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Taxation: A Key to Formalizing Artisanal and Small-Scale Mining in Africa?

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Abstract

This paper outlines a framework for facilitating the formalization of artisanal and small-scale mining (ASM) – low-tech, labour-intensive mineral processing and extraction – in sub-Saharan Africa. It identifies taxation as a potential driver for formalization across the continent because the financial gains to be made would appeal to host governments on the one hand, and, on the other hand, to most ASM operators, who are desperate to work in a more structured and regulated environment. Experiences from Zambia, where attempts have been made in recent years to control and regulate pockets of surging gold rush activity, are drawn upon to debate the case for making taxation a centrepiece of ASM formalization programs in sub-Saharan Africa.

1. Introduction

In sub-Saharan Africa, few subjects have polarized donors and government officials more than artisanal and small-scale mining (ASM), the low-tech, labour-intensive mineral processing and extraction found scattered across its rural and peri-urban stretches. Analysis published in *The Journal of Development Studies* (Hilson and Garforth, 2013; Mkodzongi and Spiegel, 2018) and other leading international development journals (e.g. Fisher, 2007; Verbrugge and Besmanos, 2016) over the past decade has provided a glimpse of the sector's economic importance in the region. Specifically, this body of work has shown that, in sub-Saharan Africa, in addition employing at least 15-20 million people directly and creating tens of millions of more job opportunities in the downstream and upstream activities it spawns, ASM contributes significantly to regional mineral production; is largely poverty-driven, providing incomes to those who have few, if any, alternative job opportunities; dovetails and in many cases, sustains, subsistence agriculture; and provides a platform for wealth creation.

But whilst all signs point to policymakers recognizing these very important contributions and more broadly, how ASM is a rooted and indispensable segment of the region's rural economy, most have been reluctant to make it a centerpiece of any national development strategy. The attention paid by donors to, and growing public awareness of, the sector's problems, a list that includes mounting mercury pollution and child labour, has made it difficult for even the most enthusiastic of governments to build a convincing argument for supporting ASM on the basis of its economic importance. In the case of sub-Saharan Africa, these problems are associated with the sector's development trajectory, specifically its persistent informality and how, as a result, its activities have expanded largely unregulated (Hilson and Maconachie, 2017). Discussions about the importance of formalizing ASM, which provides a platform for monitoring and supporting activities, began to intensify in the 1990s (see e.g. Davidson, 1993), spawning a series of investigations which confirmed that costs and bureaucracy were discouraging – and, in some cases, preventing outright – prospective licensees from acquiring the requisite permits to mine legally on a small scale. In sub-Saharan Africa, however, the momentum to formalize ASM on the basis of economic impact has diminished markedly in recent years. This is due to a combination of factors, including host governments' preoccupation with developing and extracting revenue from foreign-financed large-scale mining activities, continued coverage and growing public awareness of ASM's problems, and recognition of the enormity of the sector's formalization challenge.

The purpose of this article is to revive debates on formalization of ASM in sub-Saharan Africa by developing a policy framework, based on fresh ideas, that potentially appeals to both host African governments and prospective licensees. It responds specifically to calls for *Boosting Artisanal and Small-Scale Mining*,[1] a core pillar of the Africa Mining Vision (AMV), a development manifesto branded as 'Africa's own response to tackling the paradox of great mineral wealth existing side by side with pervasive poverty',[2] adopted in 2009 by African heads of state. The analysis that follows calls for taxation to be the centrepiece of ASM formalization strategies in sub-Saharan Africa because it would be embraced by both host governments and operators. On the one hand, policies which emphasize taxation speak to the mindsets of African policymakers. On the other hand, for the eclectic group of individuals employed in ASM in the region, the policies that must be implemented to make this happen potentially provide a conduit for escaping the informal 'spaces' they populate. These 'spaces' are controlled by middlemen, traditional leaders and other local-level actors, who extract payments or bribes in exchange for their 'permission' to operate. A tax levied on production by government, therefore, should appeal to most operators because it would likely be substantially less; mean that

[1] 'Boosting Artisanal and Small-Scale Mining', www.africaminingvision.org/Boosting.html (Accessed 12 April 2018).

[2] 'About AMV', http://africaminingvision.org/about.html (Accessed 13 April 2018).

they would have the licenses and permits they covet and with these, security of tenure; and, as formal miners, they would be a position to secure the financial services and technological support they cannot currently access.

The case of Zambia, the location of a recent gold rush, is used to develop a basic framework of ASM formalization. To date, Zambia is one of few countries to develop, on its own, a formalization strategy for ASM based on taxation. Whilst the scheme was, at the time of writing, being overhauled, the case of Zambia illustrates very clearly what is needed to sustain an intervention of this nature in the current political and economic climate of mineral-rich sub-Saharan Africa. After reviewing the challenges with, and rationale for, formalizing ASM in Africa and taxing informal industries, the dynamics of the Zambian intervention are outlined, drawing on feedback from interviews with policymakers and other key stakeholders in the country.

2. Taxing Informal Economic Activities in Africa

2.1 Putting Formalization of ASM in Africa into Context

Debates on the formalization of ASM have intensified in the literature in recent years (Verbrugge and Besmanos, 2015; Siwale and Siwale, 2017). The position of most governments and donors on the subject, however, is relatively clear (Siegel and Veiga, 2009). It aligns most closely with the views underpinning the legalist school, led by the Peruvian economist Hernando De Soto (De Soto, 2000). A recent report published by the United Nations Environmental Program (UNEP, 2012) offers some clarity on how donors and policymakers believe these ideas apply to ASM. Focusing on gold, its officials view formalization in this context as a *process*

> …that seeks to integrate ASGM [artisanal and small-scale gold mining] into the formal economy. The process of formalization includes the development or adaptation of mining (and other) laws or policies to address the challenges of ASGM. A well-designed formalization process generates the enabling conditions for accountability within the sector so that it can ultimately be integrated into the formal economy. Formalization can only be successfully achieved if programmes and public policy deal with the different dimensions of ASGM activities simultaneously and in an integrated way. Legalization is just one dimension of the process of formalization. [p. 2]

There are several reasons cited in the literature as explanations for why, in sub-Saharan Africa, this *process* fails to materialize: specifically, why the ASM activities found here are mostly unlicensed and confined to informal 'spaces'. These can be consolidated into two converging lines of evidence, or what legalists would consider to be the factors stifling the regularization of ASM operators in the region and which are ultimately 'creating' this informality. The first concerns the costs and bureaucracy associated with obtaining the relevant licenses and titles to mine on an artisanal and small scale, a point raised earlier. This resonates quite powerfully with De Soto (2000) who, during research conducted in urban Peru in the late-1980s and early-1990s, observed that excessive red tape and fees were preventing individuals from registering their businesses. At the turn of the century, officials at the International Labour Office drew attention to similar developments in the ASM sector in the organization's landmark report, *Social and Labour Issues in Small-Scale Mining* (ILO, 1999).

At the one extreme are countries such as Ghana and Zimbabwe, where the costs of obtaining a license to mine on a small scale are so exorbitant that only a small group of individuals can even consider pursuing a path of legality. In the former, it is a case of there being a suite of payments that need to be made before an application can be reviewed. In the latter, Spiegel (2015) explains, the biggest impediment to formalization is an environmental impact assessment, which, in 2009, had climbed to

US$4000. At the other extreme there are countries where financial barriers inhibit *progression*. For example, in Liberia, Van Bockstael (2014) explains, 'Many advanced artisanal miners who wish to use earth-moving equipment for a limited amount of time have complained that they are required to apply for the more costly industrial Class B licenses' (p. 14), which is US$10,000. Most, therefore, are forced to settle for a Class C License, which is renewable annually at only US$150 but prohibits individuals from using heavy machinery. In neighbouring Sierra Leone, aside from the Small-Scale License being US$1000, commanding an annual fee of US$800/ha and costing US$1000 to renew, there is the added challenge of completing an environmental impact assessment, which involves enlisting the services of consultants who charge tens of thousands of dollars. At the time of writing, fewer than 10 individuals had been able to meet these demands over the past three years.

