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Wealth Creation Strategies in the Artisanal and Small-Scale Mining (ASM) Sector: A Comparative Analysis of Policy implementation in Selected African Mining Countries towards achievement of the Africa Mining Vision (AMV).

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ABSTRACT

This paper provides a comparative analysis of policy interventions of selected African mining Countries in relation to key ingredients for growth of the Artisanal and Small-Scale Mining (ASM) sector as espoused in the African Mining Vision. The paper analyzes six (6) prescriptions related to wealth creation in the sector. These include: formalization; technical assistance; financing; governance; value-addition initiatives; and market access. The aim was to assess the implementation and effects of these policies on wealth creation in the ASM sector in order to provide further recommendations for policy implementation and areas for further research. The main methodological approach was based on extensive desk review of secondary data. A sample of 5 African mining countries was used in the study. The main criteria for the selection of the countries were mainly: (i) geographical location – to allow for representation of regions (East, Central, North, South and West); (ii) the existence of significant ASM (country with more than 100,000 miners in ASM); (iii) the availability of data; and (iv) network structures to support the study. Data sources included: (i) Written Minerals and Mining Policies; (ii) written Mining Codes or Laws; (iii) documented policy briefs and official mining reports; and (iv) published scholarly papers and reports patterning to ASM. The main finding was that countries had written minerals and mining policies and laws and had sections talking about the need to formalize the ASM secto further, we find that with some differences, the mining codes have laid down processes and procedures for licensing ASM. However, the rate of formalization of ASM is still very low due to lack of mechanisms to reach the miners in their remote mining sites and in some cases due to complex bureaucracy and centralized mechanisms. It was also clear that the license for Artisanal Miners is still very precarious, valid for one or two years while the Small-Scale Miners the license is much better in terms of benefits and validity, up to ten years. The formalization processes need to be flexible and can accommodate the extra-legal systems prevailing in the countries. For example, in Ghana, the land owners share part of the royalty collected by government. We further find that are at different levels of implementation of the prescriptions in the AMV. The conclusion is that full implementation of the Yaoundé Vision as adopted in the AMV, can lead to wealth creation in the ASM sector. The paper therefore, recommends that ASM formalization needs to be accompanied by targeted interventions to improve the sector's economic, social, and environmental performance.

KEY WORDS*: Wealth Creation, Policy, Regulatory Framework, Government Support.*

1. Introduction

This paper provides a comparative analysis of policy interventions in five (5) selected African mining Countries (Angola, Ghana, Mali, Tanzania and Zambia) in relation to key ingredients for growth of the Artisanal and Small-Scale Mining (ASM) sector as espoused in the African Mining Vision (AMV).[1] These include: mainstreaming ASM in Poverty Reduction Strategies (PRS); establishing functional and effective financial schemes for ASM miners; opening-up market opportunities for ASM; enhancing the formalization and the level of organization of ASM miners; improving the delivery of cost-effective and results oriented ASM services in a context of limited resources; raising the profile of the subsector and galvanizing interest of the development community; empowering women and eliminating child labor; and addressing environmental and human health issues, including HIV/AIDS and occupational hazards in a more effective manner (AU, 2009). This paper however, focuses on six (6) prescriptions which are more directly related to wealth creation in the sector. These include: formalization of ASM; government assistance; financing mechanisms; governance; value-addition initiatives; and market access. The aim was to assess the implementation and effects of these policies on wealth creation in the ASM sector in order to provide further recommendations for policy implementation and areas for further research.

This paper draws from existing experiences and secondary data collected from previous publications to draft recommendations that could assist in better addressing the ASM challenges. The paper forms part of the research base for providing informed decision-making to ensure that ASM contributes to sustainable development in Africa.

2. Background

Africa hosts more than one third of the world's mineral resources, and has potential for exploitation of more resources as a great part of the continent has not been properly explored (AMDC, 2017). This potential is not yet harnessed for the benefit of the Africans. The AMV adopted the Yaoundé conversion which recognized that although the continent has natural/mineral resources, it lacks adequate human capital; financial resources; industrial linkages which would promote competitive markets for the mineral resources; infrastructure; and to some extent the political systems, fiscal and mining regimes that would address the key issues in this regard (AU, 2002). The Yaoundé Vision further recognized that this cocktail of challenges needs to be transformed into drivers that could intervene in the entire value chain of the mineral sector. Presently Africa only participates mainly in the production side of the value chain (exploration, mining and pre-processing or treatment) which yields the least from the value chain (ibid). Africa's production segment is dominated by ASM which produces at least 25

[1] The Africa Mining Vision was adopted by Heads of State at the February 2009 AU summit following the October 2008 meeting of African Ministers responsible for Mineral Resources Development. It is Africa's own response to tackling the paradox of great mineral wealth existing side by side with pervasive poverty.

different minerals with more emphasis placed on high value and low volume minerals such as gold, diamond, coltan, gemstones (precious and semi-precious).

