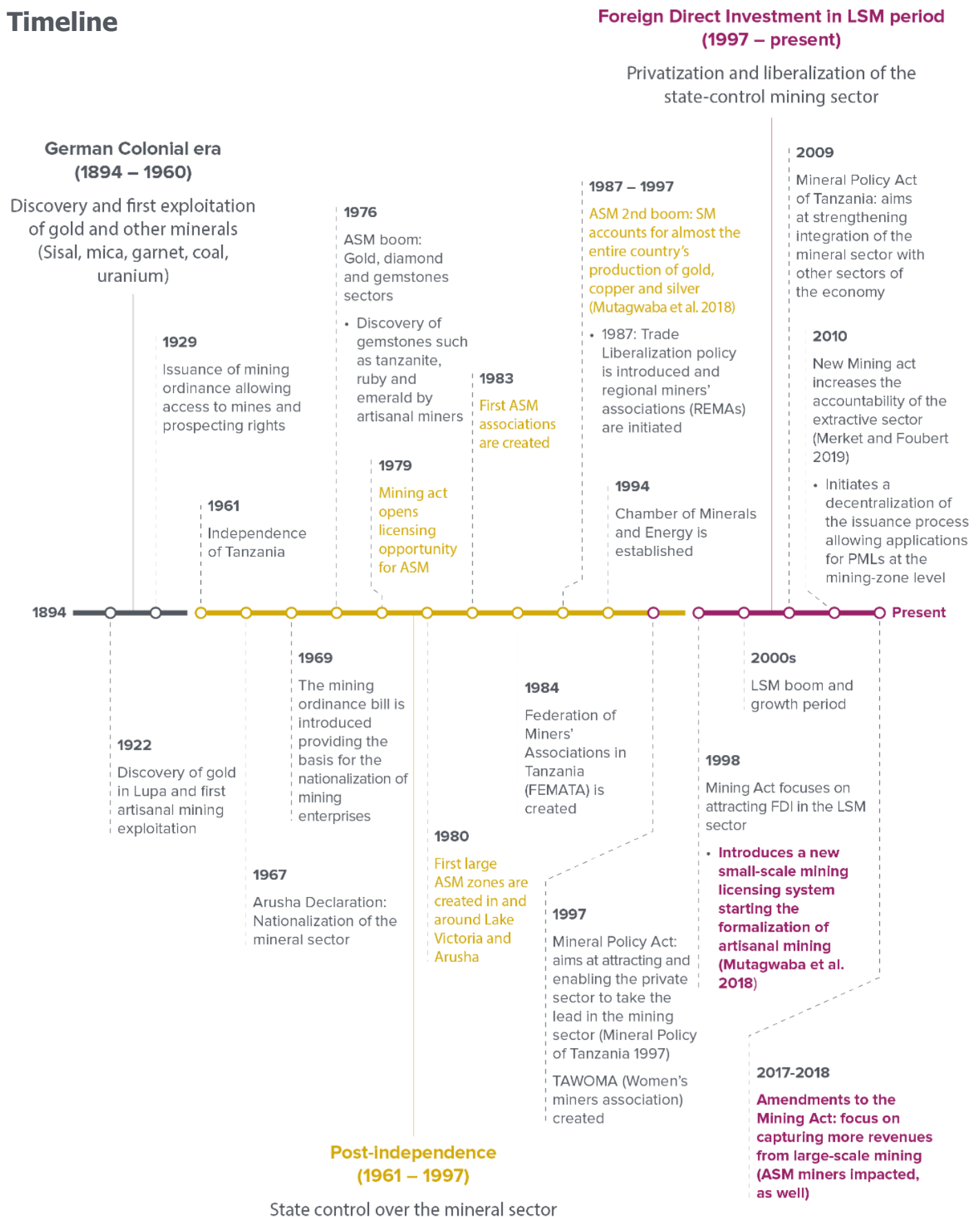
Tanzania experienced a mining boom ([Merket and Foubert 2019](#)). The country became the sixth largest gold producer in Africa with 42.3 tons produced in 2018 ([Refinitiv 2019](#), 24-35). Between 2001 and 2012, the contribution of the mining sector to the GDP increased from 1.8 to 3.5 percent ([UN Women 2016](#), 31) and in 2015, LSM represented one third of Tanzania's export earnings.

Tanzanian artisanal and small-scale miners mainly extracted gold and gemstones, but the diamond sector experienced growth in the 2010s([Hruschka 2015](#)). Overall ASM has accounted for the vast majority of employment in the mining sector ([Merket and Foubert 2019](#)). However, tensions have increased within ASM communities in the last five years as evictions from mineral-rich areas and incidents between ASM and LSM workers have become more frequent ([World Bank 2015](#), 3). In 2010, a new Mining Act was passed to address widespread criticisms regarding the limited national benefits and weak accountability of the LSM sector ([Bryceson and Geenen 2016](#)). In 2015, Tanzania adopted the Extractive Industries Transparency and Accountability Act, which established local content and Corporate Social Responsibility (CSR) requirements for large scale mining operations ([Merket and Foubert 2019](#)).

The election of President Magufuli in October 2015 initiated a movement towards "resource nationalism" intended to maximize national benefits and government revenues from the mining sector. Between 2017 and 2018, the government promulgated three amendments to the 2010 Mining Act aiming at renegotiating mining contracts and increasing tax and royalty payments ([Huggins and Kinyondo 2019](#)). In an attempt to tackle mineral smuggling and develop national processing capacities, the executive office banned the exportation of mineral ores and concentrates ([Merket and Foubert 2019](#)). The above measures fueled disputes between the government and foreign mining companies, most notably Acacia Mining, the country's biggest gold producer ([Chachage 2017](#)).



# Timeline



## ASM context and livelihood

ASM offers direct employment to an estimated 1 million ([Hruschka 2015, 110](#)) to 1.5 million ([UNECA 2011, 69](#)) people in Tanzania. The number of miners and the production on ASM sites fluctuates according to seasonality, impacting revenues. The gold sector is generally the most profitable commodity in for the sector. Most miners have a low literacy level, a condition that hampers on their productivity. Between 20-30% of the ASM workforce are women ([UN Women 2016](#)). However, compared to their male counterparts, women are discriminated against with respect to land, finances and allocation of mineral rights. In order to improve their economic and social welfare, women miners have been united in the Tanzania Women Miners Association (TAWOMA). Overall, the health and safety of miners at ASM sites remains problematic as local government institutions lack the capacity to conduct effective health and safety enforcement and monitoring. The use of mercury in ASGM remains a challenge for the sector along with a lack of proper environmental management practices at ASM sites.