Even if prospective licensees are able to overcome these barriers, many find themselves competing with large-scale operators. At any given time, there are thousands of sizable parcels of land, linked to prospecting, exploration and mining licenses, under concession to domestic and international companies. The list of countries in sub-Saharan Africa where this phenomenon is particularly visible includes Ghana, where approximately 25 percent of the country has been demarcated for reconnaissance, mineral exploration and extraction purposes (Cuba et al., 2014), across mostly 11 mining leases and at least 400 active prospecting licenses; Tanzania, where companies are granted areas as large as 150 km^2 for reconnaissance and prospecting activities (Lange, 2006); Guinea Conakry, where, with the exception of bauxite and iron ore, an individual or entity can hold up to five mine prospecting permits within an area of up to 250 km^2 (KPMG, 2014); and the DR Congo, where foreign companies can secure a maximum of 50 permits, each valid for an initial period of five years and not exceeding 400 km^2 (or a combined 20,000 km^2).

How can the prospective small-scale licensee manoeuvre freely in these landscapes? A formalization strategy built around taxation could prove to be an important step in the right direction.

2.2 Can the informal sector be taxed?

For more than three decades, the literature has offered insight on how informal industries can be taxed. The challenge in the case of an ASM sector extracting predominantly precious minerals, however, is that it has so many unique attributes, foremost its handling of high-value low volume commodities and the array of actors found embedded at all levels of its supply chains. The architects of the AMV recognize that 'The Artisanal and small-scale mining represents a special challenge, which require a separate discussion and different and tailor-made approaches to address the challenges' (Africa Union, 2009, p. 15). Could taxation be one such "tailor-made" approach?

There is a sizable body of analysis (Maldonado, 1995; Fortin, 1997; McLaren, 1998; Marjit et al., 2006; Cuff et al., 2011; Joshi et al., 2014; Williams and Martinez, 2014) which weighs in on the issue of informal sector taxation. Consistent with the messages preached by the legalists, some scholars (e.g. Ihrig and Moe, 2004; Delipalla, 2009) suggest that increased taxation, along with burdensome regulations, *encourages* informality, particularly in developing world settings. Others, however, argue, in most cases using findings from economic models, that the relationship between taxation and informality is not as linear as is often projected. Some (e.g. Sookram and Watson, 2008; Elgin and Solis-Garcia, 2015) maintain that it is a high degree of tax enforcement, not the amount levied, which encourages informality. There is yet another group of scholars who believe that the impact of taxation on informality is far more nuanced, claiming, *inter alia*, that the presence of credit markets and the potential for greater productivity drives firms to formalize, register and/or pay taxes (e.g. McKenzie and Sakho, 2010; Mazhar and Meon, 2017), and that the impact of taxation on the informal economy varies from activity-to-activity (e.g. Ihrig and Moe, 2004). But this body of literature offers few clues

on how to extract tax from unlicensed ASM activities in sub-Saharan Africa, and whether moving forward, greater emphasis should be placed on taxation when formalizing the sector.

For decades, donors and to some extent, NGO officials, have spent considerable energy and financial resources persuading policymakers of the value in formalizing ASM but with little success. With few exceptions, their arguments for doing so have focused on the sector's ability to generate employment and its broader contributions to community development. Governments in sub-Saharan Africa, however, are more likely to embrace the idea if there are tangible and realizable financial gains to be made, which is why a strategy focused on taxation could prove catalytic in this context. Many have already recognized that ASM is, indeed, an untapped source of tax, and have implemented – albeit, mostly top-down – measures to capture monies from the sector's activities. There are countries such as Ghana, where a tax is levied on the quantity of mineral captured. Here, despite claims that 'Although small scale miners account for over 34% of gold production, they do not pay mineral royalty',[3] a 3 percent payment has always been deducted on gold purchased by the Precious Minerals and Marketing Company (PMMC), a national government agency, from licensed buyers. Moreover, and what is often overlooked by those who criticize operators, most of whom operate without a license, for not paying tax is that PMMC's system of buying was, up until recently, so effective, that is was capturing most of the gold being produced in the country on an artisanal and small-scale (Hilson et al., 2014). This is significant because, as Hentschel et al. (2002) explain, with 'gold for instance…being more or less a standard "currency" the produced value is equivalent to extra foreign income' (p. 47). During the period 2010-2016, when the gold price far exceeded US$1000/oz throughout, PMMC captured 8,330,125 oz gold (Government of Ghana, 2017); a 3 percent levied against this production at a rate exceeding US$1000/oz would have generated over US$42 million for PMMC.

Other governments in sub-Saharan Africa have elected to tax at the point of export, two illustrative examples being Sierra Leone and neighbouring Liberia. In the former, a 3 percent royalty rate is applied to diamonds originating from artisanal mining concessions. Moreover, an alluvial diamond exporter license costs US$40,000/year, an alluvial diamond exporter agent's certificate is US$5000/year and an alluvial diamond dealer license for a non-citizen is also US$5000/year.[4] Similar rules apply in the latter, where the royalty on exported diamonds is also 3 percent and a diamond dealer/export license is US$25,000 annually (Van Bockstael, 2014).[5] The challenge both governments have had, along with neighbouring countries such as Guinea, is ensuring that the export tax is harmonized across the board, which has proved to be key in preventing smuggling. As Kambani (1995) observed more than two decades ago, smuggling in ASM tends to accelerate when the discrepancy between the two prices – the *actual* and the *paid* – exceeds 5 percent. This is precisely what may be happening in Cote d'Ivoire, Burkina Faso and Mali where, according to a recent NGO report (Martin

[3] "Minerals Commission Defends Taxing Small-Scale Miners," http://citifmonline.com/2016/06/09/minerals-commission-defends-taxing-small-scale-miners/ (Accessed 2 January 2018).

[4] "Sierra Leone Investment & Export Promotion Agency: Improving Investment and Facilitating Export," http://sliepa.org/trade-statistics/license-fees/ (Accessed 2 March 2018); "Sierra Leone's Annual Report 2013 to Kimberley Process Certification Scheme," www.kimberleyprocess.com/en/system/files/documents/2013_kpcs_annual_report_sierra_leone_0.pdf (Accessed 3 April 2018).

[5] "Liberia's Annual Report 2013 to Kimberley Process Certification Scheme," www.kimberleyprocess.com/en/system/files/documents/Liberia%20Annual%20Report%202011_0.pdf (Accessed 4 April 2018); "Official Fees Structure of the Ministry of Lands, Mines and Energy," www.lra.gov.lr/Official_FIles/administrative_regulations/Official_Fees_Structure_of_the_Lands_Mines_and_Energy.pdf (Accessed 2 February 2018).

and de Balzac, 2017), gold being mined on an artisanal scale in the former two countries is being smuggled *en masse* into the latter because of comparatively laxer enforcement of its percent tax.

A second rather obvious challenge is enticing informal operators to embrace such a move. Based on the evidence, however, there is reason to believe that unlicensed miners would do so because they are *already* paying an exorbitant amount of 'tax' in the informal economy, and would therefore welcome a system that regulates the administration of payments and which positions them to accumulate earnings. Each of the abovementioned cases is an example of a top-down taxation strategy: where a tax is administered at the upper echelons of the mineral supply chain but neglectful of what happens at its lower rungs. It is at these levels, however, where, due to a lack of regulatory presence, a host of actors collect illegal taxes and payments virtually unchecked. In Ghana, it is a slew of traditional leaders, police, local MPs and army officials extorting from miners 'payments' for land (Hilson et al., 2014; Abdul-Gafaru, 2017; Hilson et al., 2018), while in Mali, Burkina Faso and Cote d'Ivoire, 'payments [are] made to customary figures, former combatants, as well as state officials' and are 'usually linked to access and authorization to work on a gold site, pay for security arranged by the chief or as a production based "royalty" for exploiting a particular mine site' (Martin and de Balzac, 2017, p. 8, 15). One of the more extreme and well-documented examples is DR Congo, where, because of a lack of infrastructure and vast patches of terrain that are virtually unmonitored by the central government, artisanal miners are frequently asked to pay illegal tax by local officials, customary authorities and militias (De Koning, 2009; Blore, 2015; Mthembu-Salter, 2014). In these, and similar, cases, miners would likely embrace a formalization strategy based on taxation because it would mean being in possession of a license which (in theory) would provide them the security of tenure they so desperately covet; better position them to sever ties with these parasitic local-level actors; and most importantly, as operators who are 'legitimate' in the eyes of the law, to gain the leverage needed to secure the financial and technical support from lending institutions to purchase the machinery needed to increase their yields.