In Africa, mining has the potential to contribute significantly to economic growth and to help lift millions of people out of poverty. However, there have been concerns that the benefits of the resource boom are not widely shared and do not always translate into local development. Large scale mining investments have not always led to the generation of local employment opportunities, nor have they contributed significantly to poverty alleviation, which can leave communities feeling excluded from the benefits and the wealth made by extractive industries (IFC, 2014). Thus, for Africa to be able to better harness the mineral sector, it needs "mainly" to intervene in the ASM sector by creating a conducive political and legislative environment for the development of sustainable ASM.

Although, the definition of ASM is rather controversial with minimum consensus on the parameters and criteria that can be used to characterize it, its appearance is unique and "when one sees an ASM site, one will immediately recognize it". Literally speaking, Artisanal and small-scale Mining (ASM) encompasses two distinct mining segments, the artisanal mining and the small-scale mining. The two subsectors may not have anything in common, because in many countries artisanal mining is regarded as illegal, informal, unregulated mining practiced by individual or small group of miners or villagers; while the small-scale mining is regulated, legal and formal and usually ordered by the same rules that apply to the large-scale mining (LSM).

Artisanal Mining is that which is characterized by manual labor, or zero to minimal mechanization; zero to minimal geological knowledge; zero or very low start-up capital; is usually unfavorable due to lack of adequate specific policy and regulatory frameworks; is sometimes formal (with precarious mining passes/ cards) but mostly informal; predominantly not organized (although sometimes organized into associations and mining in designated areas); has a complex and disadvantageous market structure (generally getting less than half of the world market price due to interdependency with sponsors, land owners and buyers); highly mobile (they follow the rushes and booms); precarious, unsafe and unhealthy working conditions; marginalized and usually struggling with conflicting land owners and local communities.[2]

Small Scale Mining is usually formal (with mining title); semi-mechanized; has limited geological knowledge; low to medium start-up capital; regulated by the Mining Code; required to produce an environmental impact assessment study; while in some countries it is hijacked by "investors" who then produce beyond the allowed output levels (e.g. Ghana – illegal miners).[3]

The Yaoundé Declaration (2002) envisages how policies and programs directed towards the ASM sub- sector will contribute to sustainably reducing poverty and improving livelihoods in ASM communities by 2015, in line with the MDGs.[4] The Yaoundé Vision for ASM is deemed to offer

[2] Definition provided by AMDC (2017)
[3] AMDC (2017)
[4] The Yaoundé Vision preceded the Africa Mining Vision (2009)

best practice for enhancing performance of the sector at national, regional and continental levels. It is hoped that over time its adoption and implementation will achieve strong progress towards linking ASM to the overall economic development of the continent and enabling the sub-sector to play a critical role in poverty reduction/ eradication. ASM is also seen as contributing significantly to the structural transformation of economies through forward, backward and side-stream linkages created and enhanced by mineral beneficiation and value addition. The Yaoundé Declaration recognizes the role of ASM as an economic stopgap, an incubator for entrepreneurship and a catalyst for the development of complementary and alternative productive activities necessary for sustainable poverty alleviation in rural areas. It further takes note of the critical role women could play in the development of mineral resources, especially in small-scale mining.

In February 2009, the AU Heads of State and Government, at their Summit held in Addis Ababa, Ethiopia, adopted the Africa Mining Vision (AMV). The vision advocates for "transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development". The vision is essentially a strategy for integrating Africa's mining sector into its broader social and economic development processes, and in this manner, addresses the persistent poverty and lack of development.

3. Methodological Approach

This study was based on extensive desk review of secondary data for selected African mining Countries. This was on the understanding that several organizations have already carried out projects on diversified issues of ASM and have produced relevant publications. The ASM sector has been targeted by researches and institutions that have published a significant number of reports, research papers, press briefs, and project reports which were also thoroughly reviewed. The literature review focused on the description of the mining sector in general and in particular the ASM sector; the existence of policies and Mining Codes or Mining Laws and to what extent they address issues of ASM in line with the Yaoundé Plan of Action adopted into the Africa Mining Vision; as well as how it is regulated and implemented in the specific country.

A sample of 5 African mining countries was used in this study. The main criteria for the selection of the countries were mainly: (i) geographical location – to allow for representation of regions (East, Central, North, South and West); (ii) the existence of significant ASM (country with more than 100,000 miners in ASM); (iii) the availability of data; and (iv) network structures to support the study. The data collection was conducted on the basis of structured Literature Review Guide using logical tables.

Data sources included: (i) Written Minerals and Mining Policies of the five selected African mining countries; (ii) written Mining Codes or Laws of the selected countries; (iii) documented policy briefs and official mining reports from selected countries; (iv) published reports and papers patterning to ASM. Official government documents (policies, laws and reports) were accessed from official websites of sampled countries. Other reports and papers were accessed from official

websites of relevant organizations such as the African Union, African Minerals Development Center (AMDC), and Chamber of Mines for all the 5 countries included in the study. Scholarly papers were accessed through the google search engine.

