Institutions and Resource Governance at the Sub-National Level: The Case of Artisanal and Small-Scale Mining in Zambia

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DISCLOSURE OF CO-CONTRIBUTION

Chapter 2: Has the promise of formalizing artisanal and small-scale mining (ASM) failed? The case of Zambia

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The idea to assess the impact of formalisation on economic outcomes of artisanal and smallscale miners was a joint idea between Agatha and Twivwe Siwale. The bulk of the data collection was undertaken by Agatha Siwale while both contributed substantially to the analysis, interpretation and write-up of findings and results.

Abstract

This thesis analyses how formal and informal institutions influence the degree to which communities benefit from natural resources. Specifically, the thesis engages with the dynamics of resource extraction in the context of formalised artisanal and small-scale mining, which has received limited attention in the literature. This is done through three independent but interconnected, publishable articles based on archival research, interviews and field visits to Zambia's amethyst and emerald mines. The first chapter is a co-authored, published article and evaluates the link between formalisation, as a formal institutional intervention, and economic outcomes for formalised artisanal and small-scale emerald miners. The study finds that contrary to indications in the literature, formalisation has not significantly increased access to credit, investment or state assistance. Conversely, the state employed formalisation as a tool for centralising control over mineral-rich areas while displacing artisanal miners to marginal lands. In the second chapter, the thesis explores how mining licence-holders respond to institutional failures to support their activities. The study finds that 'competing' informal institutions have emerged around resource extraction that undermine the government's goals of revenue generation and miners' goals of poverty-reduction. In the third and final chapter, the viability of mining associations in facilitating collective action in response to common production constraints by miners is assessed. The chapter discovers that mining licence-holders rely more on informal, trust based networks than mining associations, which face internal governance and capacity constraints and low levels of trust. The thesis importantly demonstrates how the introduction of formal institutional frameworks, in the form of policies and laws, has limited impact on increasing access to benefits from resources by communities. Formal institutional interventions, primarily favour actors with pre-existing capital to benefit from resources while the poor continue to rely on informal institutions.

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List of Abbreviations

ACP-EU	African Caribbean Pacific – European Union		
AMV	African Mining Vision		
ASM	Artisanal and Small-Scale Mining		
AZWIM	Association of Zambian Women in Mining		
CEEC	Citizens' Economic Empowerment Commission		
CSO	Civil Society Organisation		
EIB	European Investment Bank		
EITI	Extractive Industries Transparency Initiative		
ESSMAS	Emeralds and Semi-Precious Small-Scale Miners in		
	Zambia		
EU	European Union		
FAO	Food Agriculture Organisation		
FESMAZ	Federation of Small-Scale Mining Associations of		
	Zambia		
GIA	Gemmological Institute of America		
GPN	Global Production Network		
GRZ	Government of the Republic of Zambia		
GVC	Global Value Chain		
GSF	Global Support Facility		
IGF	Intergovernmental Forum on Mines and Minerals		
ILO	International Labour Organisation		
JPA	Joint Production Arrangements		
KMA	Kalomo Miners' Association		
LSM	Large-Scale Mining		
MOD	Mine-Owner Driven Operations		
LoCA	Logic of Collective Action		
MMDA	Mines and Minerals Development Act		
MSDP	Mining Sector Diversification Programme		
NGO	Non-Governmental Organisation		
NRERA	Ndola Rural Emerald Restricted Area		
PPF	Pre-Production Facility		
RPO	Rural Producer Organisation		
SADC	Southern African Development Community		
SEED	Support to Economic Expansion and Diversification		
SSA	sub-Saharan Africa		
UN	United Nations		
UNDP	United Nations Development Programme		

UNEP	United Nations Environment Programme	
UNECA	United Nations Economic Commission for Africa	
UNIFEM	United Nations Development Fund for Women	
UNIP	United National Independence Party	
ZCCM	Zambia Consolidated Copper Mines	
ZCCM-IH	Zambia Consolidated Copper Mines Investment	
	Holdings	
ZDA	Zambia Development Agency	
ZEMA	Zambia Environmental Management Agency	
ZEITI	Zambia Extractive Industries Transparency Initiative	
ZRA	Zambia Revenue Authority	
7NPD	Seventh National Development Plan	

Chapter 1 Introduction

For decades, natural resources have been central to sub-Saharan Africa's hopes of a growth miracle. Recent discoveries of natural gas, oil and minerals in countries like Uganda, Mozambique, Tanzania, Liberia and Ghana, have, for instance, sparked renewed anticipation of rapid socio-economic development, with additional contributions to government treasuries expected to rise by up to 30 per cent within the first ten years of production (AfDB and BMGF, 2015; Kimenyi and Lewis, 2016).¹ However, while resources are linked to much optimism, they have also come to be paradoxically associated with poor growth (Auty, 1993; Sachs and Warner, 1995; Lane and Tornell, 1997; Auty and Gelb, 2000); poor human capital development (Gylfason, 2001); corruption and rent-seeking (Rosser, 2006; Humphreys et al., 2007; Karl, 2007) and armed conflict (Ross, 2006, 2015) – dubbed the 'resource curse' (RC).

Although the existence of a 'resource-curse' is contested (Brunnschweiler and Bulte, 2006), evidence of a negative relationship between resource dependence and growth remains convincing (Sachs and Warner, 2001; Neumayer, 2004; Badeeb, et al., 2017). Much research has thus been devoted to seeking to understand these paradoxical outcomes, especially for commodities associated with high rents like oil and gas (Ross, 2012; Khanna, 2017), but also for other point resources like precious minerals (Auty, 1993; Sachs and Warner, 1995; 2001; Stevens, 2015). Two dominant schools of thought that have emerged are economic and political/institutional arguments for the 'curse'. Macro-economic arguments have emphasised the role of factors such as the deterioration of terms of trade for primary exporters (Toye and

¹ Revenue streams are anticipated to start from 2016 to at least 2030 for most of these countries (AfDB and BMGF, 2015).

Toye, 2003; Mollick et al., 2005; Frankel, 2010), price volatility of commodities on international markets (Cavalcanti et al., 2014), the enclavity of resource extraction and Dutchdisease, in which resource-rents trigger an appreciation in the real exchange rate and make a country's traded commodities expensive on international markets, resulting in a process of deindustrialisation (Ross, 1999; Humphreys et al., 2007).²

Political/institutional arguments have, however, gained ascendancy in recent years. They argue that corrective policy action is available for economic challenges identified, but political elites and policy-makers in resource-rich countries, as well as multinationals, benefit from the status quo and have no incentive to make the requisite changes (Karl, 2007). The resource-curse (RC going forward) is thus ascribed to weak institutions, such as weak rule of law and bureaucratic quality (Tornell and Lane, 1998; Mehlum, Moene, and Torvik, 2002; Robinson, Torvik, and Verdier, 2006), corruption, patronage, and rent-seeking (Ross, 1999, 2015; Sala-i-Martin and Subramanian, 2003; Kolstad and Wiig, 2009). It is this latter school of thought that the present research seeks to extend through leveraging institutional arguments to frame the much-overlooked resource dynamics in artisanal and small-scale mining (ASM).

Artisanal and small-scale mining – the low-tech, labour intensive, mineral extraction and processing (Hilson and McQuilken, 2014) - is on an upward trajectory across sub-Saharan Africa (SSA). People directly employed by the sector globally surged from approximately 30 million in 2014 to approximately 41 million in 2017 (IGF, 2017), a thirty-five per cent increase, with significant populations located in the rural stretches of sub-Saharan Africa (Hentschel et al., 2002; Hilson, 2012; Buxton, 2013). While holding immense potential for poverty-

² For comprehensive reviews on other causal mechanisms see Frankel (2010) and van de Ploeg (2012).

reduction, ASM is also associated with many challenges including child labour, environmental degradation and poor health and safety records (Buxton, 2013; Osei-Kojo and Andrews, 2016). Although policy-makers have traditionally tended to marginalise and minimise the importance of ASM on policy agendas in favour of large-scale mining (LSM), they have in recent years been forced to recognise ASM's critical link to poverty reduction and economic growth, resulting in increased government, inter-governmental and donor interest (African Union, 2009; Jønsson and Fold, 2011; Hilson, Hilson, and Maconachie, 2017). However, decades after ASM was placed on policy agendas, participants remain trapped in poverty and negative social-environmental conditions prevail (Hilson, 2012; Buxton, 2013).

Resource curse literature has, however, provided little illumination on resource dynamics at this micro-level, instead remaining fixated on the macro-level.³ This oversight is problematic as ASM is fundamentally linked to RC discussions and also because RC literature has, over its relatively longer existence, developed important analytical tools for understanding the resource-development nexus and could potentially inform ASM discussions.⁴ Conversely, theorising on the underlying causes of constrained growth in ASM literature is still at a nascent stage, with a greater focus devoted to empirical studies on the drivers and socio-economic impacts of ASM (but see Barry, 1996, Ross, 2011, Hilson, 2012). This has contributed to inappropriate policy responses that have failed to transform the sector (Childs, 2008; African Union, 2009; McQuilken and Hilson, 2017). If policy makers are to devise policy solutions that are effective in harnessing the potential of ASM while curtailing its associated challenges,

³ Gilberthorpe and Papyrakis, (2015), are among the few to recognise the rift between RC debates by economists and political-economists and discussions of resources at the micro-level by sociologists and anthropologists, calling for a cross-disciplinary and multi-scalar approach.

⁴ Of course, certain methodological approaches in economics may be inappropriate for disentangling certain micro-level dynamics, however, many other theoretical and analytical tools may be usefully applied to micro settings.

interventions must be based on a sound understanding of how the sector operates and the inhibitors to sustainable ASM (McQuilken and Hilson, 2017). These are the critical issues that this research seeks to address.