The next section of the paper builds on this analysis, drawing on recent experiences from Zambia. This case, or what is referred to hereafter as the 'Zambia Model', offers inspiration for champions of the AMV committed to *Boosting Artisanal and Small-Scale Mining* through a sector-specific formalization strategy based on taxation. The discussion examines the dynamics, successes and shortcomings of the 'Zambian Model' through a legalist lens, with a view toward outlining the key elements of such a strategy that must be sustained over the long term.

3. The "Zambia Model": A Blueprint for Formalizing Artisanal and Small-Scale Mining in Sub-Saharan Africa?

While attracting some attention in the literature in the 1990s and early-2000s (Davidson, 1993; Kambani 2000, 2003), ASM in Zambia has not featured widely in emerging academic debates on the sector, including – until only recently (see Siwale and Siwale, 2017) – discussions on formalization. Perhaps an even more surprising development is that the model outlined in this section of the paper is based on gold: despite being the most widely-mined commodity on an artisanal and small scale worldwide, Zambia has never been a significant producer of the precious metal. According to documents retrieved from the Zambia National Archives,[6] in Northern Rhodesia, gold has long been harvested on the Copperbelt but chiefly as a biproduct of the rich copper ore extracted. It was therefore not viewed seriously by the colonial administration. Output of gold fluctuated sharply,

[6] "Summary of Mineral Production," Docs 625/M.4/2 and 1107/M.4/2,

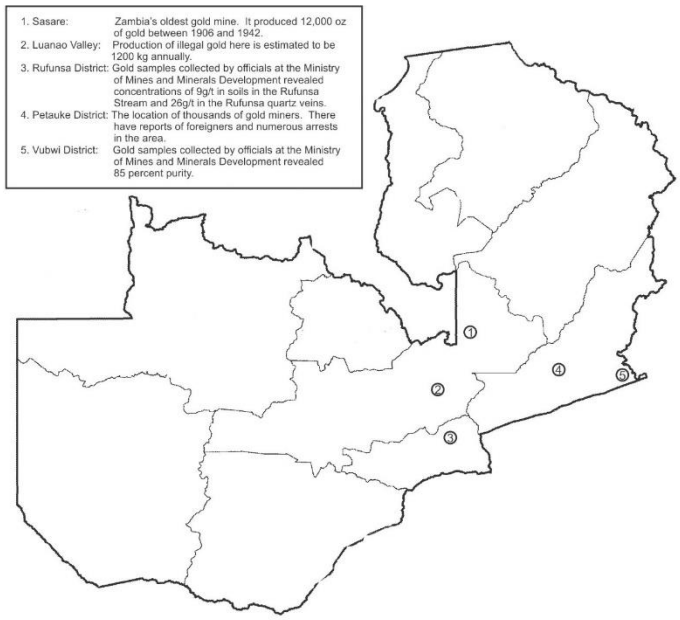
depending on the ore content: in 1938, for example, output was 186 oz in September, nil in October, and 253 oz in November.

In recent years, the discovery – or more appropriately, the *re*discovery – of gold has ignited sizable rushes across Zambia. There are now an estimated 300 gold occurrences[7] in the country, although most, and by extension, the largest share of this activity, are concentrated in five areas: Luano District, Vubwi District, Rufunsa district, Petauke District, and the Sasare Area (Figure 1). In response to rumours of illicit gold mining and smuggling, the Ministry of Mines and Minerals Development carried out two scoping missions in 2016 (outlined in Chadukwa, 2018), which revealed, *inter alia*, that high-grade gold (of purity exceeding 90 percent) could be mined in the five abovementioned areas; gold was being smuggled out of the country by illegal dealers, most of whom are foreign nationals from neighbouring countries; and that the estimated level of illicit production of gold in Luano alone is in the range of 1200 kg. More recent visits confirmed that gold panning sites are now overridden with a host of Chinese, Russian and Indian 'buyers', and that most panners are using mercury to amalgamate their gold (McFarlane, 2018).

In a move made to capture lost revenue from the tens of thousands of gold panning activities across the country, the Government of Zambia launched the 'Zambia Model', an ambitious formalization program. Whilst most ASM formalization strategies implemented in sub-Saharan Africa to date have been donor-driven, the 'Zambia Model' is exceptionally unique because it was conceived and implemented entirely by the government. This section of the paper reflects critically on the reasons behind its development, and its successes and shortcomings thus far. A stakeholder map was constructed with a view to identifying the designers of the intervention, the key actors responsible for its implementation, and representatives from other organizations whose inputs are likely needed to ensure its long-term sustainability. Between January 2017 and January 2018, 25 semi-structured interviews were carried out, mostly in Lusaka, with the aid of this stakeholder map. To preserve anonymity, the details of these officials are not disclosed. As the focus of the research reported here was solely on those responsible for implementing, maintaining and developing the 'Zambia Model', and to gauge its appropriateness as a taxation-driven formalization strategy for ASM, no inputs were solicited from the individuals populating the communities where gold panning persists.

[7] As outlined in the *Zambia Mining Sector Profile 2014* (Zambia Development Agency, 2015), most gold deposits in Zambia are lode-type bodies associated with the Mwembeshi Shear Zone and related syntectonic intrusions. Significant gold mineralisation also occurs, variously with copper and uranium, in major thrust zones near the base of the Katanga succession.

Figure 1: Map of Zambia showing major artisanal gold rush sites[8]



3.1 The context

The dearth of coverage in the literature about ASM in Zambia has made it challenging to keep pace with the sector's development over the years. In a recent review of the country's mining industry (World Bank, 2016), however, World Bank officials provided a much-needed – albeit, scathing – assessment of the sector:

> ASM performance is similar to other key features of the mining sector in Zambia in the sense that there is a generally appropriate policy, legislative and regulatory framework in place but implementation of this framework is wanting...Beyond these achievements, however, artisanal and small-scale miners are largely left to operate without government monitoring or support. There is no governmental agency dedicated to ASM. A number of private associations claim to represent the interests of ASM but overall the miners have no effective support for skill development, for conflict resolution in dealing with the formal mining sector, other stakeholders or among themselves, or for their economic and social development needs. Areas seen in review results concerning ASM that require attention include skills development support, dispute resolution and environmental impact. The creation of a dedicated unit within government focused on ASM could help ensure improved economic and social returns from ASM, a less negative environmental impact, fewer disputes within the sector, and improved tax returns. [p. 18]

This assessment is not entirely accurate. One the one hand, the comment on the association seems appropriate. As is the case elsewhere in sub-Saharan Africa, the country's mouthpiece for ASM, the Federation of Small Scale Miners Associations in Zambia (FESSMAZ), is impotent, wielding very little influence over the sector. Apart from delivering the occasional press release, the organization has

[8] Information extracted from Chadukwa, 2018

very little visibility on the national ASM platform, has weak leadership, and, at the time of writing, was on the verge of losing its office, which the government had leased to them at a subsidized rate.[9]