### EMPLOYMENT

Estimates on the number of people directly employed in artisanal and small-scale mining in Tanzania vary with the most recent estimate stating between 1 million ([Hruschka 2015, 110](#)) to 1.5 million miners ([UNECA 2011, 69](#)). As a comparison, the formal Tanzanian mining and quarrying sector<sup>iii</sup> was estimated to employ 35,900 people in 2016 ([TEITI 2019, 9](#)) with the most recent large-scale mining sector estimate in 2008 reported at 8,733 people (URT 2008 cited by [Nyankweli 2012](#)).

In Tanzania, the ASM sector is characterized by a three-tiered organizational structure ([Merket 2019](#)). Primary Mining License (PML) holders often play a role of financiers and subcontract the management of mining operations to pit owners ([Bryceson and Geenen 2016](#)). The latter hire diggers and workers and provide them with food and equipment. Most of the ASM labor force is constituted by casual and highly mobile workers. Pit owners usually bearing most of the investments and risk ([Merket 2019, 33](#)). Revenues are generally distributed through Production Sharing Agreements (PSAs) rather than fixed wages paid in cash. Extracted rocks or sands are divided in bags that are divided among actors. 30% of the production are allocated to PML owners who are in charge of paying governmental fees, 40% go to pit owners and 30% are distributed between miners ([World Bank 2015, 3](#)).

The number of miners and the production on ASM sites fluctuates according to seasonality, which also impacts revenues. Gold mining is the most profitable activity for ASM workers who can earn up to USD 110 per month ([Merket 2019](#)). On the other hand, salt can only be produced during the dry season and average income therefore vary between USD 25 and 31 per month ([Merket 2019](#)). Processing is mostly realized by day-laborers who are either paid via daily wages or according to their output ([Merket 2019](#)). In gold processing, women are often involved in ore crushing, an activity that can generate a monthly income of USD 54-70 in times of good production ([Merket 2019, 43](#)).

A study conducted in 2014 suggests that the literacy level among miners is low. This hinders miner's productivity and may prevent them from accessing capital support from financial institutions. It is also

noted that women have a lower level of education compared to men which further marginalize their access to financial institutions ([Protace 2014](#)).

## GENDER PARTICIPATION

Studies tend to estimate women's participation between 20 and 30% of the ASM total workforce, depending on the region and sub-sector ([UN Women 2016](#), 34). According to a 2002 report, it was estimated that 137,500 women were directly involved in ASM in 2002, representing 25% of the ASM workforce ([Hentschel, Hruschka, and Priester 2002, 21](#)). A study between 2017 and 2019 in Northwest Tanzania estimated that 20% of the workforce were women ([Merket 2019](#), 45). The highest participation of women takes place in the salt subsector where they account for 38% of the ASM population ([UN Women 2016](#), 32). While employment is difficult to balance with familial requirements, self-employed women also face impediments related to a lack of capital, equipment and technical skills ([UN Women 2016](#)).

In ASM, women tend to earn less than men and face a glass ceiling. Mining is traditionally a male-dominated industry where women are discriminated against with respect to land and allocation of mineral rights, which are normally used as collateral. Although women perform various labor-intensive activities including mineral processing, cultural beliefs and traditions often prevent them from entering pits, and in some cases, mining sites. Thus, they are frequently associated with transporting and processing materials ([Mutagabwa et al. 2018](#)). Women are also denied any control over accessing financing as customary practices requires consent from their spouse or male relative to obtain a loan ([Mutagabwa et al. 2018](#)). This inability to access finance prevents them from investing in equipment and technology needed to grow their business ([Weldegiorgis, Lawson and Verbrugge 2018](#)). In the gold mining sector, for example, many women often tend to collect minerals in abandoned mine waste instead of mining primary deposits because they lack capital to investment in necessary equipment for extraction ([Mutagabwa et al. 2018](#)).

Yet, often involved in processing activities, women also face high health risks such as those related to the use of mercury in gold processing ([Merket 2019](#)). Women may be exposed to additional hazards such as coming into contact with chemicals that are dangerous for fetuses and breast-feeding infants. Women involved in assembling salt from salt farms, for example, have been reported to have had miscarriages ([Mutagabwa et al. 2018](#)). Children have also been reported to be working in mining areas or being carried by their mother while they are working in mines. This increases the risks for children to contract illnesses or be exposed to harmful chemicals that impact development. Moreover, most of the ASM sites lack dedicated sanitary facilities furthering harmful exposure ([Merket 2019](#)). Women are also often indirectly involved in mining activities, occupying "collateral roles", for example providing food and services around mining sites. In this perspective, ASM activities do provide women with indirect livelihood opportunities.

Since 1997, women artisanal and small-scale miners have come together in an association, TAWOMA ([Tanzania Women Miners Association](#)), based in Dar es Salaam. The organization's mission is to improve economic and social welfare of women miners through access to finances, technical and marketing services as well as lobbying and advocacy ([Mutagabwa et al. 2018](#)).



## LABOR, SAFETY AND WORKING CONDITIONS

An overall low level of mechanization characterizes small-scale mining in Tanzania although more recently, the ASGM sector, especially gold processing facilities, has experienced advancements in equipment ([Merket 2019](#)).