The central research question posed by the thesis is: 'How do interactions between formal and informal institutions shape resource use at the subnational level?' The thesis addresses this single question through three independent, publishable chapters, each tackling a dimension of the wider question. It is based on a qualitative, case-study of formalised amethyst and emerald, ASM mining in Zambia. The first empirical chapter provides insights into how state failures curtail potential benefits from mineral rights ownership by ASM operators. It demonstrates how changes in formal institutions, are undermined by weak enforcement and path-dependency at the national level, confirming institutional arguments of the RC. The second chapter, though undertaken in the context of amethyst mining, builds upon the first by moving beyond state failures to an analysis of how ASM operators adopt divergent production patterns in response to ineffective formal state institutions. Findings largely support RC arguments of the emergence of rent-seeking patterns that conflict with productive entrepreneurs and undermine incomes in contexts of weak institutions. The third and final empirical chapter, analyses how failed collective action, particularly through mining associations, undermines potential benefits from cooperation in resource extraction. Informal, trust-based networks are shown to be more effective than local, formal associations in this context. Together, the three chapters provide a three-dimensional perspective into how state failures interact with local level institutional dynamics to limit benefits from resources. This research is unique in that it examines ASM in a formalised context, unlike most ASM studies that examine it in informal contexts, which is where it is predominantly located (IGF, 2017; Jinnah et al., 2017).

The thesis makes a case for the extension of resource-curse discussions to ASM by engaging in an initial contextualisation of ASM within RC debates in the introductory chapter before focusing in on mechanisms that constrain growth in the empirical chapters. The concluding chapter then reflects on how mechanisms identified at the micro-level link back to macro-level institutional - RC debates. The empirical chapters are therefore not primarily focused on RC debates but through an engagement with interactions between institutions, resources and outcomes for actors in the ASM context, allow for reflections on interactions between causal mechanisms at the micro and macro-level.

The rest of this introductory chapter is structured as follows: Section 2 engages with RC debates and situates ASM within this broader literature. Section 3 is a theoretical section that critically engages with institutional theory in the RC context and sets up the theoretical approach that broadly informs the individual chapters. Section 4 presents the generic research design for the thesis and its limitations. Section 5 concludes with an overview of the whole thesis.

2. Critical Reflections on ASM and Resource-Curse Debates

Resource-curse debates have, tended to base their analyses on an underlying assumption of mineral extraction as a large-scale, capital-intensive venture requiring colossal investments that can only be mustered by governments (Shafer, 1994; Luong, 2003; Khanna, 2017), International Financial Institutions (IFIs) and foreign multinationals (Grieg-Gran, 2002; Brunnschweiler and Valente, 2013).⁵ Most of these studies assume that resource rents accrue to the state either directly through ownership or through taxes from a few large foreign firms.

⁵ This is largely because most RC studies are based on cases of oil and gas which are typically large-scale ventures and show the highest resource-curse symptoms (Gelb et al., 1988; Karl, 2007; Khanna, 2017).

Even studies that have exposed the partly mistaken assumption of state/foreign ownership, importantly - Luong and Weinthal (2006) and Shafer (1994) – and have shown that resource-extraction can be privately owned, leading to a dispersal of proceeds to non-state actors, continue to focus on resource-extraction as an activity for 'big capital', tenable only under large-scale mining.

While such macro-level arguments relating to large-scale mining (LSM) are important, they have precluded closer examination of resource-development dynamics at the subnational level,⁶ specifically, in contexts of artisanal and small-scale mining (ASM). Unlike most large-scale endeavours, ASM is typically in private, domestic, hands with rents accruing to multiple non-state actors. ASM operators are also characterised by use of primitive technology in extraction and complex informal production networks, unlike LSM (Hentschel, 2003; Jønsson and Fold, 2011). This variation in context from large-scale mining raises important questions about the impacts of resources on development in ASM contexts. Questions also arise regarding causal factors and policy implications in instances where resources do not stimulate rural development. Do causal mechanisms and policy implications at this level vary significantly from those of typical RC studies based on large-scale extraction? These issues are of critical importance both from a policy perspective that seeks to remedy the problem but also from a theoretical perspective that seeks to further knowledge and understanding on how resources shape development at this level.

⁶ There is a growing body of literature on the RC at sub-national level, some of which shows positive impacts of resources on local incomes (Loayza et al., 2013; Allcott and Keniston, 2017 but in the United States), while resources entrench local elected officials in other cases (Ross, 2015) and are linked to corruption at subnational level (Vicente, 2010; Caselli and Michaels 2013), but these studies focus on LSM impacts at local level and do not specifically examine ASM effects.

While the growing body of ASM literature has engaged with the link between resources and development in ASM contexts, it has mostly focused on the drivers behind the activity (Hilson and Osei, 2014; Aizawa, 2016; Musah-Surugu et al., 2017) and its socio-economic and environmental impacts (Hentschel et al., 2003; Maconachie, 2009; Telmer and Veiga, 2009; Hilson, 2010; Cordy, et al., 2011). The underlying causes of problems in the sector are, however, only tangentially addressed (Cartier, 2009), with fragmented attributions made to technical, bureaucratic, legal and political factors. ASM literature is also mainly empirically focused with less engagement with the theoretical underpinnings of phenomena observed (Bryceson and Jønsson, 2009). While empirical discussions and policy relevant insights are pertinent, their effectiveness is limited when they do not provide a systematic way of explaining behaviour or phenomena or predicting outcomes (Glanz et al., 2008). As has been rightly argued, theory and practice are not dichotomous but must be viewed as being in a healthy coexistence: '[t]he best theory is likely to be grounded in real lessons from practice. The best practice should be grounded in theory' (Glanz et al., 2008: 5). This thesis, therefore, draws on institutional arguments of the resource curse and broader institutional theory to frame understanding on how the sector operates and the underlying factors that may limit resourceled rural development.

3. Institutions and the Resource Curse

As alluded to, institutions have come to be widely recognised as playing a decisive role in determining whether resources are a 'blessing' or a 'curse' (Mehlum, Moene, and Torvik, 2006). Douglas North's (1990; 1994) theory of institutions and institutional change has been one of the most influential in developing understanding of the role of institutions in shaping societal outcomes and informs key institutional arguments for the resource curse. North defines institutions as "... the rules of the game in a society or, more formally, as the humanly devised

constraints that shape human interaction" (1990: 3). He argues that the extent to which institutions (formal/informal) constrain human behaviour and shape choice depends on the degree to which they are effectively enforced. Enforcement occurs at three levels: first, through internalised norms and self-control; second, through second party enforcement such as retaliation from the offended, and third, through enforcement by the state. Institutions structure incentives in human exchange across political, social and economic spheres through their impact on transaction and transformation (production) costs. Importantly, North (1994) argues that the kind of organisations that emerge in society depend on incentives created by the wider institutional framework, since this limits the opportunity set of players.

Mehlum et al., (2006) helpfully identify three main treatments of institutions in RC literature. First, some scholars view institutions as neutral and exerting little impact on resource outcomes (Sachs and Warner, 1995). Others contend that institutions are an intermediate causal link to the resource-curse, implying that natural resources damage institutions, which in turn leads to poor developmental outcomes. The third group argue that resources interact with the quality of institutions and condition outcomes from resources: good institutions lead to positive outcomes and bad institutions to negative ones (Mehlum et al., 2006).

This thesis finds most resonance with the latter two arguments and derives three (3) main hypotheses from them which are explored in subsequent chapters. The argument that resource rents diminish institutional quality has been variously argued with some contending that resources lead to violent conflict, which destroys state institutions and disrupts economic activity leading, to slow growth (Collier and Hoeffler, 2004; Rosser, 2006). Others argue that resource rents forestall demands for democracy through buying off political opposition (Ross, 2001; Robinson et al., 2006), not taxing citizens and high social spending, which Ross (2001)

calls the 'rentier effect.' Corruption is also argued to engulf these states leading to poor growth (Leite and Weidmann, 1999; Dietz et al., 2007).

A prominent argument championed by scholars such as Hazem Beblawi (1987) and Terry Lynn Karl (1997; 2007), that encompasses foregoing ideas, is that resources obstruct the emergence of strong state institutions (Beblawi, 1987; Karl, 2007; Ross, 2015). Resource-rich states are termed 'rentier states' that rely on resource-rents (unearned income) rather than taxing citizens for state functions. Resource-rich states (particularly oil-rich states) therefore tend to adopt lax fiscal and monetary policies which avoid the unpopularity that comes from taxing citizens (Beblawi, 1987; Karl, 2007). However, reliance on resource rents as opposed to taxation makes states less accountable to citizens. Political elites then gain control over distribution of resource rents and utilise rents to buy-off political opposition and distribute resource benefits to allies, family and friends through "rent-seeking" activities (Ross, 1999). Rent-seeking behaviour in this case includes all efforts by individuals or groups to lobby government for "special privileges" or policies that assure them financial benefits either through tax cuts, subsidies, or regulatory policies that give these groups and/individuals an unfair advantage over their competitors and is also done at the expense of tax-payers and other consumers (Johnson, 1994; Henderson, 2008). Patronage, corruption and rent-seeking undermine productive activities, leading to low growth (Lane and Tornell, 1997; Karl, 2007; Stevens and Dietsche, 2008).