Data was analyzed using "content analysis". Content analysis is a procedure for the categorization of verbal or behavioral data, for purposes of classification, summarization and tabulation. The content was analyzed on two levels: (1) Basic level or the manifest level where descriptive accounts of the data i.e. this is what was said or documented, but no comments or theories as to why or how these were said; and (2) Higher level or latent level of analysis where more interpretive analysis that is concerned with the documentary evidence as well as what may have been inferred or implied. This involved coding and classifying of data, also referred to as categorizing and indexing and the aim was to make sense of the data collected and to highlight the important messages, features or findings.

4. Findings

3.1: ASM Statistics

This section presents ASM statistics of the countries included in the study in terms of Land area size, population, the number of people employed in the ASM sector, and the Gross National Income (GNI) Per Capita.[5] The stats were obtained from DELVE ASM Database, AMDC and other reputable international sources.

The results show that Angola and Mali are the largest countries in terms of land area measuring about 1.2 million km² each and the smallest is the Republic of Ghana at 238,500 km² in size. In terms of population, the United Republic of Tanzania has the biggest population of 67.4 million people (all ages and sexes) while the Republic of Zambia has the lowest with 20.6 million people (all ages and sexes). In terms of Gross National Income (GNI) per capita, Angola and Ghana have the highest at USD 2,230 and the lowest is Mali at USD 830 as shown in table 1. In terms of growth rate measured in Gross Domestic Product (GDP), Angola's projected growth rate is the highest at 3.08% and the lowest is Ghana at 1.93% (see table 1).

Table 1: Country Demographics (Area Size, Population, Per Capita GNI and GDP Growth Rate)

Country	Area (km²)	Population	GNI Per capita (USD)	Growth Rate (%)
Angola	1.2M	36.7M	2,230	3.08
Ghana	238.5K	34.1M	2,230	1.93
Mali	1.2M	23.3M	830	3.1
Tanzania	945.1K	67.4M	1,080	2.96
Zambia	752.6K	20.6M	1,190	2.76

Source: https://worldpopulationreview.com/country-rankings/countries-in-africa

[5] GNI measures the contribution of nationals to the economy.

In terms of the population of people directly involved in the ASM sector, the results are tabulated in table 2.

Table 2: Estimates of Populations in the ASM Sector by Country

Country	ASM Population			%
	Male	Female	Total	(Female Pop)
Angola	210,000	40,000	250,000	16%
Ghana	600,000	600,000	1,200,000	50%
Mali	470,000	30,000	500,000	6%
Tanzania	1,125,000	375,000	1,500,000	25%
Zambia	375,000	125,000	500,000	25%
Total	**2,780,000**	**1,170,000**	**3,950,000**	**30%**

Source: https://artisanalmining.org/InventoryData/doku.php/country:

The results show that there are a total of about 3.9 million people directly involved (employed) in ASM in the 5 countries included in the study and 30% (1.1 million) are women. The highest absolute number of people directly involved in ASM is in the United Republic of Tanzania of about 1.1 million (all sexes) and the lowest in Angola at 250,000 (see table 2). In terms of proportions to total populations however, the Republic of Mali has the highest at 4% and the list is Angola at 1%.

A review of DELVE DATA revealed that in Angola, although mining is carried out by large and medium scale companies, Artisanal and Small-Scale Mining (ASM) is significant. The ASM sector produces diamond, gold and dimension stones. Angola is the third largest producer of diamonds in Africa. Hydrocarbons(oil) however, completely dominate the country's economy and extractive sector. ASM can only be sanctioned for areas in which industrial-scale mining has been maxed out and deemed no longer economically viable. The Angolan government has approved rights for artisanal diamond mining in a total area of nearly 500 square kilometers in the northern inlands of the country. Angola is currently the largest artisanal Diamond producer by value in the world, although second to the Democratic Republic of Congo (DRC) in the number of carats produced. The Government had granted mining passes or permits to 594 artisanal miners by end of 2013.[6] The country's registered/licensed artisanal miners produced about 935 000 carats in 2013. The artisanal output raked in $332 million and attracted an average price of $355 per carat.[7] The attempt by government to integrate Diamond production from ASM into the Kimberley Process is a very good initiative and deserves replication in other diamond producers in Africa and elsewhere. 332 MUSD diamond production from registered/licensed artisanal miners in 2013 at a GNI per capita of 3,370 suggests 100,000 formal miners; including informal miners probably 200,000 in diamond. Additionally, UBC-14 calculated more than 200,000 gold miners, but this seems quite high. → Total of 250,000 seems a realistic estimation. Min/max: 200,000 as minimum and 300,000 as maximum appear realistic Female participation: No data

[6] *https://artisanalmining.org/InventoryData/doku.php/country:*
[7] ibid

but as commonly lower in diamond ASM than in ASGM, perhaps 15% ? → 40,000 ASGM: as above, estimated as 50,000.[8]