Health and safety remain problematic on ASM sites. There is a lack of clean drinking water available at most sites. Miners are often exposed to noise, dust, smoke and mercury pollution. Improper water management and the use of mercury near residential areas also represent a threat for surrounding communities. Mercury remains in widespread use in gold processing in Tanzania, exposing mining communities – including women and children - to the neurodegenerative risks associated with this exposure. A 2019 survey by IPIS in Northwest Tanzania showed that almost all gold processing sites use mercury, with children under 15 engaged on 18% of them. Mercury-gold amalgamate is commonly burned in open air settings, without protective equipment and often near residential areas therefore increasing the exposure to toxic fumes for community members ([Merket 2019](#)). In Northwest Tanzania, the use of mercury is particularly concerning as it pollutes the waters of Lake Victoria and bio-accumulates in fish which many African nations rely on for their diet ([IPIS 2019](#)). Moreover, an increasing concern is the recent proliferation of cyanide leaching plants for mineral processing in the country. These CN plants have the potential to exacerbate the environmental contamination of mercury in tailings, particularly by further mobilizing this mercury into the hydrological cycle. This can lead to sites of mercury methylation where bioavailable compounds of mercury are generated, with dire consequences for aquatic life and even humans, when this mercury is bioaccumulated in fish tissues.

Resident mine offices and district councils have limited capacity to conduct effective health and safety enforcement and monitoring ([Mutagabwa et al. 2018](#)). In addition, primary mining license holders often do not have an established system that allows them to conduct health screening on their sites putting miners at higher risk.

Accidents are not uncommon on Tanzanian ASM sites and tend to be unreported by miners, who fear that mining authorities might suspend activities ([Merket 2019](#)). Risks are linked to improper shaft support, negligent use of explosives and widespread lack of safety awareness and protective equipment ([Merket 2019](#)). Most accidents are related to pit collapses. In March 2019, seven miners died in the collapse of the abandoned pit they entered in ([IPIS 2019](#)). Falls are also an issue as pits can reach a depth of 100 meters. Unmarked abandoned pits also present a danger for neighboring communities.

In Tanzania, unlike LSM companies, owners of PML are not required to develop formal Environmental Impact Assessments (EIAs) and mine closure plans and are only responsible for development of a basic Environmental Protection Plan (EPP) as stipulated by the 2010 Mining Act. The Tanzania government recognizes that ASM miners do not have the technical and financial ability to conduct formal environmental impact assessments and prepare environmental management plans. ([UNEP 2012](#)). Most of ASM miners lack knowledge of how to conduct an EPP and this results in poor management of mining processes and lack of mine closure plans ([Mutagabwa et al. 2018](#)).

## Key Minerals

Key ASM minerals in Tanzania are gold, development minerals, colored gemstones (including tanzanite of which Tanzania is the world's only producer), salt and diamonds. In 2014, the total value of small-scale mining production was estimated around USD 123 million, highly contrasting with the USD 1,915.8 million generated by medium and large-scale mining ([World Bank 2015](#), 3). Low levels of mechanization and the lack of geological information in the ASM sector coupled with the rapid development of the LSM sector contribute to this trend.

### GOLD

Artisanal and small-scale gold mining (ASGM) represents the largest sub-sector in Tanzania. Most of small-scale gold mining activities are concentrated in the Lake Victoria Greenstone Belt in the North and the Ubendian system in Western Tanzania ([Hruschka 2015](#)). Although ASGM generates income for numerous communities, in 2015 small-scale mining was estimated to only account for 10% of the country's gold production due to low levels of mechanization and an advanced LSM sector ([Kinyondo and Huggins 2020](#), 1). Historical data from the Ministry of Energy and Minerals shows the production value of the ASGM sector varying between 2%-11% of total gold production value between 2004 and 2014 (See Annex Table 1).

The majority of gold mining activities rely on underground operations. The production is shared among actors prior to processing with transactions often taking place close to mining site to limit the risk of robbery ([Merket 2019](#)). Gold trade is highly informal with a minority of actors holding a license, especially in remote areas.

ASGM is characterized by a prevalence of pre-financing mechanisms. Poor access to loans gives rise to informal agreements where capital holders, and mainly gold traders, finance mining operations in exchange for a monopoly on the production ([Merket 2019](#)). Miners' debt bondage and money laundering are two risks associated with this practice. Another trend in ASGM is the rapid development of cyanide leaching plants. As ASM gold processing techniques fail to capture all the gold from the ore, actors (originally from Zimbabwe) saw an opportunity in further processing tailings ([Merket 2019](#)). Although cyanide could represent an alternative to mercury use, its use with mercury-contaminated tailing further exacerbates the toxicity of mercury pollution. Moreover, the recent elevation of tailing prices encourages foreign actors to launch their own mining operations, increasing the frequency in which Primary Mining Licenses (PMLs) are informally subcontracted to non-Tanzanian individuals ([Schoneveld et al. 2018](#)).

### DEVELOPMENT MINERALS

Development minerals such as sand, limestone, dimension stones or gypsum are mined by artisanal operators in Tanzania. Most of building material mining workforce is located in the northern and eastern regions and especially near major towns, where the production is destined. The mining of limestone dates from colonial times but is essentially taking place during the dry season as the processing phase is based often on burning and drying the limestone ([Merket 2019](#)).

## COLORED GEMSTONES

Colored gemstone mining is widely distributed over the country, but most of the gemstone deposits are located on the Usagaran-Mozambique belt. Tanzanite is only mined on the Mirerani mining site, located in the Northeastern Manyara region.

**Tanzanite** currently represents a majority of the value of gemstone mining in the country ([Yager 2015](#)). The Mirerani mining site is divided in four blocks. Tanzanite One Mining, the world biggest tanzanite miner and – supplier, exploits one of these blocks. Small-scale miners operate on the other three blocks ([Huggins and Kinyondo 2019](#)). Despite the presence of a number of specialized and monthly-paid positions, mining operations follow similar organizational schemes to ASGM. Tanzanite trade is concentrated in Arusha but the sub-sector has been subject to a high level of mineral smuggling, especially near the Kenya border ([Huggins and Kinyondo 2019](#)). In an attempt to tackle this phenomenon, President Magufuli began the construction of a wall around the tanzanite mining site in September 2017. Access is henceforth only possible through one single entrance and requires a working contract. While the presence of children decreased thanks to this construction, the administrative constraints led to a reduction of the ASM workforce and might have particularly affected women livelihoods options as they used to provide diverse services on the mining site ([Huggins and Kinyondo 2019](#)).

## DIAMOND

The majority of artisanal diamond miners work in the Shinyanga region in northern Tanzania. According to the Kimberley Process data on rough diamonds, Tanzania produced around 385,650 carats in 2018 for an exportation value of more than USD 81 million ([Kimberley Process Rough Diamonds 2018](#)).