'Rentier-State' theorists present a convincing argument for the mechanisms through which inefficient policies are perpetuated and a culture of rent-seeking created. However, the limitation of Karl's argument, and of statists in general, is that it is highly state-centric and assumes the presence of a few, large-scale firms bringing in colossal resource rents to state coffers. This does not sufficiently explain contexts like that of ASM where resource extraction is in the hands of numerous small-scale miners and resource-rents are not concentrated in the hands of the state, limiting control by political elites. In such cases, the role of firms and groups of extractors becomes more central. Shafer (1994), another 'statist', who also assumes that mining is always a large-scale endeavour, inadvertently provides insights into outcomes from dispersed, non-state production.

Using a sectoral analysis model, he contends that development outcomes depend on the characteristics of leading sectors. Shafer proposes two ideal-types, high/high sectors and low/low sectors. High/high sectors (which he exemplifies as mining and industrial crop plantations), are characterised by high capital intensity; high economies of scale, high production inflexibility and high asset/factor inflexibility. Conversely, low-low sectors (e.g. light manufacturing and peasant cash crop production) feature low capital intensity, low economies of scale, high production flexibility and high asset/factor flexibility - characteristics which broadly mirror ASM ventures. Countries dominated by latter, become growth winners while high/high sectors are growth losers and rentier states. This is because countries with high/high sectors are populated by only a few leading sector firms which incentivises the state to develop a tax system specialised to maximise revenue from those firms but not the rest of the economy (rentier state). The state is also held captive to lobbying by large firms in the context of weak institutions (Shafer, 1994: 13; Lane and Tornell, 1997). Growth winners, on the other hand have numerous small firms that are widely dispersed, which compels the state to develop flexible systems to tax those firms and general-purpose agencies are put in place to monitor a diversity of firms which strengthens state capacity. His conclusions have been supported by subsequent RC studies that find that diffuse resources, whose production is dispersed are less susceptible to the RC (Bulte et al., 2005; Luong and Weinthal, 2006).

From Shafer's model, it may be deduced that ASM may be less susceptible to the RC in cases where it is the leading sector. He, however, also clarifies how the dominant sector shapes state capacity and outcomes for non-leading sectors. Although he homogenises the extractive sector as high/high, and assumes that it is only the non-extractives that are side-lined by leading sectors, this marginalisation similarly applies to non-leading mineral commodities, as will be shown in the case of ASM. This interaction between leading and non-leading sectors would lead us to hypothesise that:

Hypothesis 1: The ASM sector will be neglected vis-à-vis large-scale mining leading to underdevelopment of the ASM sector.

Changes in policy around ASM also would not translate into immediate, significant transformation in the operation of the sector. Rather, in line with North (1994), where there is strong enforcement of laws, there is greater likelihood of consistency between policy goals and sectoral outcomes. However, path-dependency undermines the rate of change making it extremely gradual. As North (1994: 6) writes: 'enforcement characteristics will typically bias costs and benefits in favour of choices consistent with the existing framework' – in countries with LSM as the leader, this would imply a large-scale mining bias. Conversely, in contexts where ASM is the leading sector, it is likely to receive greater state support and trigger resource-led growth. Findings from the second chapter of the thesis generally provide support for a bias towards LSM, gradual change despite policy shifts in favour of ASM and underdeveloped mineral resources as shown through the limited number of licenced ASM operators in production.

Mehlum et al. (2006) build on rentier-state ideas but broaden the lens from a focus on resources and state institutions to an analysis of the kinds of firms that wider institutional frameworks inspire, following the work of North (1990; 1994). They argue that not all rent-seeking is equally bad but rather, rent-seeking that competes with productive activities (e.g. by politicians, bureaucrats or warlords) is most detrimental. Beblawi (1987) clarifies the nature of rents and rent-seeking when he states that a rent is 'generally a reward for ownership of all natural resources...' (1987: 49), implying that it is not necessarily reflective of the input required to produce it. He distinguishes between 'earned' and 'unearned' income and invokes the image of the general social disdain levelled at social groups (rentiers) who 'do not participate actively in the economic production' but 'nevertheless share in the produce and at times, a handsome share' (1987:50). Unproductive rent-seeking activities sharply contrast with entrepreneurs as portrayed by Schumpeter who characterises them as 'dynamic, innovative, risk-bearing' (cited in Beblawi, 1987: 50). Mehlum et al. (2006) argue that weak institutions that reward rent-seekers lead entrepreneurs to switch to unproductive rent-seeking, resulting in a decline in national income. In seeking to understand the types of entrepreneurs who emerge in formalised, ASM contexts, this would lead us to expect that:

Hypothesis 2: Weak institutions lead to rent-seeking behaviour undermining productivity of the ASM sector.

Helmke and Levitsky (2004), however, argue that the entrepreneurial activities that emerge from the wider institutional setting may not necessarily follow a strict dichotomy between 'good/productive' and 'bad/rent-seeking.' Rather, a wider variety of informal institutional forms may emerge giving rise to different organisational patterns by firms and sectoral outcomes. For Helmke and Levitsky (2004), informal institutions may be competing, substitutive, accommodating or complementary of formal institutions, depending on the effectiveness of state enforcement and consistency between the goals of actors in state versus those of agents in informal institutions. This pattern is observed in a number of cases where

informal institutions arise to substitute for state functions or possibly compete with goals of formal institutions (Tsai, 2002; Estrin and Prevezer, 2011).⁷ Entrepreneurs operating in contexts of rentier states may therefore not succumb to a strict binary of 'producer-friendly' versus 'grabber-friendly' production patterns but may adopt divergent production patterns in response to failures in state and market institutions. Findings from the third chapter of the thesis are most supportive of competition between productive entrepreneurs and rent-seekers that undermines incomes for all players. However, arguments by Helmke and Levitsky (2004), seem to hold relevance as not all players that fall outside of the 'productive entrepreneur' bracket pursue 'rent-seeker' type, activities out of indolence but from constraints in the wider institutional framework.

The third hypothesis, which aligns with the fourth chapter, is drawn from both Shafer's sectoral analysis and from Olson's (1971) arguments on collective action. It is the expectation that:

Hypothesis 3: Collective action within the ASM sector is bound to fail given the large number of actors and low levels of trust.

Shafer (1994) contends that firms in low-low sectors are numerous, small, geographically isolated and in intense competition with each other. Their owners are usually sole-proprietors who hire unskilled labourers from mixed communities and are opposed to labour organisation. It is therefore unlikely that they will work collectively. These ideas are supported by Olson (1971) in the logic of collective action, who argues that it is illogical for rational, self-interested individuals to work together in service of a large group's goals. Ostrom (1998), however, challenges this position and states that in small-groups involving norms of trust and reciprocity,

⁷ This theory is elaborated upon in the third empirical chapter.

collective action is attainable. Cooperation is thus more likely in small groups, while cooperation across a larger group of players fails. This is borne out in the fourth chapter where collective action through mining associations has been unsuccessful in leveraging economies of scale for ASM operators, lowering input costs and strengthening lobbying.

In brief, the three hypotheses derived can be summarised as follows. Firstly, in rentier states, it is hypothesised that a large-scale mining bias will predominate leading to the side-lining of ASM on policy agendas, despite formalisation. This in turn leads to the subsequent underdevelopment of the ASM sector. This hypothesis is in line with chapter 2 of the thesis. The second hypothesis aligns with chapter 3 and hypothesises that a weak link between resources and rural development arises from divergent organisational patterns that emerge in ASM in response to failures in market and state institutions. This is particularly the case in rentier states, where a competing leading sector exists. The third hypothesis frames chapter 4 and anticipates that weak collective action among widely dispersed and competing ASM operators, who exhibit low levels of trust and are in competition with each other leads to failure to cooperate and maximise benefits from resources.

4. Defining Key Concepts

Before delving into the methods used to explore these propositions, it is important that certain key concepts be defined. Firstly, the concept of formalisation is interpreted in two ways in the literature: in a broad and narrow way. On one hand, formalisation is broadly defined as 'the process of bringing informal income-earning activities and economies into the formal sector through legal, regulatory, and policy frameworks, as well as the extent to which such laws and regulations are successfully activated, implemented, and enforced by the relevant authorities.' (IGF, 2017: 49). In this first instance, there is an expectation of enforcement and activation of

legal frameworks. This perception of a holistic approach to formalising activities of ASM operators in which they are not only given title but monitored and supported by the state (Siegel and Veiga, 2009), is largely held by ASM scholars who have tended to assume that governments and donors hold the same perspective (Hilson and Maconachie, 2017). Conversely, formalisation has also been narrowly conceptualised as the process of legalization or awarding formal titles or property rights to actors (Geenen, 2012). This is a view that has largely been adopted by many governments and policy-makers (Hilson, 2009; Eschavarria, 2014; Hilson and Maconachie, 2017) and is what is primarily referred to and challenged in this thesis.

A second key concept is artisanal and small-scale mining (ASM) which is generally defined as: "low-tech, labour-intensive mineral extraction and processing" (Hilson and McQuilken, 2014: 2). There is however, no commonly held definition for ASM across countries (Hentschel et al., 2002). This research therefore, broadens the definition offered by Hilson and McQuilken (2014) to firstly include the area size upon which the activity is undertaken, which is generally small. According to Zambia's mining law, for instance, artisanal mining covers an area between 3 and 6 hectares and small-scale mining is between ten and 400 hectares (Mines and Minerals Development Act, 2015; Tychsen et al., 2018). Secondly, this study does not limit ASM to basic tools like picks and shovels but includes even mechanised operations including tractors and dump trucks. As Hentschel et al., (2002) rightly point out, levels of mechanisation may vary with fully manual methods ascribed to artisans and more mechanised methods to small-scale mining, but the two tend to be classed together. A final element included to the ASM definition is trade. Although a focus has been placed on extraction and processing, this study incorporates the element of mineral trade which is central to ASM. Thirdly, institutions are defined in line with North as "... the rules of the game in a society or, more formally, as the humanly devised constraints that shape human interaction" (North 1990:3).