In Ghana, DELVE-19 protracts data from HIL-16, but (reported) gold production has significantly increased (from 4.1 tons in 2014 to 65 tons in 2021), 1,100,000 is considered as MIN, with MAX extrapolated as 1,300,000. Total population estimate therefore somewhere in between, i.e. 1,200,000 Female participation: "45–75% female miners" estimated as 600,000. Gold: As per GEF-21, 500,000 - 1,000,000. Dataset uses average of 750,000.[9]

In Mali, latest data is from Hilson 2016, although a higher number was reported by Hilson in 2015 quoted in ARM-18. → 500,000 Min/max: Hilson 2015 indicates "at least 500,000", therefore population could be higher. But ASM population could also have decreased due to armed conflict. → 400,000 - 600,000 Female participation: no data. Might be low in a mainly Islamic country and has possibly further decreased due to armed conflict insecurity. Best guess 5+% → 30,000 Gold: all data is for gold → 400,000.[10]

In the United Republic of Tanzania, total ASM population of 1.5 million (upper range of estimates) appears reasonable when including development minerals. → 1,500,000 Min/Max: Lower range estimates are 1 million. Upper might exceed the 1.5 million. → 1,000,000 - 1,700,000 Female Participation: 20-30% often mentioned. 25% of 1.5 million =~ 375,000 Gold: Rather in the range of lower estimate (as also UBC-14) → 1,000,000.[11]

In the Republic of Zambia, total: Apparently historic/statistic estimates, based on increasing initial estimates of ILO-99, do not take into account "illegal" (i.e. informal) miners (See AMDC-17) Sitting in-between of DRC, Tanzania and Zimbabwe, the AMDC-17 estimate is much more plausible → 500,000 Min/max: AMDC-17 indicates "over 500 thousand" additional to 400 formal mines. → 500,000 - 600,000. Female participation: no data. Likely in the magnitude of neighboring countries (20-30%). In videos, a lot of women can be observed. → 125,000. Gold: no quantitative data. According to the Minamata Initial Assessment, there are no emission from ASGM. Video evidence however shows local communities engaged in ASGM. Possibly ASGM is not reported because of being considered "illegal" in this country with an important LSM sector. It appears reasonable to assume that at least 1% of the miners are ASGM miners → 5,000[12]

3.2: Formalization

One of the issues raised in the Yaoundé Vision was the informal nature of the ASM sector, making mining activities to be conducted in an uncoordinated and dangerous way, which poses a hazard to humans and the environment. Some of the negative aspects of unregulated ASM activities

[8] DELVE (2021)
[9] DELVE (2019)
[10] ibid
[11] ibid
[12] ibid

include poor health and safety practices, child labor, pollution and contamination of water systems. Therefore, it was recommended that countries needed to work towards formalization of the ASM sector in order to integrate it into national development agenda.

In this study, we find that countries had written minerals and mining policies and laws. All mining policies had sections talking about the need to formalize the ASM sector (see table 3). In this review, formalization was assessed in terms of licensing ASM. we find that with some differences, the mining codes have laid down processes and procedures for licensing ASM (table 3). However, the rate of formalization of ASM is still very low due to lack of mechanisms to reach the miners in their remote mining sites and in some cases due to complex bureaucracy and centralized mechanisms. It was also clear that the license for Artisanal Miners is still very precarious, valid for one or two years while the Small-Scale Miners, the license is much better in terms of benefits and validity, up to ten years. The formalization processes need to be flexible and can accommodate the extra-legal systems prevailing in the countries. For example, in Ghana, the land owners share part of the royalty collected by government.

3.3: Governments Support to ASM Sector

This section presents results in terms of government assistance; financing mechanisms; governance; value-addition initiatives; and market access. It compares policy implementation in these key ingredients for the performance of the ASM sector as recommended in the Yaoundé Vision (2002) and adopted in the Africa Mining Vision (2009).

We find that governments had some form of assistance to ASM sector but at varying degrees. In Angola, government provides Production tools; encourages the formation of associations and cooperatives; facilitates market access and establishment of specialized shops for buyers; and has stablished the Gold Authority to regulate and guide the gold production and its commercialization. In Ghana, the government compiles a register of the small-scale miners and prospective small scale miners specifying particulars that may be determined by the Minister; supervises and monitors the operation and activities of the small-scale miners and prospective small-scale miners; advises and provides training facilities and assistance necessary for effective and efficient small scale mining operations, and facilitates the formation of Small-Scale Miners Associations. In Mali, the government reorganized ASM according to the ASM Forum, 2014 directives; and used to provide technical assistance to ASM (not functional any more due to lack of finance). In the United Republic of Tanzania, provides the following services: Credit facilities and grants; Equipment hire/purchase centers; Training and skills enhancement; and making available geological data to ASM. In Zambia, it was reported that the government supports ASM in the following manner: Provision of technical extension service (by the regional and central level) on mining methods geological assessment and support on how to comply with law. Usually under the inspection services, the Ministry guide miners on how to comply with law and assist the ASM on conflict resolutions, etc. (table 4).