On the other hand, the reference made to institutional focus and capacity requires some clarification. Whilst the Ministry of Mines and Minerals Development, Zambia's dedicated policymaking body for mining, does not have an ASM division *per se*, it has personnel across its divisions assigned to the sector. It is not the ideal setup but importantly, it does show some recognition on the part of government that financial and human resources are needed if ASM activities are to be supported, monitored and regulated effectively. Moreover, on the claim that the country's ASM operators are not monitored or supported, generally this has been the case. Work carried out under the auspices of the European Union, particularly through its now-defunct SYSMIN facility,[10] sought mostly to diminish Zambia's dependence, economically, on copper exports. Under the 115 million EURO SAF V SYSMIN project, for example, 'funds remained partly inaccessible to small-scale miners due to the stringent condition attached to the loans' (Bzrozowski, 2015, p. 28). Similarly, under the 20 million Euro Mining Sector Diversification Program, credit, financing, training and education was offered to small-scale miners but was undermined by complex technical requirements for accessing loan financing, which most operators struggled to meet (Siwale and Siwale, 2017). But interest in ASM has been growing steadily in Zambia, as evidenced by the host of projects implemented in recent years, including the PanAfGeo project, 2016, a pan-African initiative that aims to map the continent's geological terrain;[11] a loan of US$12 million, in 2017, awarded by the ACP and European Union to individuals extracting development minerals on a small scale;[12] and a US$2 million grant from the European Union, also launched in 2017, dispensed as loans to mine operators.[13]

It is institutional support and government 'buy-in' of this nature that legalists argue is a necessary first step towards formalization. This provides a much-needed foundation for implementing a policy framework that can entice unlicensed businesses to register their operations with government bodies. For ASM, this entails ensuring, *inter alia*, that licensing schemes are 'user friendly', and that costs associated with permitting and regulatory compliance are *not* prohibitive. Zambia's regulatory framework for ASM has been built around gemstones, particularly emeralds, amethyst, aquamarine and tourmaline. There is, much like countries such as Liberia and Sierra Leone, a distinction made in the country's mining licensing apparatus between 'artisanal' and 'small-scale'. Although both are reserved for Zambian nationals, the latter is for more sophisticated setups, covers a longer lease period and requires more investment to secure (Table 3).

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[9] Perhaps a telling sign of FESSMAZ's invisibility is how it has been referred to by a variety of different names by donors and in the media, including 'Zambia's Small Scale Miners Association' (https://mwebantu.com/2017/11/02/president-of-small-scale-miners-association-aims-to-help-zambians-benefit-from-mining/), 'Federation for Small Scale Mining Association in Zambia' (http://commercegazette.ucoz.com/load/federation_for_small_scale_mining_association_in_zambia/1-1-0-4), and the 'Small-Scale Miners Association of Zambia' (SSMAZ) (http://commercegazette.ucoz.com/load/federation_for_small_scale_mining_association_in_zambia/1-1-0-4).

[10] SYSMIN was a facility for ACP states that rely heavily on mining, and was under the control of the European Development Fund.

[11] "PanAfGeo Project: Artisanal and Small-Scale Mining in Africa," http://panafgeo.eurogeosurveys.org/wp-content/uploads/2014/12/PanAfGeo-Project-Artisanal-and-Small-scale-Mining-in-Africa.pdf (Accessed 12 April 2018).

[12] "$12 million sourced for small-scale miners," www.daily-mail.co.zm/12-million-sourced-for-small-scale-miners/ (Accessed 2 December 2017).

[13] "$2 million grant from EU to be distributed to small-scale miners," www.lusakatimes.com/2017/06/26/2-million-grant-eu-distributed-small-scale-miners-countrywide/ (Accessed 3 November 2017).

Table 3: Prescribed fees/charges for ASM-related licensing in Zambia

SMALL-SCALE MINING OPERATIONS			**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**
Prospecting Permit	5 years Renewable	540	**AREA CHARGES (ZMK/ha/year)**						
			0.360	0.360	0.900	0.900	1.440	N/A	N/A
Small Scale Mining Licence	10 years renewable	2.700	5.040	5.040	5.040	5.040	5.040	5.040	5.040
Small Scale Gemstone Licence	10 years renewable	2.700	9.00	9.00	9.00	9.00	9.00	9.00	9.00
ARTISANAL MINING									
Artisanal Mining Rights	2 years Renewable	540	2.520	2.520	N/A	N/A	N/A	N/A	N/A

Source: Zambia Development Agency, 2015

Recognizing that the existing licensing schemes were inappropriate for gold panning, the government included, under the *Mines and Minerals Development Act, 2015*, 'Division 5 – Gold Panning Certificate'. As stated in Section 42, *Application for and grant of gold panning certificate*, 'A citizen or a cooperative consisting only of citizens may apply directly to the Director of Mines for a gold panning certificate in the prescribed manner and form upon payment of the prescribed fee'. As a government official explained in an interview, the certificate, the provisions for which are enshrined in the act, was designed specifically to be 'user-friendly'. The certificate was implemented with a view to legalizing anarchic pockets of gold rush activity:

> It's about K410, which is about US$51 which is quite accessible…It's a simple way of regularizing the activities. So that was the first thing that we did…that was the first step towards formalizing. First, we enacted, we recognized the activities by introducing that licensing certificate then moving forward. Now that's what we are trying to implement these issues of associations, cooperatives and also creating stable marketing strategy.[14]

Aside from being affordable, the certificate is slightly different from a standard artisanal mining license in that it provides greater security of tenure, which is essential for building trust with these mobile, and at times, evasive, operators. Whereas both are valid for only a period of two years, the former, unlike the latter, can be renewed for an additional period of two years.

This move falls squarely under one of the main objectives of Zambia's Seventh National Development Plan 2017-2021 (Ministry of National Development Planning, 2017), 'Development Outcome 2: A Diversified and Export-Oriented Mining Sector'. Specifically, the move to legalize gold panning at the five rush sites speaks directly to the Plan's goal of 'formalising and empowering small-scale miners to make them more productive' through direct empowerment; facilitating access to finance; training on occupational health and safety, and the environment; fostering skills development; and improving investment channels. The discussion that follows explains how.

3.2 Political Leadership

The 'Zambia Model' was operationalized very rapidly in one of the most one-dimensional economies in the world. With perhaps the exceptions of Angola and Nigeria, no economy in sub-Saharan Africa is more dependent on one commodity, economically, than Zambia. Today, raw copper accounts for

[14] Interview, government official, Lusaka, 6 July 2017.

close to 80 percent of the value of its export portfolio, a dependency that can be traced back to colonial period. Today, Zambia, which ranks as the world's sixth largest producer of copper, exhibits all of the classic "symptoms" of a resource curse: low levels of manufacturing, a deteriorated agricultural base, and a large importer of food and fuel (Table 4). The government is overly-dependent on the revenue generated by, and therefore caters heavily to, a series of large-scale copper miners, along with the resident gemstone operator, Gem Fields (Table 5).

Table 4: Profile of Zambia's commodity export dependence and import dependence

Commodity Export Dependence	**2014-2015**
Total commodity exports (US$ millions)	7189
Food items, share of commodity exports (%)	11
Ores and metals, share of commodity exports (%)	86
Copper, share of commodity exports (%)	79
Leading destination markets for exports, share of exports	China (31%), Switzerland (29%)
Commodity Import Dependence	**2014-2015**
Total commodity imports (US$ millions)	3167
Total food imports (US$ millions and share of total commodity imports)	492 (15%)
Total fuel imports (US$ millions and share of total commodity imports)	942 (30%)

Source: Data extracted from UNCTAD, 2016

Table 5: Revenue paid by selected mining companies to the Government of Zambia, 2015

Company	**Tax Payments (2014) ZMW**	**Tax Payments (2015) ZMW**	**US$ Conversion**
1. Kansanshi Mining PLC	3,241,558,258	2,140,726,669	208,316,759.22
2. Mopani Copper Mines PLC	996,553,362	1,213,056,636	118,041,233.65
3. First Quantum Minerals LTD	962,068,565	751,786,853	73,140,334.05
4. Kagem Mining Limited (Gemfields/GRZ)	127,970, 831	261,077,699	25,330,560.31
5. Konkola Copper Mines PLC	738,658,063	1,232,596,885	119,987,915.18
6. Kariba Minerals Limited	-	2,163,493	210,468.17
7. Lumwana Mining Company LTD	724,926,841	1,049,279,598	102,159,561.68

Sources: EITI 2015, 2016

Given Zambia's preoccupation with this large-scale mining activity, the launch of the 'Zambia Model' deserves praise. The main motivation for doing so was collective belief across government institutions that if registered and monitored, gold panning activities could generate *additional* tax revenue for the country. The move seemed sound and encountered minimal resistance during the early stages of its conception because, as one government official explained in an interview, 'in this country [Zambia],

we tax mining activities regardless of who is doing them whether they are small, medium or big'.[15] The government would have no problem extending this to unlicensed artisanal mine operators because the country has a lengthy history and considerable experience taxing informal activities. As Phiri and Nakamba-Kabaso (2012) explain, the foundation for taxing informal activities in Zambia was laid in 2004, when the Presumptive Tax on taxis and minibuses and the Turnover Tax on small-scale enterprises were implemented. A Base Tax on marketeers (2005) and an Advance Income Tax (AIT) (2007) for cross-border traders were subsequently introduced.