Four other concepts used are: rural development, which the World Bank (1975) and UNECA (1969) both define as relating to increased productivity and higher incomes that in turn promote social advancement in rural areas and is the meaning adopted here. Rentier-state is defined as a state which relies on resource-rents (unearned income) rather than on taxing its citizens for state functions, in line with Karl (2007). 'Subnational level' refers to the ASM community level and not necessarily the district or provincial level. Community is defined as: 'A particular area or place considered together with its inhabitants' (Oxford Living Dictionary, 2018). Finally, 'resource-use' is taken to mean extraction, processing, trade and derivation of benefits from natural resources – specifically, amethysts and emeralds in this case.

5. Methods and Data Collection

The dissertation is based on a qualitative, case-study design which is widely recognised in social science research as highly appropriate for gaining a holistic, in-depth, understanding of complex issues such as community-based problems relating to poverty or unemployment (Zainal, 2007). Considering the complexity of producer networks in ASM and the need to trace underlying processes of phenomena, such a qualitative approach was deemed necessary.

5.1 Case-Selection

The case of formalised ASM gemstone mining in Zambia was selected on the basis of it being an extreme case, in line with (Seawright and Gerring, 2008). Zambia is among the very few resource-rich countries in sub-Saharan Africa where ASM is formalised. In most countries, 70 to 80 per cent of ASM occurs in the informal sector (IGF, 2017; World Bank, 2013), but in Zambia, 75 per cent of ASM operators possess legal title (Tychsen et al., 2018). As Seawright and Gerring argue, with the extreme case, '...it is the rareness of the value that makes a case valuable, not its positive or negative value' on the independent or dependent variable (2008: 301). Although the case of Zambia is 'extreme' in the sense of context (formalised) and not necessarily with regards to outcomes from resources at a subnational level, it provides an important case for investigating the relationship between resources and development postformalisation. By analysing resource dynamics in a formalised context, knowledge can be gained on the effectiveness of property rights as a solution for challenges in ASM, and insights obtained for policy-makers in designing interventions for the many other countries where attempts are currently underway to formalise the sector.

The case of Zambia is also valuable because it has been identified as demonstrating 'resourcecurse' effects due to its over-reliance on large-scale copper mining and the attendant adverse developmental effects this dependence has had (Auty, 1993; Shafer, 1994; Sachs and Warner, 1995). The presence of a competing leading sector, would allow for assessment of how ASM activities fare in a predominantly LSM context. ASM gemstone mining is also an important case because it fulfils many of the pre-requisites laid down for sectors that escape the resourcecurse, such as low capital intensity and production flexibility, in line with Shafer (1994) and Luong (2003) raising questions as to whether it shows positive outcomes from resources. Furthermore, Zambia is under-researched with regards to ASM which offers the opportunity for new knowledge.

5.2 Data Collection

Data was collected in line with the three empirical chapters: the first focusing on the link between formalisation and benefits from resources; the second on production networks in ASM and their implications for poverty and the third on mining associations, their operations and services and their effectiveness in facilitating collective action. All chapters focus on ASM gemstone mining but in two contexts: amethyst and emerald mining. There is therefore a degree of overlap in respondents particularly relating to government officials and the institutional context. This section provides a broad overview of the methods used, as a similar methodological approach was adopted across the thesis. However, it is not exhaustive and a more detailed engagement with methods and their limitations is incorporated in the respective chapters and appendix.

Purposive sampling was selected as the most appropriate sampling method for identifying and selecting the most 'information rich' respondents who would provide insights into the research question posed (Palinkas et al., 2015). This mainly included ASM mining licence-holders, mine employees, mineral traders, members of mining associations, government and donor officials (See Table 1 below).

Stakeholder	Number Interviewed	Description
Emerald Mine-Licence Holders	8	All members of ESMAZ*
		association
Amethyst Licence Holders	12	Members of AZWIM/KMA*
Informal Miners	5	Mapatizya Community Members
Stone traders	25	Mapatizya Community Members
Mine-Workers	34	Mapatizya Community Members
Market traders (food, clothing)	6	Mapatizya Community Members
Government officials	21	Mostly senior government
		officials
Multilateral Agencies	4	Engaged in support to ASM
Non-Governmental Organisation	1	Project manager engaged in ASM

 Table 1: Stakeholders Interviewed (June 2016 to March 2018)

Members of Mining Associations	2	Members of Federation and
not located in Mapatizya/NRERA		AZWIM but not in amethyst or
		emerald mining
Total	118	

*AZWIM (Association of Zambian Women in Mining); KMA (Kalomo Miners' Association); ESMAZ (Emerald and Semi-Precious Stones Mining Association of Zambia) Source: Generated by Author

Snowball sampling was also relied upon where interviewees provided links to other key respondents. Convenience sampling was only rarely used as the research targeted respondents with specific experiences (key informants sample) (Marshall, 1996) in mining. Random sampling, for an exploratory study into production networks and associations, would have been inappropriate as it would be ineffective in capturing variations in respondent groups. Further, in the case of small samples, it has been associated with leading to unrepresentative samples (Marshall, 1996; Seawright and Gerring, 2008).

The key limitation with purposive sampling, however, is that the research assumes that the researcher knows the range of variation in the characteristic of interest of the target population before-hand, which may not be the case (Palinkas, et al., 2015). This challenge is intensified when access to complete sampling frames of possible respondents is unavailable, as was the case with seeking to trace mine-owners in this study. However, mining associations provided an important source of information and link to respondents, even though their record-keeping is poor. Pre-existing theory, also, helps counter incomplete information on variation in the population by providing guidance on the relevant participants, while grounded theory approaches also help identify whether saturation has been reached (Marshall, 1996; Palinkas, et al., 2015).

Another limitation of purposive sampling, and case-study research in general, is subjectivity and limited generalizability of findings to the wider population (Zainal, 2007), at least to the degree that statistical generalisation accomplishes. Triangulation of this method with other methods is, however, noted to strengthen the validity of findings (Zainal, 2007), which is what this research sought to do. Moreover, as rightly argued by Yin (2012), Falk and Guenther (n.d) and Wikfeldt (n.d.), while qualitative research may not involve generalisations from the sample to the wider population, in the way that statistical research does, it does allow for analytical generalisations to similar contexts and theory. Moreover, this research provides the groundwork for future studies targeting a larger sample, that would complement findings from this qualitative study.

After sampling, in-depth interviews were held with key respondents for at least an hour each. Subsequent follow-up interviews were also held at different times and places, with several respondents, to assure consistency of responses and gain as much information on processes and experiences as possible. Some licence-holders, for instance, play (or have played) various roles, such as mine-owner and leader of several mining associations; which necessitated more than one interview session. However, other respondents such as mine-workers had more semistructured interviews to specifically gauge the link to livelihoods of their employment at mines. A participatory research exercise involving community and institutional mapping was also undertaken in Mapatizya involving two groups.

To increase the validity of results, field-visits and observations were made of an emerald mine in the Ndola Rural Emerald Restricted Area (NRERA) and of amethyst mines in Mapatizya. Observations were made of participants at mining sites, interactions between mine-owners and workers and conditions under which miners operate. For Mapatizya, observations of community assets such as water points, the clinic and the EU Gemstone Processing Centre which was constructed with donor aid but now lies idle were also useful for understanding poverty dynamics. Observations have been established as aiding the development of a holistic perspective to phenomena investigated as through observing events and participants, researchers may be able to observe non-verbal cues, relationships between actors and notice dynamics that interviewees would be otherwise unwilling to share on account of sensitivities (Marshall and Rossman, 1995 in Kawulich, 2005). Thus, observation helps eliminate inaccuracies from data by interviewees (Kawulich, 2005).

Other respondents interviewed were government officials at the ministry of mines and the mining cadastre office as well as interviewees from the European Development Fund- under the Ministry of Finance, and then the World Bank. Institutional interviews provided insights into the government's and donor's approach to ASM mining in general. Interviews were held with government officials in the Department of Mines and Mineral Development, the Mining Cadastre Unit, the Ministry of National Planning, Ministry of Finance, Zambia Revenue Authority as well as multilateral agencies such as the UNDP. Representatives of both current and previous executive committees of mining associations were also interviewed including: the Association of Zambian Women in Mining (AZWIM), the Kalomo Miners' Association, the Federation of Small-Scale Mining Associations in Zambia (FSSMAZ), the national body for small-scale miners in Zambia) and the Emeralds and Semi-Precious Small-Scale Mining Association in Zambia (ESMAZ) were interviewed.

Policy documents that define the rules governing the operations and policy environment of Zambia's ASM operators were also consulted including mining legislation and national development plans. Archival research was carried out at the National Archives of Zambia to understand the historical context to mining in Zambia. A strength and weakness of working on three separate chapters that analyse different dimensions of similar contexts, involving similar actors, is that data collected for one study, helps provide context and insights for subsequent

chapters. However, because the research evolved inductively with the initial chapter having been instrumental in guiding the next levels of research, an opportunity to gain deeper insights into perceptions about specific aspects that later became important, such as deeper engagement with emerald miners on associations, were not fully captured.

5.3 Data Analysis

Data analysis primarily relied on a set of procedures referred to as 'grounded theorizing' in which perspectives of respondents in the study setting are identified; processes, challenges and opportunities that they face in daily life are documented and strategies adopted by respondents in response to problems or opportunities are described (Spasford and Jupp, 1996). Data was firstly prepared through a process of transcription of audio interviews in a largely verbatim way to avoid loss of vital information from compression and summary (Hammersley and Atkinson, 1983 in Spasford and Jupp, 1996). Field-notes were prepared for analysis through reading through them and filling in missing details from the interview process for clarity and coherence.