The trade of Tanzanian diamonds is influenced by pre-financing agreements dominated by a network of mainly Lebanese brokers. India, the United Arab Emirates and Belgium are the main export destinations ([Merket 2019](#)). Although diamonds' value is high, the lack of information on diamond valuation and the general absence of mechanization lead to lower incomes compared to the gold sub-sector ([Merket 2019](#)).

## SALT

Salt is another ASM mineral mined in Tanzania. Many mining sites are located along the Tanzanian East coast and have the particularity of presenting a higher participation of women. About a third of all workers are estimated to be women ([Merket 2019](#)).

Salt mining is a seasonal activity that only takes place during the dry season from July to September and December to January ([UN Women 2016](#)). Salt produced is mostly destined for the Tanzanian market and is often traded informally by women and children at bus stops and local markets ([Merket 2019](#)).



## Development & Economic Indicators

The Mining sector is a priority sector in Tanzania's national economic growth objectives. Minerals represented about 45% of the country's total exports in 2011 ([World Bank 2015](#), 3). Accounting for 3.5% of GDP in 2015, the mining sector is expected to contribute to 10% of the GDP by 2025. The government approach regarding ASM consists of increasing its formalization and promoting local entrepreneurship through technical improvements and sustainable management. Data and information exist to demonstrate ASMs contribution to poverty reduction, employment, economic growth and achieving SDGs 1, 2, 5, 8,10, 17. Formalization efforts can contribute to overcoming the challenges that the sector is still facing and further improve its contribution to local and national socio-economic development.

### GENERAL DEVELOPMENT & ECONOMIC CONTEXT

Tanzania is one of the sub-Saharan Africa's fastest-growing economies with a gross domestic product (GDP) that has averaged 6-7% a year during the last decade ([World Bank 2020](#)). However, despite this high growth rate and a decline in the country's poverty rate from 34.4% in 2007 to 26.6% in 2016, the absolute number of people living in poverty has not change due to the high population growth rate ([World Bank 2020](#)). In 2017, 49.1% of the population lived with less than US\$1.90 per day.<sup>iv</sup>

During recent years, Tanzania, which is reputed for its stability in the region, has undertaken considerable political and economic developments and improvements in social welfare of its citizens. The country's overall governance had deteriorated between 2012 and 2017 mainly due to political instability, violence, low enforcement of rule of law, and lack of voice and accountability ([World Bank 2020b](#)). In July 2020, the country's economy had been upgraded from low to lower-middle income status ([World Bank 2020](#)). Yet, the country still faces considerable development challenges in terms of economic distribution, population growth, corruption and a stronger division between party and state ([Ministry of Foreign Affairs of Denmark 2020](#)). Internal factors such as a lack of infrastructure, high illiteracy, poverty, and diseases exacerbate the extent of these challenges. About 2 million children aged 7 to 13 years are out-of-school while 70% of those who are 14 to 17 years do not have access to secondary education ([UNICEF 2020](#)). The average labor force participation rate is at 83% ([Sustainable Development 2020](#)) while at least 400 million people have no basic healthcare, and 40% of the population lack social protection ([UNDP 2020](#)).

Tanzania ranks 159 out of 189 on the 2019 UN's Human Development Index and 128 out of 152 in 2019 Sustainable Development Goal Index. The Tanzania Development Vision 2025 ([Tanzania Ministry of Finance 1999](#)) developed in the late 1990s describes how the country plans to become a semi-industrial and middle-income country by 2025. Through this plan, the country expects to improve people's livelihoods, bring about stability in the country, promote good governance, uplift education, and foster a competitive economy.

Since the end of the 1990s, LSM became a priority within Tanzania's economic growth objectives. Despite an economic diversification strategy, minerals represented about 45% of the country's total exports in 2011 ([World Bank 2015](#), 3). Accounting for 3.5% of GDP in 2015 and 5.1% in 2018 ([Bank of Tanzania 2019](#)), the mining sector is expected to contribute to 10% of the GDP by 2025 ([UN Women 2016](#), 31).




Yet, the development challenges remain as the LSM sector's growth has had a limited impact on rural poverty alleviation, in a country where 65.5% of the population lives in rural areas in 2020 ([World Bank 2020](#)).

**ASM LINKAGES TO DEVELOPMENT INDICATORS**

ASM impacts on Sustainable Development Goals (SDGs) are both positives and negatives. Formalization efforts can help mitigate the ASM sector’s challenges and further realize its potential. Incentives provisions for integration into formal, legalized sector combined with the enforcement of legal requirements and the strengthening of the financial and technical capacity of miners can effectively accelerate poverty reduction in rural areas, provide more decent employment and enhance economic growth. Further, access to basic services and technical services to improve production methods and operations can help ensure clean water and sanitation, the protection and restoration of biodiversity as well as healthier miners and surrounding communities. Undertaking reforms to give women equal rights in the sector and access to ownership and control of overland and financial services in accordance with national laws will help increase gender equality in the sector. Formalized and well-managed ASM can also support other economic activities such as agriculture by creating the capital necessary for the growth of the sector, and thus contribute to reducing food insecurity in Tanzania. Children working in illegal mining who either skip class or drop out school can also be incentivized to return to schools ([De Haan, Dales, Mcquilken 2020](#)).

The table/figure below shows examples of linkages between ASM and SDGs in Tanzania.