We further find that in those countries such as Angola and Ghana, where the reach for government support to ASM was considerably high, there was a corresponding increase in Gross National Income (GNI) Per Capita (see table 1). Although the scope of this study did not include causality, there is reason to believe that ASM sector contributed to the levels of GNI achieved in these countries since the mining sector in general contributes significantly to national incomes.

Box 1: Extract from the Minerals and Mining Policy of the Republic of Angola

The Government is still working towards understanding the nature of ASM within Angola, especially in gold mining and from there, will be able to build knowledge and a shared understanding of the sector with all stakeholders, including the LSM. ASGM (Artisanal and Small-Scale Gold Mining) is not yet requisitely structured. Nevertheless, the government has put in effort by creating the Gold Authority Agency which is responsible in regulating gold production and commercialization in Angola. This entity has the potential to organize the entire value chain of gold production from mining to market and value addition initiatives in the country. It is recommended that other commodities that are produced by ASM also deserve government attention, e.g. aggregates, industrial minerals, sand and others. There is also need to map and separate the mandates between the government institutions such as FERANGOL, Gold Authority Agency, INDIAMA and others.

Box 2: Extract from the Minerals and Mining Policy of the Republic of Ghana

Government recognizes that small-scale mining operations undertaken by Ghanaians offer opportunities to support rural livelihoods, develop entrepreneurship and provide a source of industrial raw materials. However, small-scale miners must be assisted in their efforts to operate in a technically, economically and environmentally sustainable manner. In this regard, Government has implemented a range of measures relating to the regulation and promotion of small-scale mining with some positive results. These include: (a) the establishment of district offices manned by Minerals Commission personnel to give technical assistance to small-scale miners; (b) the geological investigation and demarcation of areas suitable for small-scale mining; (c) provision of finance to small-scale miners to improve their operations; (d) education, training and provision of logistics to enhance the corporate governance, efficiency and safety of their operations and (e) effective collaboration with all stakeholders. Government's intention is to build upon these achievements to implement further initiatives to enhance the development of an efficient, modern and sustainable small-scale mining sector, involving both precious and industrial minerals.

Box 3: Extract from the Mining Policy Brief of the Republic of Mali (December, 2018)

'Formalizing' artisanal mining clearly needs a suitable legal and institutional framework to improve the lives of artisanal miners and reduce environmental impacts. But this is not just a legislative issue; a socio-political transition must occur through dialogue. Artisanal miners are a diverse group with varying motivations, abilities to mobilize funds and technical capacity. Policymakers should focus on collecting reliable data on Mali's artisanal miners during the process of mining reform. Meanwhile, in exchange for greater legal recognition of their rights and the concrete advantages that should come with respecting the law, artisanal miners must increasingly accept the government's authority,13 especially relating to the use of mercury and the impacts on landscapes and waterways. But artisanal miners may need assistance to acquire new equipment and reduce their environmental footprint. Government could provide incentives for miners to comply with environmental, tax and licensing rules, such as support to acquire machinery. Special mining corridors for artisanal miners have been established. But miners have no exclusive right of occupation that would allow them to oppose any grant of mining titles for industrial exploration or extraction where they work. Instead, they are displaced when an industrial mining permit overlaps an artisanal mining corridor. This causes conflict between mining companies and artisanal gold panners, and distrust between artisanal miners and the government. Policymakers should adapt legislation to protect the rights of artisans to access mineral resources.

Box 4: Extract from the Mining Policy of the United Republic of Tanzania

Since 1997, the Government has taken efforts to formalize artisanal miners into small-scale miners and provide extension services. Inspite of these efforts, the contribution of small-scale mining to the economy is insignificant. This is due to the use of inappropriate technology and lack of capital. The Government is still committed to support small scale mining through provision of supportive extension services and establishment of mechanisms for accessing capital. The objective is to support and promote development of small scale mining so as to increase its contribution to the economy. Specifically, the government want to achieve the following: (i) To develop and implement programs to transform and upgrade small scale mining into organized and modernized mining; (ii) To cooperate with stakeholders to facilitate small-scale
miners to access market for minerals, geological information, technical and financial services; and (iii) The Government will continue to collaborate with stakeholders to ensure that small scale miners

Box 5: Extract from the Zambia Mining and Mineral Development Policy (2022)

The government intends to formalize the ASM sector and encourage the formation of cooperatives in gold, manganese, copper, gemstone, and industrial mineral exploration in order to maximize its socio-economic benefits. Illegal, informal, and unsustainable operations characterize the ASM sector. To address this, the government will work to provide ASM stakeholders with access to geological data, markets, capital, and modern equipment, as well as partnerships with local and foreign investors. Sector-specific regulations for the sector will also be developed to promote formalization and sustainable growth.