Using grounded theorizing involved reading through individual transcripts and then re-reading them to derive emerging themes and categories for analysis. Data was however, in some cases, also evaluated against pre-existing categories derived from the literature. For instance, for arguments made about the services offered by mining associations, interview questions sought to determine the extent to which such services are indeed offered and resulting data was classified accordingly (however, even in this case, open-ended questions were used and these generated data for further analysis and re-categorisation in line with perceptions communicated about what was most important). Recurring ideas and sequences of events in individual transcripts and across different interview transcripts were important for verification and validation of data shared and observation of possible patterns in terms of world-view. Initially,
themes and categories were randomly sought in the data but later specific themes emerged as most important to understanding the concerned phenomenon and answering the research questions; the process of categorisation was not however, exhaustive, limited by time. Comparisons were then made between perceptions of various actors of similar phenomena. Glaser and Strauss (1967) describe this as the 'constant comparative method' which aims to clarify what the categories mean and to identify sub-categories and relations between them (in Boulton and Hammersley, 1996). In the process of refining categories and meanings certain ideas initially overlooked in some interview transcripts were revisited and incorporated into other categories and arguments of the chapters.

5.4 Scope Conditions

The findings of this study primarily apply to cases of artisanal and small-scale mining in resource-rich states in sub-Saharan Africa (SSA), where ASM occurs alongside LSM and involves non-alluvial minerals that require more mechanization (beyond pick and shovel) for effective extraction. However, experiences shared by Verbrugge and Besmanos (2016) from the context of the Philippines and Cartier in Madagascar (2009) allude to significant similarities in the activity and its organisation across developing countries and applicability there, albeit to a lesser degree. Although this thesis examines artisanal and small-scale mining in a formalised context, the lessons concerning the approach of governments to formalisation, the impact of production networks on rent-distribution and the operation and impact of mining associations, are broadly applicable even to informal ASM settings in sub-Saharan Africa. This is because by focusing on formalised contexts, the study merely presents findings from 'the next step' along a progression along which other countries with ASM in sub-Saharan Africa are moving. What the Chapter on formalisation does, for instance, is to offer valuable insights to other countries pursuing the formalisation agenda and point out mechanisms that must be put in place

if outcomes are to be enhanced in their contexts. Similarly, because formalisation intersects with informality even in the Zambian case, it provides a continuum of production and trade patterns with varying degrees of formalisation. Such a spectrum, allows countries to fit into various points of the dynamic. Organisational dynamics captured in this case, however, do not apply to cases where ASM occurs in the context of conflict and very weak states or in contexts of strong developmental states where ASM is the leading sector of the economy.

An important caveat is that this research does not primarily seek to rigorously test causal hypotheses as would be expected in typical resource-curse studies, based on econometric analyses. Rather, hypotheses are used as a basis for inquiry and although the study engages with them, they are not the narrow focus of the chapters, but rather a major factor.

6. Research and policy relevance

This thesis makes several important contributions to both research and policy discussions around resources, institutions and ASM debates. The contributions offered by each chapter are highlighted in turn below.

Chapter 2 of the thesis provides significant insights into how formalisation shapes outcomes for ASM operators in formalised settings. This is an important contribution to both policy and research because most of the environmental, social and economic challenges faced by ASM operators are often attributed to the fact that they operate informally and are beyond state support (Lungu, 2007). However, ASM literature provides limited evidence of the actual impacts of formalisation. This is because in many countries, 70 to 80 per cent of ASM occurs informally and so most studies analyse it in this context (IGF, 2017). The Zambian case is however quite unique in that 75 per cent of ASM is formalised (Tychsen, 2018), affording important insights into the extent to which formalisation results in improved outcomes.

The chapter dispels misplaced assumptions that mineral licences directly translate into access to credit, finance, state support and empowerment of ASM operators. The chapter instead emphasises the necessity of a holistic approach to supporting the sector by governments and donors, in which beyond licencing, productive activities are financed and regulations enforced. The study supports a few studies carried out in ASM contexts (Geenen, 2012; Salo et al., 2016) and in other sectors (e.g. agriculture and urban housing (Bromley, 2008)) that challenge the effectiveness of formalisation in leading to improved livelihoods.

Further, the chapter contributes to developing a more critical lens to understanding how various stakeholders (e.g. governments, donors, scholars) conceptualise formalisation and their underlying motives for pursuing it. While much of the literature assumes a uniform understanding of formalisation, as similarly noted by Hilson and Maconachie (2017), the thesis uncovers variations in conceptualisations and motivations for pursuing formalisation between actors and implications for interventions designed. The chapter's discovery that the Zambian Government used formalisation to concentrate control of the emerald mining sector in state hands and displace ASM operators, supports arguments by Scott (1998) that formalisation can be used as a tool for state control and manipulation, even when policy-makers rhetorically link it to a development agenda.

In Chapter 3, the thesis contributes to a more holistic understanding of how productive activities are organised in the ASM sector. This investigation goes beyond a focus on interactions at the level of production, as much of the literature has done (Cartier, 2008), to engagements with trade, labour and institutional contexts showing the interconnectedness

between processes and actors. The study, by linking organisational dynamics to implications for low incomes in ASM, joins the few studies that have engaged with the matter of persistent poverty in ASM communities (Barry, 1996; Hilson, 2007). Unlike most studies on the resource-development nexus, that tend to be state-centric, overlooking the roles of firms and local groups in shaping outcomes, the thesis examines broad networks into which operators are embedded that span the local, national and international level.

From a policy perspective, the chapter shows the viability of global production network analysis (GPN) as a comprehensive mapping tool that policy-makers can use to identify processes of rent creation, capture and erosion for players in the ASM network. The GPN framework has not been typically applied in contexts of ASM mining, but building on its effective use by McQuilkern and Hilson (2017), this study confirms the potential utility of the model to policy-makers seeking to understand how and where to intervene. The Africa Mining Vision (African Union, 2009), for instance, in seeking to chart a way forward for African states in ASM, notes the need to avoid 'isolated' 'technical' solutions detached from wider contexts that have had limited success. This framework would provide a means to circumvent such failures.

Chapter 4 of the thesis analyses the effectiveness of mining associations in responding to the limitations of small-scale miners. It makes a critical contribution to the ASM literature and to policy debates by evaluating an organisational form that has gone virtually unexamined in the ASM literature, but is often highly recommended as a policy intervention that would improve outcomes in the sector. Rural producer organisations (RPOs), such as mining associations, have been put forward as holding great potential in addressing challenges such as low productivity, low access to capital, and isolation from markets. The study contributes to unpacking how these

organisations operate in the mining context, what motivates their formation and what services they have been able to extend to miners thus far. The study demonstrates that these organisations retain path-dependencies from Colonial and post-Colonial periods in which they were highly dependent on the state and were used by the state to attain its policy goals. Currently, although these groups are no longer under state control, they nevertheless rely heavily on state and donor assistance. The study shows how collective action among weak, under-capitalised miners, still results in limited success for participants in the sector.

A key policy contribution offered by Chapter 4 is that it also uncovers internal governance challenges that plague mining associations. The study for instance, shows that perceptions that producer associations allow for democratic governance by members is not always true. This is shown through the near absence of general meetings, limited opportunities for consultation with members and control of information and opportunities by leaders. While initiatives such as the Extractive Industries Transparency Initiative (EITI) and other efforts aimed at developing accountability in resource governance have tended to focus on large mining companies and governments, the study shows the need for the development of transparency mechanisms in ASM organisations as well.

Another important contribution to the ASM literature and policy discussions is the important role played by trust in shaping economic activities and interactions in ASM communities. The study shows low levels trust between actors to the extent that ASM operators show more confidence in 'neutral' state agencies than in associations where their fellow miners and traders are in control. This provides important information for donors and government agencies seeking to work through these groups. The failure of the EU funded Gemstone Mining Centre, in Mapatizya, which was meant to facilitate value-addition and joint marketing of stones is illustrative of this as miners and stone traders refused to deliver their stones to the Centre for fear that they would be defrauded. Even for leaders of associations who undertook activities in joint hiring excavators with other miners, the association was not the conduit through which this was done but rather informal friendship networks. This may support arguments that formal cooperative associations were always perceived as a foreign, external establishment in African societies (Develtere et al., 2008). In this case, this seems to imply that community members may consider them as most useful only for gaining access to state support, but not for collective action by themselves.

This is an important insight for development literature on grass-roots organisations and development in general as it seems to present a conflict between perceptions that community members have of a group when it is an informal, private engagement between friends and when it is given a formalised structure. While the latter may be more useful and visible for policy-makers, it may trigger a change in perspective for group members towards state dependency. The preoccupation of ASM operators with the government coming to help them seems to confirm views of resource-curse scholars who justify a state-centric focus rather than a grassroots focus. Shafer (1994), for instance, writes:

"Why the state?" 'Because it's there, an important player in daily life...Since 1945, surging trade and capital flows have added a new urgency to public expectations of the state. And such expectations are highest in the third world, where many view the state as the agent of change. (1994: 4).

Although some scholars such as Cox and Negi (2010) have challenged developmental approaches that argue that '...stronger states and representative institutions are a necessary precondition for development' and have instead argued that '...this is to get things the wrong way round. Rather it is development, specifically the capitalist form of development, which is

the necessary condition for strong states and democratic institutions' (Cox and Negi, 2010: 71) – the role of path-dependencies that have created a high reliance on state institutions challenges the feasibility of unaided bottom-up development.