But officials at Ministry of Mines and Minerals Development quickly recognized that some creativity would be needed to ensure that there was traction and the required level of support moving forward. They recognized that the best chance of achieving this was through a multi-dimensional process which fostered inter-ministerial engagement. It also required moving away from their comfort zone: abandoning the traditional approach they have taken to formalize ASM. In the past, with artisanal gemstone mining, the formalization exercise entailed the granting of a title with inputs from a single government unit, the Ministry of Mines. With the 'Zambia Model' however, officials at the Ministry of Mines and Minerals Development, recognizing the complexities of the formalization process, actively engaged partner institutions, with a view toward establishing a more sustainable enabling framework for formalization. After conducting field visits in 2013 in response to rumours of gold panning, tasks which, as one official explained in an interview, were not initially embraced 'Because this issue of gold is not something which has been known in this country…it has just been hearsay',[16] the Ministry of Mines and Minerals Development commissioned two baseline studies, which would confirm the extent of panning activity (Chaduka, 2018). Officials then proceeded to bring together the institutions needed to facilitate the sector's formalization, beginning with the Bank of Zambia and Ministry of Commerce, tasked with purchasing gold from miners and registering their operations, respectively, and seen as the two key pillars of an ASM taxation strategy. These two institutions were asked to develop a marketing strategy for the gold, which, it was believed, would reduce the presence of illegal foreign buyers patrolling rush sites. The Zambia Revenue Authority (ZRA) was called upon to design a taxation system for the sector. Additional government units, including the Ministry of Home Affairs and the Ministry of Planning, were empowered to provide additional support. The institutional structure for the 'Zambia Model' is outlined in Figure 2.

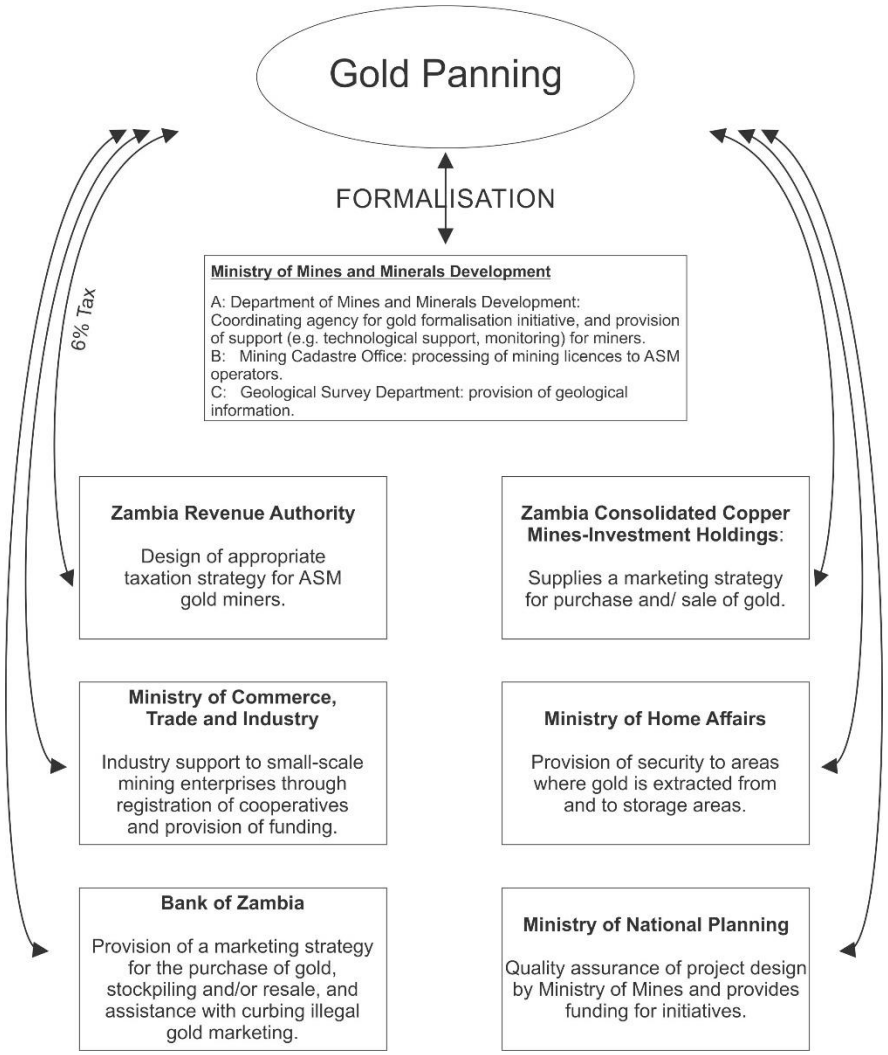
Interviewees consistently explained how the individuals being targeted are operating at a subsistence level, and therefore, need to be encouraged to obtain a gold panning certificate. One official summed up what seemed to be a consensus among the government partners about who, exactly, they were targeting:

> So, they [the panners] would have this land and the licence and then someone who has the money comes in and then they bring the equipment, and then they move on, so generally they are small – in that their cashflow are tight, their market is a bit squeezed, they don't have a lot of information on the market and where they can sell and things like that. They just make ends meet. It's sort of a means of survival for most of them, and it's only after that period that they would graduate if they make a reasonable investment…that's how they do the mining.[17]

African governments and donors have acknowledged over the years – most recently, in the AMV space – that the growth of ASM is linked to poverty but have rarely acted to make policies and regulations more user-friendly and encourage individual operators to formalize. With the ZRA unwilling to deviate from the standard tax rate of 6 percent, officials at the Ministry of Mines and Minerals Development pursued a series of additional moves to encourage individuals to register.

[15] Interview, government official, Lusaka 6 July 2017.
[16] Interview, government official, Lusaka, 6 July 2017.
[17] Interview, government official, Lusaka 6 July 2017.

Figure 2: Institutional support structure for the 'Zambia Model'



The first significant move was ensuring that there was adequate government presence at the local level. Representatives from the key institutional bodies were dispatched onsite to register and build rapport with prospective licensees. As was explained by an official in an interview:

> [The] Ministry of Commerce is coming in because they are mandated to register co-operatives and other associations. And that is how we also brought them on board so that they also see how they can start registration. Should it be done on sight? Or should we ask the miners to be flocking to Lusaka to line up to register there, their cooperatives…[18]

The second significant move followed, which was the formation of cooperatives. Although Section 42(1) of the *Mines and Minerals Development Act, 2015*, states that 'A citizen or cooperative consisting of citizens' are eligible to apply for a Gold Panning Certificate, it is the latter which government officials are encouraging because they are much more visible, and indeed sustainable, taxable entities. In the past, across sub-Saharan Africa, a similar approach was taken to deliver services to ASM such as microcredit and to facilitate Fair Trade certification: operators who banded together into groups or cooperatives would be licensed or registered and therefore be granted access to the service rendered.

[18] Interview, government official, Lusaka, 6 July 2017.