The government assistance to ASM is fundamental for the sustainability of the sector and to be able to bring the sector to implement environmental standards and to adhere to best mining practices, however, this should not be used as conditionality for formalization because if two sites operating side by side, one formal and one informal, all effort being put into the formal site will be meaningless if next to it an informal site continues operating and polluting the environment, for example. The Government would benefit more by assisting the two sites simultaneously while raising awareness about the need for formalization. Formalization is a process and should not be regarded as a means for benefiting from government assistance, because the government assistance may not be sustainable for several reasons. Formalization needs to live beyond government assistance to turn the sector in a sustainable one.

Table 3: Highlights of the Key Licensing Requirements for ASM

Country	Licensing Requirements	Other Prescriptions
Angola	- Authorization by the Minister - Only for Angolans - For strategic minerals, the applicant must be resident of the mining area for at least 10 consecutive years.	- It is not allowed to detain more than 1 Artisanal Mining Area (Article 178). - Artisanal License holder is to comply with Environmental legislation (Article 184). - The license holder has all rights on minerals occurring in his area (Article 186)
Ghana	- Application of SMM license shall be made in a form to the Minister and may be submitted to the office of the commission in the designated area and shall be submitted with a fee. - The applicant must be: (a) A citizen of Ghana; (b) Attained the age of 18; and (c) Registered by the office of the commission in the area designated under Article 90(1) - At public or state interest to encourage small-scale mining in the area, the Minister may by notice in the Gazette designate a SSM area (Article 89).	- The license grants exclusive right to the holder. - There is established in every designated area, a SSM committee (Article 92) to assist the District office effectively monitor, promote and develop mining operations in the designated area. - The SSM license holder shall observe good mining practices, health and safety rules and pay due regard to the protection of the environment during mining operations (Article 93). - SSM shall not use explosives without the written permission of the Minister (Article 95). - A small-scale miner may purchase from an authorized dealer the quantities of mercury that may be reasonably necessary for the mining operations (Article 96).
Mali	The following key requirements must be met when applying for an exploitation permit in Mali: - confirmation that the operator has the financial and technical capacity to carry out the exploitation activities and meet its environmental, health, safety and hygiene obligations;	- If a company or individual has legal mineral rights to a property, all artisanal miners are required to cease work and move to a different location. - The artisanal mining license allows the holder to work up to 15 meters depth.

	- confirmation that the operator is not involved in fraud, money laundering, corruption or any infringement of environmental, social or safety rules; and - confirmation of the operator's solvency.	- The title holder of artisanal mining license is obliged to rehabilitate the mine site before abandoning the area (Article 49, Mining Code, 2012). - An Environmental Impact Assessment (EIA) must also be submitted in order to obtain a license for operating a small-scale mine.
Tanzania	- In accordance with Article 8 of the Minerals Act of the Laws of the United Republic of Tanzania, a Primary Mines License (PML) for any minerals shall only be granted to an individual, partnership or body corporate if: (a) Citizen of Tanzania (b) Partnership composed exclusively of citizens of Tanzania. (c) Body corporate, it is a company and: (i) Membership composed exclusively of citizens of Tanzania (ii) Directors must all be citizens of Tanzania. (iii) Control of the company both direct and indirect, is exercised from within Tanzania and by Tanzanians - Any person not qualifying under Article 8, may apply to the Zonal Mining Officer for a grant of a PML (Article 54). - The Zonal Mines Officer of a respective zone, may grant application for a PML (Article 55)	- Primary Mining License (PML) means a license for small-scale mining operations whose capital is less than US$100,000 or its equivalent in Tanzanian Shillings (Article 4). - PML confers exclusive rights. PML holders, considering section 49 as the case may be, apply to the Commissioner, to convert the license or licenses to a Mining License (Article 58). - A mining license for mining gemstones shall only be granted to applicants who are Tanzanians (Article 8). - No person shall export from Tanzania, any mineral or minerals unless he is a mineral right holder, or a licensed dealer (Article 18).
	- Artisanal Mining License is exclusive for Zambians.	- The Director may grant an Artisan's mining license rights to the chief of an area provided that in the area, mining operations are being

Zambia	- Applications for an Artisan's right are made in a prescribed manner and form upon payment of a prescribed fee (Article 74). - An application for a prospecting permit shall be made to the Director of Geological Survey in a prescribed manner and form upon payment of a prescribed fee. - A holder of a prospecting permit may, at any time during the currency of the permit, apply to the Director, for a Small-Scale Mining License over any part of the prospecting area, in the prescribed manner and form upon payment of the prescribed fee (Article 54). - The application should have a description of the proposed program of mining operations, which shall include a forecast of investment, the estimated recovery rate of ore and the applicant's proposal for its treatment and disposal (Article 54) - The small-scale Gemstones license is guided by Articles 64-73.	carried on a community basis in accordance with customary practices (Article 75) - Artisanal license gives exclusive rights to mine according to its terms in respect of the mineral specified in the permit within the aera for which it is granted (Article 78). - The applicant of SSM has, or has secured access to, adequate financial resources, technical competence and experience to carry on effective small-scale mining operations (Article 55). - The proposed program of small-scale mining operations has to make proper provision for environmental protection (Article 55). - The area for small-scale mining license shall not exceed one hundred and twenty cadastre units (Article 56). - A small-scale mining license confers on the holder exclusive right to carry on mining operations in the mining area for minerals other than gemstones (Article 58). - The holder of a small-scale mining license can apply for a large scale mining license provided all legal provisions are met (Article 62). - The application procedure and requirements for small-scale mining of gemstones are similar to those prescribed for the SSM.