7. Outline of Thesis Chapters and Main Arguments

As alluded to, this is a paper-based thesis consisting of three independent but closely interconnected, publishable chapters that build upon each other to provide a cohesive account of a single research project on micro-level resource extraction and development. Due to the nature of the paper-based thesis, each individual chapter essentially adopts the structure of an extended thesis, addressing a specific question, drawing on relevant literature and providing conclusions and recommendations. The literature reviewed and the theoretical framework that have been presented in this introductory section of the thesis are, therefore, not exhaustive but rather serve to locate subsequent chapters within the existing landscape of scholarly literature on institutions and the resource-curse. This broader framing is later complemented by the literature sections in the individual chapters. The subsequent chapters of the thesis also do not explicitly engage with resource-curse literature per se but rather seek to draw attention to the nuances of the resources-development nexus in ASM which in turn allows for extrapolation to the broader resource-curse debates and a tracing of instances in which causal mechanisms converge and where they diverge and necessitate a re-think in policy approach. Lastly, it is also important to note a degree of overlap in the chapters as, even though each chapter stands alone, it draws on the same context, case and interrelated theories.

Overview of Thesis Chapters: The subsequent chapters of the thesis are as follows. The second chapter is a co-authored chapter that has been published in the Extractive Industries and Society Journal, and analyses the role of formal state institutions, specifically formalisation

policies, in shaping economic outcomes for mineral rights holders in ASM. The case of ASM emerald mining in Zambia forms the empirical basis for the chapter and findings illustrate how formalisation policies do not immediately trigger a reorientation of formal institutions away from large-scale mining and towards ASM in rentier states. The third chapter is a singleauthored chapter that moves beyond state-centric institutional failures to an engagement with how ASM mineral rights holders respond to limitations in formal institutions through adoption of diverse, organisational arrangements. The paper shows how quasi-formal organisational patterns around mineral extraction and trade ultimately undermine incomes for actors in the sector. The fourth chapter is another single-authored chapter that has been submitted to the Resources Policy Journal for publication. Having analysed the limitations of state institutions in providing support to the sector in the second chapter, and gained insights into organisational dynamics at play in shaping resource outcomes in the third chapter, the fourth chapter analyses the viability of a bottom-up approach to stimulating growth in the sector through local level institutions, specifically, mining associations. Findings of this chapter support arguments by Olson (1971) and Shafer (1994) on the difficulties of collective action in contexts of dispersed, micro-level production and competition.⁸

⁸ Research undertaken for the third and fourth chapters was partially funded by the CEU Budapest Foundation and by the International Growth Centre (IGC), Zambia. I would like to thankfully acknowledge their support; all errors are my own.

Chapter 2: Has the Promise of Formalizing Artisanal and Small-Scale Mining (ASM) Failed? The Case of Zambia

Abstract

This chapter⁹ investigates whether the benefits assumed to flow from the formalisation of the artisanal and small-scale mining (ASM) sector in sub-Saharan Africa materialise in contexts where it has taken place. While formalisation's key proponent, Hernando De Soto, avers that it yields benefits, in particular, improved access to capital and government support, this study finds that such benefits accrue only to a limited extent. Using the case of Zambia's emerald sector, the chapter analyses the initial wave of ASM formalisation that took place in the country in the 1980s, and finds that contrary to harnessing benefits for operators, formalisation was used as a tool by the state to gain control of the sector and to displace operators to areas with low economic viability. The chapter further finds that currently, a lack of state support and a policy framework skewed in favour of large-scale copper mining has worsened the outcomes of ASM operators in Zambia's emerald sector. As formalisation is such an ambitious undertaking, the process requires not only strong political will but also robust implementing institutions, a point that is particularly crucial in sub-Saharan Africa, where the agencies spearheading formalisation efforts are often weak and limited in capacity.

Keywords: Formalisation, Artisanal and small-scale mining (ASM), Sub-Saharan Africa, Institutions, De Soto

⁹ This section was published in the Extractive Industries and Society Journal and was co-authored with Twivwe Siwale.

1. Introduction

This chapter grapples with the question of why formalisation of artisanal and small-scale mining (ASM) has not achieved its perceived benefits even in contexts where informal operators have largely transitioned into the formal sector. In recent decades, ASM has taken on increasing importance across sub-Saharan Africa, where it employs millions and contributes substantially to the global supply of minerals; accounting for 20 per cent of global gold and diamond supplies and 80 per cent of sapphire supplies (IGF, 2017). Extensive evidence has been advanced in support of the great potential ASM holds in terms of its ability to contribute to poverty reduction, rural development and a diversification of government revenues (Dreschler, 2001; Schure et al., 2011; Hilson and Osei, 2014). However, its potential remains largely unrealised, mainly because its activities are mostly found in the informal sector, where it is unregulated and thus associated with environmental degradation, poor health and safety records, prostitution, disease and child labour (Banchirigah, 2008; Hentschel et al., 2002; Hilson, 2002).

In response to ASM's unrealised potential and associated vices, formalisation has been projected as the 'magic bullet' through which distinct benefits can flow to operators and the state alike: it should be a 'win-win' situation (Echavarria, 2014). Advocates envision that with the formalisation of ASM, operators would secure legal titles, which would lead to situations in which property laws could be enforced by the state; a greater visibility of miners, thus enabling governments to administer credit and technical support; improved environmental assessments, which would translate into greater environmental protection; and potentially, create a platform for investment. The drive to formalise ASM has been significant and noticeable: by the mid-1990s, 36 countries in sub-Saharan Africa alone had taken steps to legalise the sector (Collins and Lawson, 2014).

But if these are the benefits of formalisation, why, then, have moves to do so had such a limited effect on the sector in sub-Saharan Africa? In the literature, experiences from several of the region's countries are provided, including Ghana (Hilson and Hilson, 2015), Uganda (Siegel and Veiga, 2009), and Niger (Goumandakoye and Hilson, 2016). In each case, despite efforts to formalise ASM, informality continues to persist unabated. The present study builds on this analysis, focusing on cases in which efforts to formalise ASM have indeed led to most operators acquiring mineral rights but where, at the same time, the alleged benefits of this move have yet to materialise. It dissects the supposed benefits that formalisation is meant to confer and finds that in many instances, these have proved elusive. It further proposes that understanding the role of government institutions in creating an enabling environment is key to comprehending why the formalisation process has faltered in some of these countries. The study responds to a growing recognition among ASM scholars of the need for more nuanced analysis of the vital role that institutions play in facilitating formalisation of the sector's activities (Hilson and Banchirigah, 2009; Tschakert, 2009; Spiegel, 2012).

As a country with robust legal frameworks and a history of state resilience, Zambia provides an important case study a priori to provide useful insights on this front. Zambia's ASM sector has received very limited attention in the literature in comparison to other countries such as Ghana, Burkina Faso and Sierra Leone. Furthermore, in the rare instances where Zambia's ASM sector has been examined, the focus has tended to be on the impact of its activities on the environment, its socio-economic contribution and its connection to livelihoods (see Kambani, 2003; Masealeti and Kinabo, 2006; Shoko and Mwitwa, 2015).

The chapter is structured as follows. Section 2 revisits the conceptual underpinnings of formalisation with particular reference to the work of Hernando De Soto. Section 3 profiles the

Zambian case delving into the historic context of the emerald mining sector. Section 4 analyzes the present-day experiences of ASM operators in the Ndola Rural Emerald Restricted Area (NRERA) with a critical analysis of the impact that formalisation has had on them. The final section concludes the discussion with policy recommendations.

2. Revisiting conceptualizations of formalisation

Formalisation has garnered much support from donors, multilateral agencies and governments as the key interventionist step to curbing illicit activity and its 'ills' (World Bank, 2013; Goumandakoye and Hilson, 2016; Barry, 1996). In the case of ASM, this debate has taken place for decades. One of the earliest proponents of formalisation of ASM, Davidson (1993), lauded the recognition of mining rights as one of the key steps of 'progress' in the in the sector. Today, countries such as Ghana, Uganda, Zimbabwe and Zambia all have in place legislative frameworks and licensing systems for ASM, many of which were designed and implemented under the direction of the World Bank. What has become clear is that a large share of formalisation's presumed benefits hinges on how the idea is interpreted and actualised.

In conceptualizing formalisation, Speigel (2015) aptly points out that the meaning and processes of formalisation are somewhat disputed and could possibly mean different things in different contexts and at different times. Interpretations of formalisation can, however, be categorised into narrow and broad under-standings of the term. The narrow view is best linked to the legalist school and importantly, to the work of Hernando De Soto. A hallmark of this school is its emphasis on acquisition of legal title: formalisation is thus seemingly an outcome or convenient endpoint, terminating with title issuance. This comes across clearly in the literature. Notable examples include Meinzen-Dick and Mwangi (2008: 38), who define formalisation as 'processes of identifying interests, adjudicating them and registering them'

and Hall et al. (2011: 27), who define land formalisation as 'recognition and inscription by the State of rights and conditions of access' within specific boundaries.

What is so poignant about De Soto's writings is that formalisation is seen as the all-important key and that, 'even unaided it can lead to economic growth and poverty reduction across the board' (Benjaminsen et al., 2006:4). Central to De Soto's (2000) theory is the idea that poor people in developing countries possess assets but these assets lack legal representation because they exist in the informal sector and are therefore unable to generate surplus value or capital. He contends that because informal sector operators are locked out of the legal framework, they are barred from access to wider markets, credit and share capital. He therefore champions formalisation in the sense of 'massive' documentation of individual private property and the generation of 'unambiguous titles' (Cronkleton & Larson, 2015: 499). A major weakness of De Soto's arguments and those of the legalist school is their narrow focus on legal title as the key that unlocks access to a pre-existing fully functional free-market system. However, such underlying systems are a function and an expression of strong state and market institutions that are often absent in Developing Country contexts. As Bromley (2008) points out, titles are rendered practically useless in a country where the legal foundations of an economy are tenuous, as the case is in some sub-Saharan African countries.