**Table 2: ASM linkages to development indicators**

 <p><b>1 NO POVERTY</b></p> <p><i>End poverty in all its forms everywhere</i></p>	<ul style="list-style-type: none"> <li>o ASM is by far the country’s most important rural non-farm activity providing direct job to more than half a million people and generating income for hundreds of thousands more in downstream industries. (<a href="#">Kwai and Hilson 2010</a>).</li> <li>o In Tanzania, poverty is less likely for people involved in ASM compared to other occupations (<a href="#">Fisher et al. 2009</a>). For example, in Northwest Tanzania, gold miners and processors earn about twice the income of an agriculture worker (<a href="#">Merket 2019</a>).</li> <li>o ASM sites have also generated Corporate Social Responsibility (CSR) contributions to local communities (<a href="#">Merket 2019</a>). These contributions range from grants to in-kind contribution including the construction of infrastructures to help improve social sectors such as education and health.</li> <li>o The impact of ASM on vulnerability and resilience is however more complex as miners are also exposed to occupational risks.</li> </ul>
 <p><b>2 ZERO HUNGER</b></p> <p><i>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</i></p>	<ul style="list-style-type: none"> <li>o Division of labor between ASM and agriculture, especially small-scale farming, has become apparent in some rural areas where the two sectors complement each other. While small-scale farming is undertaken for family subsistence, off-farm activities such as artisanal mining generate income that is used to purchase household goods, pay school fees and meet other family needs. (<a href="#">Kwai and Hilson 2010</a>). Further, income from ASM activities is invested to grow agriculture activities. In the 1990s, for example, in Geita, which remains one of the richest gold districts in Tanzania, many miners invested the profits from gold mining in agriculture. (<a href="#">Hilson 2016</a> citing Chachage 1995)</li> </ul>
 <p><b>4 QUALITY EDUCATION</b></p> <p><i>Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all</i></p>	<ul style="list-style-type: none"> <li>o However, agriculture and ASM also compete for resources, including labor, land and capital.</li> <li>o Children have also been reported to be working in mining areas which interferes with their education. Children working in mining may skip class or drop out school (<a href="#">Human Rights Watch 2013</a>).</li> </ul>

 <p><b>3</b> GOOD HEALTH AND WELL-BEING</p>	<p><i>Ensure healthy lives and promote well-being for all at all ages</i></p>	<ul style="list-style-type: none"> <li>o Artisanal ASM is characterized by poor health conditions and low environmental compliance.</li> <li>o The use of mercury by the ASGM sector is one of the major concerns as it impacts the health, water and environment of mining sites and surrounding communities. Three out of the four worst practices highlighted by the Minamata Convention on Mercury are widespread in Tanzania (<a href="#">Merket 2019</a>).</li> <li>o Children are involved in the extraction of mineral ores at some mining sites. They are usually engaged in processing and commercial activities, live on or around mining sites and are therefore exposed to environmental contaminants(<a href="#">Merket 2019</a>) along with their parents.</li> </ul>
 <p><b>6</b> CLEAN WATER AND SANITATION</p>	<p><i>Ensure availability and sustainable management of water and sanitation for all</i></p>	
 <p><b>15</b> LIFE ON LAND</p>	<p><i>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</i></p>	
 <p><b>5</b> GENDER EQUALITY</p>	<p><i>Achieve gender equality and empower all women and girls</i></p>	<ul style="list-style-type: none"> <li>o ASM provides women with livelihood opportunities. About 20% to 30% of its total workforce are women (<a href="#">UN Women 2016</a>).</li> <li>o Nevertheless, persistent patriarchal conceptions remain an obstacle to gender equality in the sector. Women are largely involved in ASM-related activities, but often lack access to capital and tend to occupy lower-level and lower paying positions (<a href="#">Merket 2019</a>).</li> </ul>
 <p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p>	<p><i>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</i></p>	<ul style="list-style-type: none"> <li>o ASM provided employment to up to 1 million Tanzanians in 2015 (<a href="#">Hruschka 2015, 110</a>).</li> <li>o The average income from gold mining and processing lies between USD 82 and 110 per month, or USD 2.7 to 3.7 per day, which is a relatively good source of livelihood in the context of rural areas in Tanzania (<a href="#">Merket 2019, 43</a>). This is, for example, more than double the average wage for agricultural labor in Tanzania, estimated by the Food and Agriculture Organization (FAO) at USD 1.6 a day (<a href="#">IPIS 2019</a>).</li> </ul>
 <p><b>10</b> REDUCED INEQUALITIES</p>	<p><i>Reduce inequality within and among countries</i></p>	<ul style="list-style-type: none"> <li>o Small-scale mining was the major producer of minerals in Tanzania from 1987 to 1997. Officially, mining contributed to 0.2% of GDP from 1995 to 1999 (URT 2008 cited by <a href="#">Mutagabwa, et al. 2018, 24.</a>), a period during which there was a little productivity from the LSM sector.</li> <li>o In the areas around Lake Victoria, where mining of gold is intense, old towns have expanded and new towns have sprung up (<a href="#">IPIS 2019</a>).</li> <li>o However, ASM is associated with difficult working conditions that can be enhanced through implementation of health and safety practices, increased mechanization, access to finance, and legal recognition.</li> </ul>
 <p><b>17</b> PARTNERSHIPS FOR THE GOALS</p>	<p><i>Revitalize the global partnership for sustainable development.</i></p>	<ul style="list-style-type: none"> <li>o Tanzania ASM' development requires a collaborative approach and engagement of diverse stakeholders from the public and private sector including ASM and LSM companies, governments, multilateral agencies, civil society organizations, the local community and scientific research institutions.</li> </ul>

Source: Authors' work based on various sources.



## Mineral Governance Framework and ASM Formalization

Tanzania legal framework assimilates small-scale mining with Primary Mining License (PML) holders who implement mining operations with an initial capital investment of up to USD 5 million and over an area covering up to ten hectares within a renewable seven-year period. Tanzania government is advancing its formalization efforts to maximize the socio-economic potential of ASM through revenue generation. Key government priorities are ASM formalization, the fight against mineral smuggling and elimination of the use of mercury in artisanal and small-scale gold mining.

### MINING STRATIFICATION

Tanzania mining legal framework recognizes the distinct nature of ASM and grants it a different status through distinct provisions concerning mineral rights, health, safety and environmental approvals as well as duration of tenure. These regulations have allowed, among other benefits, some small-scale miners to obtain credit and enter into joint ventures with larger companies ([IFC 2011](#)). However, from a broader development perspective, grouping artisanal and small-scale industrial mining together means that there is no mechanism to provide differentiated support to each according to the different needs that each group may present ([Mwaipopo et al. 2004](#)).