Table 4: Summary of Governments strategies to support ASM as contained in their respective policies, laws & sector reports.

Country	Parameter				
	Overall Government Assistance	***Financing Mechanism***	***Governance***	***Value Addition Initiatives***	***Market Structure***
Angola	Provides Production tools. Encourages the formation of associations and cooperatives. Facilitates market access and establishment of specialized shops for buyers. Established the Gold Authority to regulate and guide the gold production and its commercialization.		Created 3 institutions that manage the ASM sector: - Gold Authority Agency, - FERANGOL and - INDIAMA. These agencies are responsible of awarding licenses and managing the production and marketing structures for ASM.	State involvement in requisition to buy the production or part of it for deployment in local industry. Also encourages downstream investments in facilities such as refineries and diamond-processing plants.	SODIAM is the only company that is authorized to buy and sell diamonds from the producers, including the ASM producers. FERANGOL is a government body that license the god shops. It is forbidden to trade on minerals sourced from unlicensed producers.
Ghana	Compile a register of the small-scale miners and prospective small scale miners specifying particulars that may be determined by the Minister; Supervise and monitor the operation and activities of the small-scale miners and prospective small scale miners;	Since 2008, the Minerals Commission - out of its own funds - has provided over GH¢700,000 (about $700,000 then) as assistance to several mining cooperatives. The beneficiaries are the Talensi-Nabdam Cooperative in Bolgatanga, Ekomyeya Cooperative in Bibiani, the Konongo	Established Minerals Commission (decentralized to district level) with the following functions: - compile a register of the small-scale miners and prospective small scale miners specifying particulars that may be determined by the Minister;	In Ghana, there are some initiatives on value addition of mineral products, especially the production of jewellery. These products are sold domestically and exported to neighboring countries such as Nigeria, Benin. There are no specific government initiatives	Precious Minerals Marketing Corporation (PMMC), which purchases gold and diamonds produced by small-scale miners under the Precious Minerals Marketing Corporation Law (Aryee et al. 2003). The PMMC purchases gold mined both legally and illegally – buying agents employed by the PMMC

	Advise and provide training facilities and assistance necessary for effective and efficient small scale mining operations, facilitate the formation of Small Scale Miners Associations.	Cooperative and Smith Cooperative in Winneba. The Talensi-Nabdam Cooperative for example, used their fund to set up a processing plant for its members. Loans were provided by the Minerals Commission to needy small-scale miners to purchase handheld and mechanized equipment. (Most of the miners were unable to pay back the loans (Hilson, 2001). The Ministry of Finance runs the Mineral Development Fund	- supervise and monitor the operation and activities of the small scale miners and prospective small scale miners; - advise and provide training facilities and assistance necessary for effective and efficient small scale mining operations, - submit to the Commission in a form and at intervals directed by the Commission, reports or other documents and information on small scale mining activities within the District; and - facilitate the formation of Small-Scale Miners Associations. Section 92 of the Mining Act establishes the Small-Scale Mining Committees.	for promotion of Value addition of ASM produced minerals.	do not discriminate on the basis of a miner's legal status when purchasing gold (Ghana Chamber of Mines 2012)

Mali	Reorganization of ASM according to the ASM Forum, 2014 directives; Government used to provide technical assistance to ASM (not functional any more due to lack of finance).			Mali has a long tradition of artisanal jewellery production on the basis of gold which is used to decorate the emperors, royal and traditional leaders. The Government of Mali has literally no influence in the course of the value-addition on the ASM products	Licensing of Regional Buying Centers
Tanzania	Credit facilities and grants; Equipment hire/purchase centers; Training and skills enhancement; Making available geological data to ASM.	The Government developed microfinance services tailored to the artisanal and small scale mining sector. Since 2011, efforts to promote linkages between the banks and financial institutions and the ASM have been encouraged by the government; and associated to the government financial empowerment strategies to support marginalized groups.	The Government has made efforts to decentralize the processing for Primary Mining Licenses in order to reduce the distances between the miners and the mining authorities and simplify the previous lengthy bureaucratic process. The Primary Mining License can be obtained from Zonal Mines Offices located across the country. This in principle should improve the relationship between the small scale miners and the mining	The Government of Tanzania has been promoting value addition of mineral products and this is done by reducing the tax. If a miner adds value to its products, the royalty is only 1%, otherwise it is 5%.	