Siegal and Veiga (2009: 52) identify a second sense in which formalisation has been conceptualised, and drawing from the work of Heemskerk (2005) surmise that it can also be understood as 'a process of registering, organizing, and tracking mining activity in the field... formalisation is in this sense understood as an effective intervention strategy - one that initiates contact with miners, and enables the collection of microeconomic data to guide project development by international development agencies.' This provides a more comprehensive

view of formalisation with title as an initial step that triggers subsequent steps for project development. Another popular definition, by Lowe (2005), and used by both Hilson (2007) and Speigel (2015), is that 'Formalisation speaks not only to the presence of legislation, but to the activation and enforcement of it by authorities' (p. 13), a key qualification being that formalisation, importantly, involves the activation and enforcement of legislation by authorities.

Ribot and Peluso (2003) provide a compelling theoretical framework that delineates between the property right as 'the right to benefit from things'—in line with the legalist school's narrow conceptualization—and access as 'the ability to derive benefits from things' (p.153). This is a critical element overlooked by De Soto, who largely equated 'legal right' with 'access', and in so doing, focused on only a single means through which access to resources may or may not be gained. Ribot and Peluso (2003) instead argue that possession of a 'right' to a resource does not directly translate into the ability to benefit from that resource – access, nor are mechanisms through which benefits are secured limited to legal right. The authors proceed to identify a range of access mechanisms ranging from 'technology, capital, markets, knowledge, authority, social identities, and social relations' (p. 165) that can determine access. Thus, property rights can be seen to constitute one 'access route' among many.

While this study focuses more on determining the extent to which a formal title facilitates access and does not delve into exploring all the other means through which individual access is gained, this distinction nevertheless reinforces the key argument presented here: that title alone is insufficient when it comes to securing access to resource benefits. Unfortunately, the tendency has been for both governments and donors to latch on to the narrower conceptualization of formalisation that focuses on licencing systems, at the same time, overlooking the mechanisms necessary for enforcement and project development. It is this narrow conceptualization of formalisation in the context of ASM that this chapter debates, concluding that it is inadequate to facilitate transformative change. The section that follows elaborates on this point, analyzing the link between legal title and access to credit in the ASM context.

2.1. Formalisation and its discontents: failed access to credit

One of the key differences that is supposed to distinguish formalised ASM operators from their informal counterparts is their increased ability to access credit. The United Nations Environment Programme (UNEP) (2012: 13), for instance, attributes miners' lack of access to credit markets to their informal status, claiming that formalisation, supports 'miners' access to credit'. Moreover, ASM operators consistently rank access to credit as one of their most urgent requirements; it looms large as an incentive to gain legal title. It is equally presented as a key selling point under the De Soto framework, with the assumption tendered that by virtue of enactment of rules and processes for surplus extraction, capital would be generated. Titles are therefore claimed to facilitate individuals' access to official sources of credit: banks, credit unions and lending societies. The 'titled' miners, it is believed, can use their new status as collateral to leverage loans (Bromley, 2008). The question, then, is does the granting of a mineral right or the integration of the sector into the formal system result in the benefit of increased access to credit? More importantly, which specific credit options open up to the ASM operators once they are formalised?

In the literature, the way in which increased access to credit relates to formalisation has been treated differently by different scholars. Hilson and Ackah-Baidoo (2011), for instance, zero in on microcredit and view it more as an appropriate response to poverty alleviation in the ASM

sector and not, strictly speaking, as a natural result of formalisation. Speigel (2015), on the other hand, does not assume that a legal title facilitates access to credit but rather that microfinance programs have to be skilfully designed with intentionality if ASM operators are to have access to financial support. Both studies coalesce the Grameen Bank model as a blueprint for designing programs, in particular, its ideas around group sharing and participation, instillation of borrower discipline, and collateralizing group accountability rather than tangible assets (Hilson and Ackah-Baidoo, 2011). Both studies, however, focus heavily on microcredit finance, at the same time ignoring the reality that some branches of ASM, such as emerald extraction, require very large outlays of capital that such lending simply cannot provide.

Apart from access to microcredit, integration into the formal economy should open up access to credit markets. Davidson (1993), in an analysis of foreign credit markets, however, explained at the time of his writing that there is a lower limit of US\$5 million for mining projects to gain financing from independent investor groups, as this threshold defines projects that are commercially remunerative for prospective investors. These projects are typically large and well-established. If, therefore, the author is correct in setting a lower limit of \$5 million for an enterprise to be attractive to investors, then this automatically excludes the majority of ASM operators from accessing credit, whether they are formalised or not. Investors are reluctant to fund anything that is not a well-established, commercially viable mining enterprise.

Bromley (2008), a fierce critic of formalisation, notes that while the primary justification of formalisation is the beneficient economic results its proponents claim emanate from it, there is no empirical evidence to support linking the two together in the agriculture sector. In his analysis, the author critiques the forestry sector in Nepal, where both titled and untitled farmers were unable to secure credit: the key issue for lending institutions was not the possession of a

title. Musembi (2007), another detractor, goes as far as to call formalisation's theorised benefits of granting access to credit 'a reigning myth'. In her work in Kenya, the author found that out of 118 title holders, only two were able to use their titles as collateral to access credit. In De Soto's own native Peru, the claim that tiles lead to credit has been found to be baseless, according to a number of studies (Williamson, 2015). Evidence thus shows that beyond title, lenders' main preoccupation remains the borrowers' ability to repay, the level of risk involved and the viability of the project itself (Gilbert, 2002; Williamson, 2015). The overwhelming reality on the ground is that formalised ASM operators continue to face momentous challenges in accessing credit. As Siegel and Veiga (2009) observe from their study of ASM in Uganda, 'the title to a US\$50 claim, and some buckets and shovels, are not enough collateral to guarantee a loan' (2009: 54).

Given the reluctance and unlikelihood of formal credit sources to lend money to finance ASMrelated developments, government institutions seem best placed to offer credit to the sector's operators. This ties into this study's central argument: that government institutions have a cardinal role to play when it comes to formalizing ASM. Siegel and Veiga (2009), for instance, surmise that where capital is insufficient to support ASM activities, development agencies can step in to fill this capital gap by creating lending facilities with long repayment periods and interest free loans thereby bearing the risk of lending to operators. They cite examples from Namibia and Mozambique, where government funds were successfully used to support ASM. The debate on credit raises many important questions which Section 4 of the chapter examines, drawing on the specific nuances of the Zambian case.

2.2. Formalisation, state capacity and support services

The goal of formalisation is the integration of informal sector actors into the formal sector. If this is to be attained, it must be guided by robust policy frameworks and led by effective implementing institutions, details which tend to be overlooked by the legalists in their discussions on titling. The United Nations Environment Programme (UNEP) (2012) identifies three institutional areas which are key to effective ASM formalisation: (i) responsibility and engagement, (ii) financing and revenue generation, and (iii) monitoring and enforcement.

On the topic of Responsibility and Engagement, UNEP asserts that support for ASM formalisation must be a multi-stakeholder initiative involving inter-governmental units at local and national level and key societal groups such as mining associations, large-scale mines and academia. Multi-stakeholder engagement is identified as particularly key with regards to planning for formalisation and the design of legislation, a recommendation supported by other scholars in the field who find that miners are often excluded from policymaking (Hilson, 2007). Legislation must, in turn, clarify who is responsible for the supervision and management of various aspects in order to facilitate effective coordination between groups (UNEP, 2012; Keller et al., 2014).

In the case of financing, there is need for government to allocate funds to gather baseline information on ASM communities, to design and implement legislation aligned with the sector's needs, to facilitate institution and relationship building, and coordinate training and the provision of assistance for project development to miners (D'Souza, 2000; UNEP, 2012). In this crucial area, strong coordination between project designers, financiers and project evaluators are key to ensuring that project funds meet identified needs. In the area of revenue generation, there is a need to design appropriate mechanisms for taxing the ASM sector based

on the economic capacity of miners. While some countries adopt the same tax system for ASM as they do for other economic sectors, other countries, such as Mongolia have tended to tax the sector as they do independent workers (UNEP, 2012). In other countries (e.g. Ecuador), in an attempt to support operators in ASM, lower royalty and land rates are applied than those in place for large-scale mining (UNEP, 2012). The general pattern is that royalties are made a function of the size of mining activities and the type of mineral in question. However, in cases such as Ghana, the rate of tax for ASM is the same as for large-scale mining (Oxford Business Group, 2016). Taxes set must also take into account other administrative fees faced by miners to avoid an excessive cumulative burden (UNEP, 2012).

Finally, in the case of Monitoring and Enforcement, the latter term features in the broader definition of formalisation. Crucial here are the regulatory institutions that are mandated with this responsibility. These institutions are meant not only to issue licences but to ensure adherence to legislation. A lack of effective monitoring and enforcement can be a result of weak state capacity, failure of legislation to clarify roles and the structure of state institutions (i.e. centralised versus decentralised models) (UNEP, 2012). Collins and Lawson (2014) assert that formalisation relies on enforcement on the ground. They stress the importance of involving miners' associations and local government bodies in policy making as these are key during the formalisation process. Decentralised structures in the Zimbabwean context also served better than a centralised apparatus (Speigel, 2015). In most developing country contexts, monitoring is seldom undertaken due to resource constraints but also because of bribery and intimidation (D'Souza, 2000).