Tanzania legal framework assimilates small-scale mining with Primary Mining License (PML) holders. PMLs are designed for Tanzanian individuals or corporate bodies willing to implement ASM operations with a maximum initial capital investment of USD 5 million. PMLs grant their holders exclusive rights to mine and prospect on areas covering up to ten hectares during a renewable seven-year period ([Bryceson and Geenen 2016](#)). Medium-scale mining operations are regulated by Mining Licenses (MLs). They are dedicated to initial investments between USD 5 and 100 million and allocate the right to mine licensed minerals for a ten-years duration ([Schoneveld et al. 2018](#)). Finally, large-scale mining operations are associated to Special Mining Licenses (SML) for capital investments exceeding USD 100 million. SML have the exclusive right to extract licensed minerals for the estimated life of the ore body ([Schoneveld et al. 2018](#)).

Trading minerals also requires a 12-month license. In Tanzania, a distinction is made between brokers who are only allowed to buy and sell minerals at the national-level, and dealers, authorized to export minerals abroad.

**Table 3. Mining License stratification**

Mining License	Description	Initial Capital Investment	Period	Geographic Coverage
<b>Prospecting License</b>	Required to conduct prospecting operations	Minimum expenditure is USD 100 (industrial & building minerals) & USD 250 (gemstones)	Initially for 4 years with possible 3-year extension	Up to 2,000 km <sup>2</sup>
<b>Primary Mining License (PML)</b>	Small-scale mining. Exclusively granted to citizens of Tanzania	Up to USD 5 million	Up to 7 years (renewable)	up to 10 Ha
<b>Mining License (ML)</b>	Medium-scale mining	USD 5 to 100 million	No more than 10 years	
<b>Special Mining License (SML)</b>	Large-scale mining	More than USD 100 million	For the estimated life of the ore body	

See [Tanzania Mining Act, 2010](#) for details of rights per license

### MINING FORMALIZATION REGULATIONS (ASM FOCUS)

The ASM formalization approach in Tanzania is determined to maximize the socio-economic potential of ASM. ASM formalization began with the adoption of legal and institutional measures aiming at increasing both the productivity and regulation of the mining sector. The promotion of PMLs by the 1998 Mining Act was followed by consecutive attempts to simplify application procedures. In 2010, the Mining Act initiated a decentralization of the issuance process allowing applications at the mining-zone level ([Bryceson and Geenen 2016](#)). A [web-based application portal](#) was launched in 2015. From a total of 35 PMLs in the year 1999, the licensing rose to an average of about 5,500 PMLs per year between 2000 and 2017 ([Merket 2019](#)). After a period of focus on LSM and foreign investments, the election of President Magufuli in 2015 initiated a shift in the political discourse related to ASM. In 2016, 5,000 artisanal miners were facing eviction from an LSM concession in Shinyanga. The President decided to oppose this displacement and revoked the LSM license, using the historical presence of artisanal miners in the area as justification ([Merket and Foubert 2019](#)).

Nevertheless, for the government, the economic relevance of the ASM sector seems to be centered on the tax revenues that formalization could generate ([Kinyondo and Huggins 2019](#)). In 2017, the government increased tax and royalty rates on minerals and gemstones which impacted ASM miners. Preferential rates were set in motion in May 2019 to protect small-scale miners' livelihoods and limit illicit flows ([Huggins and Kanyindo 2019](#)). To curb mineral smuggling and increase security and revenues, the government created a total of 28 regional trading centers intended to give the ASM sector access to state-regulated markets. Because the entry is restricted to trading license holders, concerns persist over the fairness of prices for miners ([Reid 2019](#)). Formalization through legalization represents a cost for small-scale miners but does not necessarily increase productivity ([Kinyondo and Huggins 2019](#)).

The Tanzanian government also engaged in ASM capacity building through training coupled with support activities adding value to the minerals before export. In 2009, the government and the World Bank launched the Sustainable Management of Mineral Resources Project (SMMRP) ([Kinyondo and Huggins 2019](#)). The second phase of this project ended in 2019. Demonstration centers were set up to promote sustainable mining practices and Centers of Excellence were established to develop national processing capacities. The construction of the country's first gold refinery is also currently underway in Geita.

The Tanzanian ASM formalization framework tends to consider the ASM sector through an 'entrepreneurial' lens, setting aside the 'poverty driven' entry factor in the sector ( [Kinyondo and Huggins](#)

[2019](#)). Focusing on revenue generation and strengthening licensed individuals might have a limited impact on poverty alleviation as most Tanzanian miners remain outside of this entrepreneurial framework ([Hruschka 2015](#)). The omission of the subsistence-mining workforce might weaken formalization efforts ([Merket 2019](#)). Access to loans and geological information could be equally important to incentivize formalization and effectively raise the number of licensed workers.

## GOVERNMENT PRIORITIES & KEY TOPIC AREAS

Tanzania government has been focusing on three key priorities:

- **ASM formalization:** Reference section 5.3
- **Fight against mineral smuggling:** Curbing the illegal export of gold and other precious minerals from Tanzania's mining sector has become a national priority especially since President Magufuli took office in 2015 and emphasis was placed on increasing revenues from the mining sector. In 2019 the government directed mineral producing regions to establish centralized mineral trading centers to accommodate miners, government officials, traders, and financial institutions in a formal market and service provision location. The center in Geita was inaugurated in 2019 ([Ng'wanakilala 2019](#)).
- **Elimination of the use of mercury in artisanal and small-scale gold mining:** As a signatory of the Minamata Convention on Mercury, Tanzania has undertaken a national inventory to identify and quantify sources of mercury in the country and is devising a strategy to undertake interventions to phase out the use of mercury. At present the development of a National Action Plan to reduce the use of mercury and the release of mercury by the artisanal and small-scale gold mining sector is being developed in consultation with national stakeholders.

## GOVERNMENT INSTITUTIONS

The 2017-2018 amendments to the Mining Act resulted in several changes within government institutions in charge of mining sector regulation. At the central level, the Ministry of Energy and Minerals was divided into two distinct entities in October 2017. The restructuring of existing bodies led to the establishment of a new Mining Commission in April 2018. Its mandate embraces the management of mining rights as well as the monitoring of mining operations. The Mining Commission also took over the activities of the Tanzania Minerals Audit Agency (**TMAA**). The Amendments also established the Mining Cadaster that is in charge of receiving and processing applications for mining rights and mineral processing permits and maintaining public cadastral maps and cadaster registers. It is not clear where the Mining Cadaster fits into the institutional framework ([Woodroffe, Genasci and Scurfield 2017](#)).