But few managed to do so due to the stringency of donors' demands, individual operators' unwillingness to work with others and the general lack of oversight associated with centralized administration. As was explained, bureaucracy and cost have constrained efforts to license ASM across Africa, and are, according to the legalist camp, a major driver of informality more generally. In Zambia, government officials were confident of being able to overcome this and mobilize groups quickly by being present onsite. As the same official explained, 'We wanted to do it in a simplified manner such that we do not burden those guys…[and] wanted everything to be done on the spot [so] we do the registration on the spot.'[19]

What the 'Zambia Model' illustrates very clearly is that if a government believes that there are financial gains to be made from taxing ASM, it will find ways to formalize the sector's activities. But it also seems that, in this particular case, another motivation for instituting what one official described as a 'streamlined system' for formalizing gold panning activities was the belief that the move would lay the foundation for a much bigger sector. This was made clear in an interview with an official, who hinted that bigger operations in this context yield more tax revenue:

> Beyond taxation, there is nothing. What I know is that with these cooperatives that they are being encouraged to form, forming of larger coops. Then they will be issued with a gold panning certificate, and once that is done, it will be easy for me for royalties' collection, because they just can't export without getting the authority through that export permit from the ministry responsible, so that's how we come in as the tax men.

In early-2017, the 'Zambia Model' was rapidly gathering momentum; a convincing case could have been made that it was fast becoming *the* elusive blueprint for formalizing ASM in Africa. But it has since fallen off the radar of the government due to diminished support and interest. The final section speculates on why the political drive needed for this gold panning initiative to succeed seems to have evaporated.

3.3 Diminished Enthusiasm

By late-2017, the excitement over the 'Zambian Model' and with it, the momentum driving its implementation, had waned considerably. The discussion that follows offers some possible explanations for the sudden change in the government's attitude toward formalizing gold panning in the country.

The first possible reason is the country's continued fixation on large-scale mine development, specifically copper extraction and more recently, gemstones. On the one hand, the government must be commended for bringing the 'Zambia Model' to fruition in a country where large-scale mining is given such heavy priority in national development plans and programs. But on the other hand, it could be a case of the government's large-scale mining 'bias' being simply too overpowering of a narrative to manoeuvre around. During communications with government officials, it was explained that as of March 2017, 740 gold panning certificates had been registered.[20] In January 2018, however, the government decided to suspend *all* issued certificates, and holders were told to demobilize or their assets would be seized. It was explained by one official in an interview that this was not a departure from the initial decision to formalize but was rather 'in line with the formalization agenda because illegality has escalated and suspension of licenses will allow for planning and sanity so that formalization can take place'.[21] Is it simply a case of a government suddenly realizing that too much

[19] Interview, government official, Lusaka, 6 July 2017.
[20] Interview, government official, Lusaka, 6 July 2017.
[21] Interview, government official, Lusaka, 4 January 2018.

energy was being expended to formalize activities, given the anticipated amount of return, in the form of tax, from the holders of these 740+ certificates?

This leads to a second possible reason, namely, the rationale behind formalizing gold panning. Although the government has portrayed the 'Zambia Model' as an intervention aimed at capturing lost revenue and simultaneously supporting an indigenous gold panning industry, perhaps the move was made with bigger goals in mind. The impression conveyed by government officials early on was that this intervention was implemented with a view toward building rapport with target communities and to somehow counteract the country's bureaucratic mine licensing processes:

> Yes, we have [local government] offices but these activities are taking place in far flung areas. You find that from the main road you have to get down 180 kms, 150 kms…so it's far. You have to cross streams, you have to cross bridges, you have to park the vehicles, you have to do a lot of walking where you are walking just one spot, you walk about two hours, just walking. You reach there, see what is happening again two hours back…That's how far it is. Because our licencing system is centralized, everything is done here. The regional offices are just there just to provide monitoring and handling other conflicts and disputes. But the actual licensing is done at the cadastre office…[22]

The 'Zambia Model', however, quickly deteriorated into a military exercise. During follow-up interviews with government officials, it was explained that Cabinet had mandated the Ministry of Mines and Minerals Development to 'flush out' illegal actors from the major gold rush communities identified in the initial baseline studies, including Vubwi, Rufunsa, Petauke and Luano.[23] Similar to what has recently taken place in Ghana and Zimbabwe (Spiegel, 2014; Hilson, 2017), an inter-ministerial task force was assembled, as mandated by the Cabinet's Memo, to coordinate the removal of illegal actors and to enforce the suspension of gold panning activities. With the Ministry of Home Affairs on board, the execution of these tasks, and more broadly, the transformation of the 'Zambia Model' into a military exercise, was seamless.

Perhaps gaining control of these areas was the intention all along: specifically, removing gold panners to secure lands for large-scale prospectors. The recent awarding of gold prospecting licenses suggests this may be the case (Table 6). It would not be the first time that an African government abandoned a policy intervention or formalization exercise for ASM. Does the Government of Zambia believe that earmarking gold-bearing lands for large-scale mining and mineral exploration companies will generate more revenue? The specific reason why a decision was made to militarize the gold panning exercise is of little consequence; the most important takeaway is its peculiar timing and justification, as it runs counter to the government's stated goal of developing and supporting ASM as part of its economic diversification strategy. As laid out in the *Seventh National Action Plan 2017-2021*, 'As part of the diversification agenda within the mining sector, the Government will focus on building the productive capacity of artisanal and small-scale miners involved in the exploration of gemstones and industrial minerals' (Ministry of National Development and Planning, 2017, p. 65). On the one hand, the government officials interviewed claimed to recognize that ASM is an integral segment of the country's rural economy, with one individual going as far to state that 'they know they [Zambians] do it [mine on an artisanal and small scale] due to poverty'.[24] But on the other hand, the moves made show very little appreciation of the sector's livelihood dimension and poverty-driven nature.

[22] Interview, government official, Lusaka, 6 July 2017.
[23] Interviews, government officials, Lusaka, 4 January 2018.
[24] Interview, government official, Lusaka, 4 January 2018.

Table 6: Selected exploration and prospecting licenses Issued for gold in Zambia, 2017-present

Date of Issuance of Prospecting Licence	Company	Licence Number	Area Size (Ha)
5 October 2017	Stock Gold Refining* Trading Limited	22218-HQ-LEL (Large-Scale Exploration Licences)	10407.68
13 October 2017	Zambian Golden Sun Resources Holdings Ltd	22337-HQ-LEL	21590.65
9 January 2017	Gold Twenty-four Limited	20876-HQ-LEL	5516.92
21 June 2016	Gold Twenty-four Limited	20753-HQ-LEL	16030.33
18 April 2016	Gold Twenty-four Limited	29543-HQ-LEL	2223.72
9 November 2016	Fort Jameson Gold Fields Ltd.*	21488-HQ-LEL	42945.49
31 May 2018	Zambian Golden Minerals Ltd. *	22852-HQ-LEL	48274.52

Source: Data extracted from Zambia Mining Cadaster Portal, retrieved 5 June 2018

This leads to a third possible reason: the lack of knowledge of the people engaged in gold panning, and the organization of their operations. Legalists such as De Soto advocate taking stock of what in what is dubbed the 'extra-legal' economy, and, after making sense of the deeds, agreements and partnerships found in this 'space', to use this information as a guide in the design of the laws and policy frameworks needed to formalize activities. Following Seigel and Veiga (2009), for ASM, this would require a nuanced understanding of why people choose to mine without a license, where finance flows and who populates the sector's informal 'spaces'. To be in a realistic position to answer these questions, detailed analyses of ASM landscapes would need to be undertaken but judging by the haste with which actions were taken to usher in the military to police sites to remove illegal gold buyers, this did not happen during the design phase of the 'Zambia Model'. Reflecting on what the government is planning on doing moving forward, a government official inadvertently outlined, in an interview, some of the key pieces of Zambia's 'extra-legal' gold panning space which a more comprehensive baseline study undertaken *before* the suspension of licenses and military sweeps of communities would have revealed:

> Well what is next is to start the issuance of licences and also to conduct massive sensitization. We need to create platforms where we can carry out massive interaction with the miners, massive interactions with the traditional leaders, massive interaction with even the buyers…We have those that want to buy, we have a certificate, we have a mineral trading permit which is issued by us so if any buyer wants that he can come.[25]

Had this been done, the illegal buyers would likely have been identified and a more appropriate course of action would have been formulated at a very early stage. The haste with which cooperatives were asked to register also suggests that the designers of the 'Zambian Model' put little investment into mapping the existing levels of organization and design of panning communities.