		Example of "Call for Funding for ASM" by the TIB Development Bank of Tanzania, financed by IDA and matched funds by the Government	authorities and should allow more formalization of the Artisanal and small-scale miners.		
Zambia	Provision of technical extension service (by the regional and central level) on mining methods geological assessment and support on how to comply with law. Usually under the inspection services the Ministry guide miners on how to comply with law. Assist the ASM on conflict resolutions, etc.				Base metal ASMs producers sell their raw production to LSM, especially to the Chinese Companies due to lack of processing facilities.

5. Conclusion

This paper concludes that although countries have made efforts towards formalization of their ASM sectors, the rate of formalization is still very low due to lack of mechanisms to reach the miners in their remote mining sites and in some cases due to complex bureaucracy and centralized mechanisms. Countries are at different levels of support towards enhancing the performance of the ASM sector as espoused in the Yaoundé vision and the African Mining vision.

In general, countries have legal instruments and structures for managing ASM. However, the enforcement of such instruments and the implementation of appropriate structures, especially at community level still lag behind, mainly due to lack of resources (human, financial and infrastructures) and occasionally lack of political will.

It was also observed that some countries have gone to the extent of establishing "Small Scale Mining Committees" which are multistakeholder forums for the management of ASM designated areas in support of the District Office. Such Committee members are appointed by the Minister. There is no doubt that this is a transparent and accountable structure that manages the designated areas in Ghana.

In general, African countries have embraced the need for more accountability in the mining sector. An example is the increasing number of countries that are EITI23 compliant. This fact shows the government commitment to govern the mining sector according to best international practices and in transparent and accountable way. However, the integration of ASM sector's economic and fiscal data in the EITI is still a big challenge, as is the certification and traceability of ASM products. In the transparency and accountability arena, countries have also adopted the "first come first serve" principle and public tenders as standard way of attributing mineral rights.

Finally, it is important to encourage countries to have structures/institutions dedicated to the management of ASM. It could either be a directorate or a national department. The most critical element is that such an institution must have enough power, authority and autonomy to implement adequate assistance programs for ASM. Such institutions need to be decentralized enough to be able to reach and actively involve the affected communities. Given the transformative capacity of ASM within rural economies, it is important that governments allocate adequate resources (human, infrastructure and financial) to promote environmentally safe and sustainable ASM.

Governments are encouraged to continue with formalization, traceability and certification efforts of ASM products, especially the high value and low volume minerals as a way to reduce the illicit trade and fueling of political instability in Africa; as well as possible money laundering from illegal economic and financial operations.

6. Recommendations

ASM formalization needs to be accompanied by targeted interventions to improve the sector's economic, social, and environmental performance. This usually requires inter-institutional coordination between government, development agencies, civil society organizations (CSOs), and the private sector. Addressing technical training needs and improving business skills of miners is of pivotal importance. Miners learned their craft by replicating existing local practices and the majority is not aware of existing alternatives. Knowledge transfer, capacity building, and training are needed to improve mineral extraction, mineral processing, workplace health and safety, and productivity and to reduce environmental impacts and, in particular, mercury emissions from gold mining. Like with technology, miners repeat locally common business practices and errors, making them vulnerable to deceitful, unfavorable, or obscure practices, often ending up in debt bondage. Improvement of miners' business skills is crucial to reduce poverty and convert locally mined minerals into locally generated wealth and development.

Strengthening of local and national ASM organizations has a high development impact. Local ASM organizations can play a key role as multiplier of training efforts and awareness building campaigns, translators of national law into local customary rules and even catalysts for local economic development. National ASM organizations can play an important role of interlocutor, facilitator, and mediator between the ASM sector and the government. Targeted policies and programs in benefit of vulnerable groups can contribute to mitigate inequalities at ASM sites. Prioritizing women's participation and training, including within formalization efforts, and promoting cultural shifts in terms of their roles will empower women to have access to better quality jobs and a fairer share of benefits. Child labor needs to be addressed by awareness raising in combination with an offer of adequate and accessible educational opportunities. Improving labor relations between employers and miners enables workers to enjoy the rights they have and deserve.

Another vast area for programs is to improve miners' access to markets, finance and the formal banking system. Extending access of legitimate buyers to mine sites and access of miners to legal markets will not only contribute to transparency of minerals supply chains but also help to better capture, disseminate and distribute the local economic contributions from ASM. Some commodities, such as gemstones or non-metallic minerals, offer to create additional added value. With many ASM miners lacking access to the banking system, the sector is an easy target for the informal finance sector. Programs to encourage engagement of the banking sector with ASM or strengthening savings and credit cooperatives are only a few of the possible options.

Due diligence of minerals supply chains has become imperative and downstream operators increasingly demand compliance with standards and traceability requirements. This implies costs for miners (e.g., traceability) that need to be balanced with the benefits of standard compliance to avoid formalized minerals becoming non-competitive against informal production. Options to reduce the cost burden on producers need to be explored.

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