At the decentralized level, several government institutions are in charge of monitoring mining sites, particularly through site visits. Most of these institutions are also involved in training.

The **Mines Resident Officers** ([Woodroffe, Genasci and Scurfield 2017](#)), previously Resident Mine Offices (RMO), are in charge of the day to day monitoring and reporting of mine site activity and enforcement of the Mining Act at the decentralized level. They are to be stationed at every mining site. Since 2017, they are accountable to the Mining Commission. The [National Environment Management Council](#) (**NEMC**) oversees the compliance of mining sites to environmental law ([Schoneveld et al. 2018](#)). The NEMC decides whether the establishment of PMLs requires an Environmental Impact Assessment (EIA) and is in charge of reviewing the EIAs.

The [Occupational Safety and Health Authority's \(OSHA\)](#) mandate relies on the enhancement of mining productivity and the promotion of good health and safety practices on mining sites.

The [Geological Survey of Tanzania \(GST\)](#), the government agency responsible for the acquisition and storage of geo-scientific data and information has been responsible, under the new amendments act of 2017, for establishing the National Mineral Resources Data Bank, where all mineral data are centralized ([Woodroffe, Genasci and Scurfield 2017](#)). The [State Mining Corporation \(STAMICO\)](#) has also, among others, the mandate to promote and facilitate the transformation of artisanal and small-scale miners into well organized, sustainably productive and environmentally conscious mining operations ([STAMICO 2018](#)).

### ASM ASSOCIATIONS AND ALLIANCES

In Tanzania, artisanal and small-scale miners are organized in association of miners, cooperatives or as owners of PMLs. These organizations are actively involved in a variety of ways and have the potential to provide support to miners and to influence change for better policies and practices ([Mutagabwa et al. 2018](#)).

Key associations include:

- **Regional miners' associations (REMA):** Initiated in 1987 by the governments, REMAs were intended to constitute channels through which assistance program could be deployed ([Mutagabwa et al. 2018](#)). However, membership requires individuals to hold a mining license and pay a contribution to the association which excludes a significant number of miners ([Fisher 2007](#)).
- **Federation of Miners' Associations in Tanzania (FEMATA):** National umbrella of REMAs. Created in 1984, the FEMATA is meant to offer a voice to the REMAs at the national level.
- **Savings and Credit Cooperative Societies (SACCOS):** Similarly, to cooperatives, SACCOS are mechanisms through which miners can pool resources to purchase equipment, obtain licenses and share organizational burdens ([Merket 2019](#)). SACCOS operate on mining sites.
- **Tanzania Mineral Dealers Association (TAMIDA)** was formed in 1989 in Arusha to represents mineral dealers. Licensed mineral dealers formed TAMIDA to help improve the mining sector by fostering a more conducive environment for members to buy and export gemstones in line with government directives ([Mutagabwa et al. 2018](#)).
- **Chamber of Minerals and Energy:** Established in 1994, it supports the development of code of conduct for various agencies to ensure compliance with relevant legislation and provide a platform for ASM participants to raise their voices and share their opinions during negotiations with government ([Mutagabwa et al. 2018](#)).
- **TAWOMA (Tanzania Women Miners Association):** Established in 1997 as a non-government organization, the Association seeks to address problems in the Tanzania mining sector generally and specifically for women miners and children. TAWOMA supports women miners through financial, technical, and marketing services that enable them to carry out mining activities at an economically viable level.



## Key Data Needs & Calls to Action

Despite extensive coverage of the sector on the Mining Policy and legislation, there is a lack of official definition of artisanal and small-scale mining. Differentiation between the two sector strata could illuminate key differences in needs, potential services and approaches to support inclusive formalization efforts that reach stakeholders across the ASM spectrum in alignment with the government's current formalization ambition.

In Tanzania, there is little available nationwide data on ASM. The last comprehensive survey on ASM was conducted by the Ministry of Energy and Minerals in 2012 but the resulting survey was unpublished.<sup>v</sup> Since then, the sector has grown, and little is known on its current nature, scope, impact on local and national development and the challenges that it faces. The effective establishment of the National Mineral Resources Data Bank will enable the country to centralize and storage data, information and research on ASM. This data, if regularly updated, could yield considerable benefit as it will enable the government to strengthen an internal knowledge base of the ASM sector, ease cooperation between state institutions, improve governance and support an evidence-based policy development.

Key data and information needs include:

- A comprehensive analysis on the ASM contribution to local development,
- Gender-disaggregated data and analysis,
- The impacts of ASM on the environment,
- An in-depth analysis of informal mining.