The impression conveyed by government officials consulted during the initial round of interviews was that gold panning operations could mechanize and become an even greater source of tax with the requisite level of technical support. The following passages from interviews with officials suggest this to be the case:

[25] Interview, government official, Lusaka, 6 July 2017.

> Now if we subject them to that same 5% it may seem to be a burden, it may seem to be a burden…but that's not an issue…But we will follow the current existing tax regime that is at work for precious stones and gemstones and soon…The idea there is that when they are in groups. Depending on how many they are, 20, 30, they form an association. That association will be registered with Ministry of Commerce, we licence it then according to on how they will be producing, that applicable tax will be administered…[26]
>
> So that's how they start. And then from there, if they now want to mine, they will regularize and get a licence. So naturally they will be quite small and even their capability to mine will not be there per se, but what I've seen in modern times is that most of them are now mining through partnerships. So, they would have this land and the licence and then someone who has the money comes in and then they bring the equipment and then, they move on, so…[27]

This vision, another official summed up during an interview, stems from the government's preference for large-scale mining because its 'operators *never* go into an operation blind; they will go for exploration, [and] so basically from the onset, they are large scale…[with] stages you have to go through if you have to arrive at the optimum operations'.

This leads to a final possible explanation, which is a lack of support. Whilst galvanized interest in the 'Zambia Model' was initially needed to overcome a stifling 'large-scale bias', its *sustained success* is solely dependent upon securing steady supplies of funding. Surprisingly, donors and NGOs were not involved in the design and implementation phases of the exercise; nor have any attempts been made by the Government of Zambia to involve them. In hindsight, it was a curious decision, given the incapacitated state of many of the government organizations which feature in the institutional support structure presented in Figure 2. Heading the list are the organizations that comprise the Ministry of Mines and Minerals Development itself, the most illustrative example being the Geological Survey Department, inputs from which are so crucial to the success of the 'Zambia Model'. No comprehensive ASM formalization exercise can be developed without a detailed understanding of the geological terrain and ore speciation. This information is acquired through geological mapping and is needed to identify viable areas where – in this case – gold panners can be licensed and provided the security of tenure they covet.

In the past, the government leaned on the state-owned Zambia Consolidated Copper Mines, until its privatization in 2000, to produce detailed geological maps but none of this activity was done with gold in mind. The company was also massively underfunded, which explains why, by the 1980s, only 30 percent of the country had been mapped. But relying on the Geological Survey Department to supply missing information, and in the case, *specific* data, is not an option at this point, as the unit is not at full capacity and lacks resources. An official explained in an interview that 'Sometimes they [the Geological Survey] don't have enough money to do mapping as the cost far exceeds what they have'.[28] Another conceded that there is a 'Need for detailed geo-exploration to define, quantify and prove estimated reserves of gold' but 'It's expensive to do that, they [the Geological Survey Department] couldn't manage it'.[29] From the outset, there was a reluctance to turn to the NGO community for support because 'They [the government] don't want to bring in CSOs who may frustrate initiative if included early', although doing so would likely have had little effect because it has limited expertise in this front, and is therefore not really in a position to assist. The most logical choice would have

[26] Interview, government official, Lusaka, 6 July 2017.
[27] Interview, government official, Lusaka, 6 July 2017.
[28] Interview, government official, Lusaka, 28 June 2017.
[29] Interview, government official, Lusaka, 6 July 2017.

been the World Bank, which has long been active in Zambia on the extractive industries front. It is currently in the midst of coordinating, in the country, its US$65.6 million *Mining and Environmental Remediation and Improvement Project*, a main objective of which is to "Review the EPF regulations to, among other things: (i) ensure that issues relevant to mining and exploration right holders (large scale, artisanal, small scale and exploration rights) are adequately incorporated and appropriate for the scale and stage of operation" (World Bank, 2016, p. 53). But program officers from the World Bank, including those in charge of Zambia's extractive industries portfolio, conceded during interviews that they had no knowledge of the 'Zambia Model', despite liaising regularly with the same staff at the Ministry of Mines and Minerals Development who had spearheaded the project.

To summarize, whilst not without its problems, the 'Zambia Model' does offer inspiration to interested parties looking to formalize ASM in the most challenging of environments in sub-Saharan Africa. The final section of the paper reflects on its achievements thus far and outlines the broader lessons it provides for the region.

4. Concluding Remarks

Recent moves made to formalize gold panning in Zambia – dubbed here the 'Zambia Model' – at rush sites was highlighted in this paper as an example of how, when a government believes that there are financial gains to be made, African policymakers will embrace the ASM formalization challenge. The approach taken by the government to organize and regulate proliferating gold panning activities, and the rhetoric surrounding the launch of the 'Zambia Model', was, in line with broader interpretations of formalization of ASM in the policymaking and donor space, very legalist in character. The paper, therefore, examined and critiqued this exercise through a legalist lens, drawing heavily upon the ideas of its chief protagonist, Hernando De Soto (Spiegel and Veiga, 2009). Legalists argue that bureaucracy and excessive registration costs confine individuals to 'informal spaces', which, as explained, is precisely what is happening in the ASM sector across sub-Saharan Africa. These 'spaces' remain functional but have the hallmarks of what De Soto (2000, 2002) referred to as the 'extra-legal' economy.

Whilst the 'Zambia Model' demonstrates that taxation can entice an African government formalize ASM, it is also a reminder of how the long-term success of a project of this nature depends on the ability of its architects to maintain momentum. It is unclear, however, whether diminished interest in the 'Zambia Model', and ultimately, what could lead to its eventual demise, was simply a matter of unfortunate timing or stubbornness on the part of officials at the Ministry of Mines and Minerals Development. The intervention began with considerable promise but it quickly became apparent that support would be needed to sustain the initial momentum generated. An institutional framework was established at an early stage, with a view toward increasing government presence in communities and laying the groundwork for a tax-driven formalization strategy. Had the formative work for the 'Zambia Model' commenced a few years earlier, specifically closer to the launch of the AMV, it would have certainly caught the attention of donors and other interested parties and likely opened the doors for funding. This makes the decision *not* to reach out to parties such as the World Bank and United Nations for assistance inexplicable.

As indicated, what experiences implementing the 'Zambia Model' have revealed is that tax – or an untapped revenue stream – can entice a government operating to formalize ASM, and initiate action, which is the most difficult hurdle. They also reveal that more is needed if such an exercise is to build momentum and be sustained over the medium-to-long term. Significant resources will be needed to persuade and remove miners from the informal economy, where many are bonded to middlemen and other local-level actors. If the AMV's goal of *Boosting Artisanal and Small-Scale Mining* is to be

realized, the ASM sector must be formalized and supported. The 'Zambia Project' has shown that focusing on tax and the wider economic benefits formalization generates could be what persuades African governments to finally take the issue more seriously.

References

African Union. 2009. *Africa Mining Vision (AMV).* African Union, Addis Ababa.

Abdulai, A. G. 2017. Competitive clientelism and the political economy of mining in Ghana. ESID Working Paper No. 78, 51.

Blore, S. 2015. *Capacity Building for a Responsible Minerals Trade (CBRMT): Working with Producers to Responsibly Source Artisanal Gold from the Democratic Republic of Congo*. Report prepared by TetraTech for USAID, Washington DC.

Bzrozowski, T. 2015. *Compendium of Programmes managed by EU Delegation & Government of Republic of Zambia*. Report FED/2015/361-420, European Union, Brussels.

Chadukwa, C. 2018. An Overview of Artisanal and Small-Scale Mining in Zambia, p 26-31, in *Artisanal and Small-Scale Mining Handbook for Zambia with a Regional Perspective*, Geological Survey of Denmark and Greenland (GEUS), Copenhagen, Denmark.

Cuba, N., Bebbington, A., Rogan, J., Millones, M. 2014. Extractive industries, livelihoods and natural resource competition: Mapping overlapping claims in Peru and Ghana. *Applied Geography* 54: 250–261.

Cuff, K., Marceau, N., Mongrain, S., Roberts, J. 2011. Optimal Policies with an Informal Sector. *Journal of Public Economics* 95(11): 1280–1291.

Davidson, J. 1993. The transformation and successful development of small-scale mining enterprises in developing countries. *Natural Resources Forum* (17(4): 315–326.

De Koning, R. 2009. *Artisanal mining and post-conflict reconstruction in the Democratic Republic of the Congo*. Stockholm International Peace Research Institute, Stockholm.

De Soto, H. 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. Basic Books, New York.

De Soto, H. 2002. *The Other Path: The Economic Answer to Terrorism*. Basic Books, New York.

Delipalla, S. 2009. Commodity tax structure and informal activity. *Bulletin of Economic Research* 61(3): 283-294.

Elgin, C., Solis-Garcia, M. 2015. Tax enforcement, technology, and the informal sector. *Economic Systems* 39(1): 97–120.

Extractive Industries Transparency Initiative (EITI). 2015. *Seventh Report of the Zambia Extractive Industries Transparency Initiative (Zeiti)*. Extractive Industries Transparency Initiative, Oslo.

Extractive Industries Transparency Initiative (EITI). 2016. *Zambia EITI Eighth Report for the Fiscal Year Ended 31 December 2015: Final Report.* Extractive Industries Transparency Initiative, Oslo.

Fisher, E. 2007. Occupying the margins: Labour integration and social exclusion in artisanal mining in Tanzania. *Development and Change* 38(4): 735-760.

Fortin, B., Marceau, N., Savard, L. 1997. Taxation, wage controls and the informal sector. *Journal of Public Economics* 66(2): 293–312.

Government of Ghana. 2017. *Project Appraisal and Implementation Document for the Multilateral Mining Integrated Project (MMIP)*. Ministry of Lands and Natural Resources, Accra.

Hentschel, T., Hruschka, F., Priester, M. 2002. *Global Report on Artisanal and Small-Scale Mining*. Minerals Mining and Sustainable Development (MMSD) Project, International Institute for Environmental Development, London.

Hilson, G. 2017. Shootings and burning excavators: Some rapid reflections of the Government of Ghana's handling of the informal *galamsey* mining 'menace'. *Resources Policy* 54: 109-116.

Hilson, G., Garforth, C. 2013. 'Everyone Now is Concentrating on the Mining': Drivers and Implications of Rural Economic Transition in the Eastern Region of Ghana. *The Journal of Development Studies* 49(3): 348–364.

Hilson, G., Maconachie, R. 2017. Formalising artisanal and small-scale mining: insights, contestations and clarifications. *Area* 49(4): 443–451.

Hilson, G., Hilson, A., Adu-Darko, E. 2014. Chinese participation in Ghana's informal gold mining economy: Drivers, implications and clarifications. *Journal of Rural Studies* 34: 292–303.

Hilson, G., Hilson, A., Maconachie, R. 2018. Opportunity or Necessity? Conceptualizing Entrepreneurship at African Small-Scale Mines. *Technological Forecasting and Social Change* 131: 286-302.

Ihrig, J., Moe, K.S. 2004. Lurking in the shadows: the informal sector and government policy. *Journal of Development Economics* 73: 541-557.

International Labour Organization (ILO). 1999. *Social and Labour Issues in Small-Scale Mining*. International Labour Organization, Geneva.

Joshi, A., Prichard, W., Heady, C. 2014. Taxing the Informal Economy: The Current State of Knowledge and Agendas for Future Research. *The Journal of Development Studies* 50(10): 1325–1347.

Kambani, S. M. 1995. The illegal trading of high unit value minerals in developing countries. *Natural Resources Forum* 19(2): 107–112.

Kambani, S.M. 2000. Policy and strategy options for small-scale mining development in Zambia. *Minerals and Energy - Raw Materials Report* 15(3): 22-30.

Kambani, S.M. 2003. Small-scale mining and cleaner production issues in Zambia. *Journal of Cleaner Production* 11(2): 141-146.

KPMG. 2014. *KPMG Global Mining Institute Guinea, Country Mining Guide*. KPMG, Amstelveen.

Lange, S. 2006. *Benefit streams from mining in Tanzania: case studies from Geita and Mererani*. Chr. Michelsen Institute, Bergen.

Maldonado, C. 1995. The Informal Sector: Legalization or Laissez-Faire. *International Labour Review*, 134: 705–728.

Marjit, S., Mukherjee, V., Kolmar, M. 2006. Poverty, taxation and governance. *The Journal of International Trade & Economic Development* 15(3): 325–333.

Martin, A., Balzac, H. H. D. 2017. *The West African El Dorado: Mapping the Illicit Trade of Gold in Côte d'Ivoire, Mali and Burkina Faso*. IMPACT, Ottawa.

Mazhar, U., Méon, P. G. 2017. Taxing the unobservable: The impact of the shadow economy on inflation and taxation. *World Development*, 90(C), 89–103.

McFarlane, D. 2018. Personal communication. 20 March 2018.

McKenzie, D, Sakho, Y.S. 2010. Does It Pay Firms to Register for Taxes? The Impact of Formality on Firm Profitability. *Journal of Development Economics* 91(1): 15-24.

McLaren, J. 1998. Black Markets and Optimal Evadable Taxation. *The Economic Journal*, *108*(448), 665–679.

Ministry of National Development and Planning. 2017. *Seventh National Development Plan 2017-2021*. Ministry of National Development and Planning, Lusaka.

Mthembu-Salter, G. 2014. *Baseline study two: Mukungwe artisanal mine, Kivu, Democratic Republic of Congo*. OECD, Paris.

Mkodzongi, G., Spiegel, S. 2018. Artisanal Gold Mining and Farming: Livelihood Linkages and Labour Dynamics after Land Reforms in Zimbabwe. *Journal of Development Studies* Article in Press.

Phiri, S.C., Nakamba-Kabaso, P. 2012. *Taxation of the informal sector in Zambia*. Working Paper No. 5, Zambia Institute for Policy Analysis and Research, Lusaka.

Siegel, S., Veiga, M. M. 2009. Artisanal and small-scale mining as an extralegal economy: De Soto and the redefinition of "formalization." *Resources Policy* 34(1–2): 51–56.

Siwale, A., Siwale, T. 2017. Has the promise of formalizing artisanal and small-scale mining (ASM) failed? The case of Zambia. *The Extractive Industries and Society* 4(1): 191–201.

Sookram, S., Watson, P.K. 2008. The Informal Sector and Small Business Activity in an Emerging Economy. *Journal of Development Studies* 44(10): 1531-1555.

Spiegel, S.J. 2014. Legacies of a nationwide crackdown in Zimbabwe: Operation Chikorokoza Chapera in gold mining communities. *Journal of Modern African Studies* 52(4): 541-570.

Spiegel, S., 2015. Shifting formalization policies and recentralizing power: the case of Zimbabwe's artisanal mining sector. *Society and Natural Resources* 28(5): 543–558.

United Nations Conference on Trade and Development (UNCTAD). 2016. *State of Commodity Dependence 2016.* United Nations Conference on Trade and Development (UNCTAD), Geneva.

United Nations Environment Program (UNEP). 2012. *Analysis of formalization approaches in the artisanal and small-scale gold mining sector based on experiences in Ecuador, Mongolia, Peru, Tanzania and Uganda.* Geneva: United Nations Environment Program.

Van Bockstael, S. 2014. The persistence of informality: perspectives on the future of artisanal mining in Liberia. *Futures* 62: 10–20

Verbrugge, B., Besmanos, B. 2016. Formalizing artisanal and small-scale mining: Whither the workforce? *Resources Policy* 47: 134–141.

Williams, C., Martinez, A. 2014. Is the informal economy an incubator for new enterprise creation? A gender perspective*. International Journal of Entrepreneurial Behavior & Research* 20(1): 4–19.

World Bank. 2016. *Zambia Mining Investment and Governance Review*. World Bank, Washington DC.

Zambia Development Agency. 2015. *Mining Sector Profile*. Zambia Development Agency, Lusaka.

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