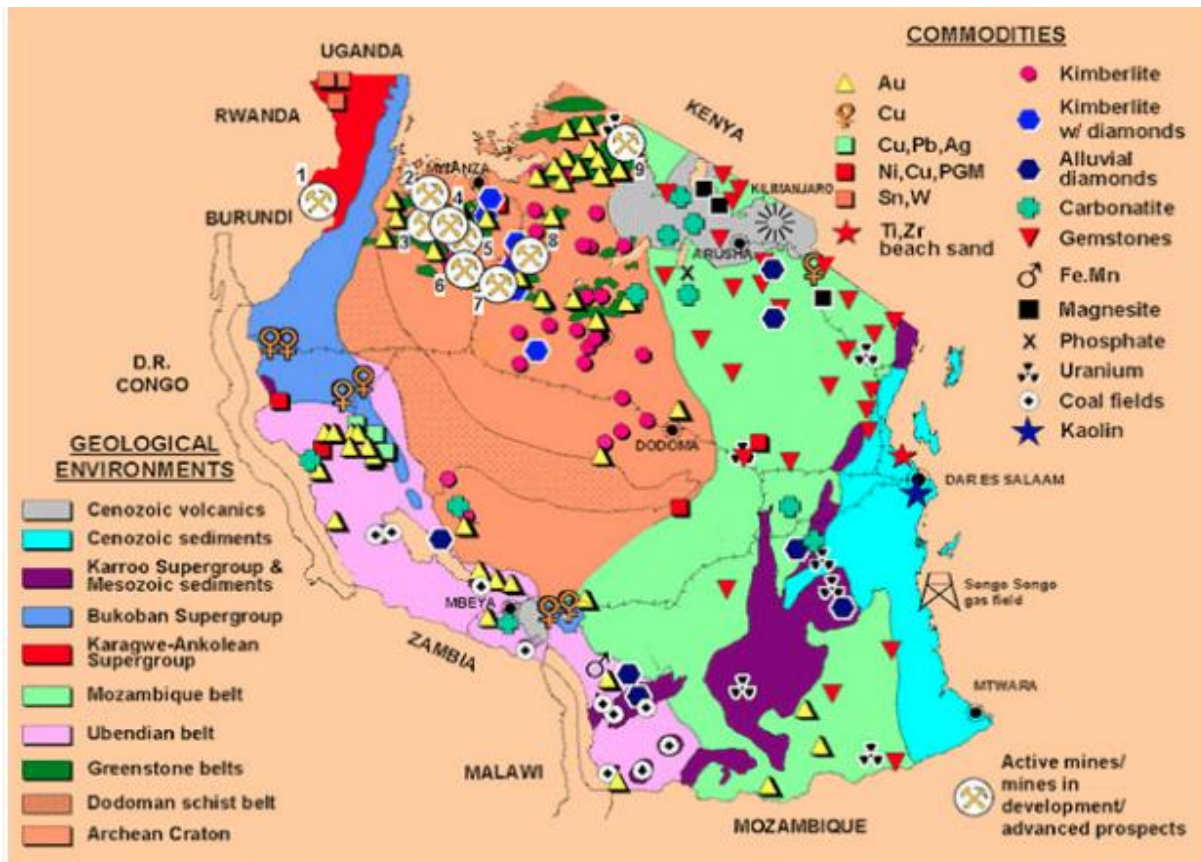
Analysis of the informal mining sector particularly research into the dynamic of subsistence miners has potential to make formalization efforts more inclusive for the most vulnerable mining populations.

# Annex of Charts & Tables

**Table 1: Value of Tanzania Mineral Production by Size of Operation**

Mineral	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Value of large and medium scale mining production (millions of US Dollars)</b>											
Gold	596.6	639.6	772.1	888.9	992.8	1152.2	1436.2	1879.6	1752.7	1640.1	1752.7
Diamonds	33.7	25.4	25.9	28.9	22.4	22.7	16.3	11.3	42.9	82.1	42.9
Tanzanite	24.3	34	36.2	48.5	45.5	15.8	25.4	22.9	39.3	29.2	39.3
Other Gemstone	2.6	6.5	10.3	6.6	4.4	4.8	6.1	9	11.1	20	11.1
Salt	2.1	1.6	2	2.2	2.4	3.5	4	3.7	2.3	5.3	2.3
Phosphate	0.5	0	0.3	0.7	0.4	0.1	0.5	0.5	0.2	0.1	0.2
Bauxite	0	0.1	0.1	0.5	2.1	1	1.4	4.4	2	4.4	
Gypsum	0.1	0	0.1	0.6	0.1	0.1	0.1	1.1	2.5	1.1	
Silver	3	1.6	5.5	5.3	6.7	5	7.7	11.6	17.2	10.3	17.2
Copper	12.2	11.6	19.9	21.1	18.2	11.5	36.7	43.2	42.1	43.7	42.1
Copper Ore	0.2	5	0.6	1.1	0.8	1.6	2.2	1.6			
Marble	8.6	36.7	0.5	1.7	0.8	0.9	0.2	0.9			
<b>Total Value (US\$m)</b>	<b>674.9</b>	<b>720.5</b>	<b>872.2</b>	<b>1011.1</b>	<b>1135.5</b>	<b>1219.1</b>	<b>1537</b>	<b>1984.8</b>	<b>1915.8</b>	<b>1837.6</b>	<b>1915.8</b>
<b>Value of small-scale mining production (US Dollars)</b>											
Gold	19,416,483	13,802,571	95,136,101	113,966,372	104,136,437	123,703,658	71,345,178	66,130,970	89,170,695	53,974,977	57,642,429
Diamond(ct)	2,090,876	3,100,705	5,396,274	6,814,623	6,309,294	5,759,161	4,755,562	2,213,539	2,578,585	6,001,722	6,738,670
Tanzanite	24,254,457	34,016,728	20,757,608	29,200,927	22,103,371	9,091,121	17,777,726	13,462,239	14,101,095	33,129,057	22,483,964
Other Gemstone	2635543	6,513,272	10,256,148	6,597,877	4,356,041	4,848,712	5,495,975	6,309,407	16,831,283	44,234,441	31,525,922
Salt	26,233	19,963	18,226	2,174,077	2,384,155	3,482,201	4,037,962	3,699,291	3,942,215	3,953,181	2,020,089
Gypsum		2,400	5,650	74,066	648,000	84,016	126,074	98,915	216,861	1,733,314	2,517,993
<b>Total Value (US\$)</b>	<b>48,423,592</b>	<b>57,455,638</b>	<b>131,570,007</b>	<b>158,827,943</b>	<b>139,937,299</b>	<b>146,968,869</b>	<b>103,538,476</b>	<b>91,914,362</b>	<b>126,840,734</b>	<b>143,026,691</b>	<b>122,929,068</b>

Source: [World Bank 2015, 31](#)



Source: Mutagabwa and others 2018, p25

## Endnotes

<sup>i</sup> World Bank and OECD National Accounts data files

<sup>ii</sup> Mining and Quarrying includes extraction of minerals occurring as solids (ore), liquids (petroleum) or gases (natural gases) as well as supplementary activities

<sup>iii</sup> Mining and Quarrying includes extraction of minerals occurring as solids (ore), liquids (petroleum) or gases (natural gases) as well as supplementary activities

<sup>iv</sup> World Bank and OECD National Accounts data files

<sup>v</sup> The "Baseline Survey on Artisanal and Small-Scale Mining (ASM) Activities and Preparation of an ASM Database" (2012) by the Ministry of Energy and Minerals has been excluded from this report due to the report's unpublished status.

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