2.3. Motivations for formalisation

The out-workings of formalisation and its success or failure are also strongly linked to the motives that underpinned the initiatives in the first place. Scott (1998), for instance, reduces the list to a state mechanism to control, monitor and manipulate its people in order to meet the state's desired ends. He persuasively argues that in a myriad of cases ranging from the establishment of cadastral systems to the creation of population registers the state took 'exceptionally complex, illegible, and local social practices, such as land tenure customs . . . and created a standard grid whereby it could be centrally recorded and monitored' (1998: 2). In Zimbabwe, for instance, the language and processes of formalisation were used as a tool for state abuse and control. Here, formalisation began as a policy championing the decentralization and empowerment of ASM communities but morphed into a repressive process for the recentralization of state power at the onset of the economic crisis in the post - 2000s (Speigel, 2015; Cronkleton and Larson, 2015; Mawowa, 2013).

The discussion now turns to an analysis of formalisation in the context of Zambia's emerald mining sector.

3. Formalisation of small scale mining in Zambia: critical reflections

Zambia boasts rich deposits of emeralds, amethysts, aquamarines, beryl and garnets (Kambani, 2003), all of which occur in rural areas (Figure 1). This study focuses specifically on the extraction of emeralds on an artisanal and small scale. Emeralds have been and continue to be the most important of Zambia's gemstones. Kagem Ltd., co-owned by the Zambian Government and Gemfields, accounts for 90 per cent of Zambian emerald production.

Gemfield's acquisition of a 75 per cent stake in the company and the accompanying injection of capital accounted for the drastic increase in production in 2008 (See Fig. 2).



Figure 1: Distribution of Gemstones and Selected Minerals in Zambia.



Figure 2: Production of emeralds and beryl in Zambia, 2001–2015

Not only is Zambia's ASM sector dominated by gemstone extraction but the majority of active mining licenses in the emerald sector are in the hands of ASM operators.¹⁰ In Zambia, emeralds are almost exclusively mined in the Ndola Rural Emerald Restricted Area (NRERA), a 1200 km² section in the Lufwayama District of the Copperbelt Province (shown in Fig. 1). The NRERA is an ideal study area in that it is a restricted space that has been demarcated and is completely under license, hence formalised. Out of the 400 licences issued for the emerald and amethyst areas in Zambia, only 3 large-scale mining companies are currently in full operation and producing minerals, namely: Kagem (emeralds), Gemcanton (emeralds) and Kariba Minerals (amethysts) (Chadukwa in Tychsen et al., 2018). However, even though large-scale in terms of investment capital, the definition of artisanal and small-scale mining by acreage in

¹⁰ Interview, Mining Cadastre official, 3 August 2016, Lusaka.

Zambian law means that even these multinationals are classified as small-scale based on owning a set of independent small-scale licences.

Chadukwa (2018), a senior mining engineer at the Ministry of Mines and Mineral Development reports that "the rest of the plots, owned by ASM workers are not active due to lack of capital, skills, geological information etc." (Chadukwa in Tychsen et al., 2018: 28). This already gives a clear picture of those who are presently benefiting from licence access and those who are not. While the Gemfields is the largest producer of emeralds worldwide, the contribution of ASM operators is negligible. However, because Chaduka (in Tychsen et al., 2018) draws on official emerald production figures for 2016, he misses on a second category of miners that this study identifies which is that of the semi-mechanised 'hit-and-miss' group. This second group engages in mining inconsistently depending on the availability of capital and so production figures may or may not be officially reported.

The study relied on a set of in-depth interviews with licence-holders in the NRERA and government officials as shown in Table 1 below. Key informants for mine-licence holders were selected across three groups: highly mechanised and producing licence-holders;¹¹ semi-mechanised with hit and miss methods; and non-producing licence-holders. These three categories were selected because they are representative of divergent experiences of miners in the area. The selection of miners with at least 15 years of experience in the sector and who have been participants in the emerald mining association provided access to both long-term

¹¹ Kagem and Kariba were excluded from the sample because they are multinationals, however, an interview was held with an anonymous source from Gemcanton, since the company is linked to an individual owner (though foreign) who is reported to have built his business from small-scale mining in Zambia. A site visit was, undertaken to a 'hit-and-miss' mine in June 2016 where excavators, dynamite and picks and shovels were the extraction methods.

experience at a personal level but also insights into common challenges across actors in the sector. Interview data from miners was triangulated with data from government officials in the Department of Mines whose job roles entail working with miners, while archival records from Zambia's National Archives (Cabinet Memorandum, 1982) provided original historical insights from internal government documents (that to the Author's knowledge have never been published) on the motivations and processes that undergirded formalisation activities.

Location Respondents Positionality Interviewed 1. Possess license but are not NRERA 4 - Three (3) are executive members of the Emerald and Semiproducing Precious Stones Mining Association of Zambia (ESMAZ) and one is a general member of ESMAZ. - All have held licences for at least 15 years (longest for over 30 years). 2. Possess license, are semi-NRERA 2 General members of ESMAZ. Run retail business enterprises to complement mining activity. mechanised and have commenced production but still rely on 'hit and miss' techniques. NRERA 2 One is part-owner of one of the largest jewellery manufacturers in 3. Possess mining license, are highly mechanised and are in Zambia. production. 10 Senior officials: Department of Mines and Minerals Development, 4. Interviews with Government Lusaka officials Cadastre Unit; Citizens Economic Empowerment Commission, Zambia Development Agency. 2 EU Development Fund Lusaka One was a coordinator of the Mining Sector Diversification (Government/donor Programme (MSDP) targeting ASM operators engagement)

 Table 2: ASM Emerald Mining Licence-holders Interviewed (June to August, 2016)

Source: Compiled by author from data collection

In line with Flick (2009) and Polit and Beck (2010), the goal of this qualitative study was not numerical generalization from a large pool of respondents but rather analytic generalization through careful selection of participants, triangulation, inductive analysis and focusing on data that is of relevance to many study participants (Ayres et al., 2003 cited in Polit and Beck, 2010). While additional insights may have potentially been gained from interviewing more nonproducing licence-holders (who are the majority of the population), interviews held with selected licence-holders showed a pattern of consistency with regards to constraints faced and were supported by interviews with government officials.

3.1. The historical context

In Zambia, the discovery of emeralds dates back to 1928 when geologists from the Rhodesia Congo Border Concession Co. discovered low quality grade gems in what was called the Miku Emerald Deposit (Seifert et al., 2004; Dreschler, 2001). Due to initial indications that emerald mining was not economically viable and a post-independence government preoccupation with large-scale copper mining, these gemstone-rich areas were largely ignored. It was not until 1962, that the Miku Emerald Deposit was pegged as mineable (Seifert et al., 2004). This triggered an influx of informal and illegal miners to the area. Consistent with the De Soto framework, informality in the area preceded the law. Informal mining activities reached a peak in the 1970s, as the area remained unlicensed, spawning a bustling trade and attracting players as far afield as Senegal and Mali (Cabinet Memorandum, 1982; Dreschler, 2001).¹²

In an interview with Mr Musonda, a 76-year old small-scale miner, it was explained how he joined the industry along with others as an illegal miner in 1981. He indicated that it was a 'free for all' at the time, and it was easy to retrieve emeralds using simple implements, such as a pick and shovel. West Africans who were defter than the local Zambians soon established an illegal trading system in which they purchased gems at low prices from Zambians.

¹² Interview, former emerald illegal miner now licence-holder, 14 June 2016, Kitwe.

3.2. Initial formalisation efforts in Zambia's emerald sector

The initial wave of formalisation and organization of the sector took place in the early 1980s, following the declaration of the Ndola Rural Emerald Restricted Area (NRERA). In accordance with the Mines and Minerals Act No.32 of 1976 and the Beacons Regulations, the area was divided into plots (Dreschler, 2001). In 1971, the Miku mine passed into the hands of Mindeco Ltd., a government-owned company, and the area around the Miku Emerald Deposit was subjected to rigorous geological mapping, geophysical and geochemical investigation. The Miku Emerald Deposit was then verified by the Zambia Geological Survey Department, an exercise which yielded satisfactory results (Tembo et al., 2000). Although the NRERA was declared a restricted area, it was not cordoned off. While the few villagers who were living in the area were forcefully displaced and relocated, illegal miners and gemstone dealers still had unfettered access to the area (Dreschler, 2001).

3.3. Formalisation as a tool for state control

For De Soto, formalisation is understood as 'the means of absorbing existing customary practices - developed informally by miners - into the mainstream of a country's legal and economic affairs' (Siegel and Veiga, 2009: 51). The initial process of ASM licensing in Zambia, however, did not follow this trajectory. There is a strong indication that the process of formalisation in Zambia was used as a guise by the state to disempower the ASM operators who were viewed as criminals and to assert state control over the emerald industry; reinforcing arguments about state control put forward by Scott (1998). The evidence shows that despite the government having carried out prospecting activities in the restricted area, it was actually the illegal miners who made most of the early key finds, using occurrences of surface outcrops

of beryl-bearing or quartz tourmaline veins (Dreschler, 2001). As the Cabinet memorandum from the Minister of Mines in 1982 reveals,

Fwaya fwaya [is] located about 500 m east-North east of the northern corner of Fwaya Fwaya mining area situated on the main emerald belt of Kamkanga-Libwente. Illegal mining on this area started recently and continues intensively which shows that the deposit should be relatively rich. [p. 44]

A picture emerges that the government used the excuse of bringing order into the sector to displace informal miners from the most lucrative, mineral-rich areas, with the aim of seizing control of these locations.¹³ This was confirmed in an account given by Mr Musonda, who shared details of an incident of how the government had been prospecting in the Miku area when it got wind that illegal miners were making key finds in Fwaya fwaya, where he had been mining. Following the news, the government quickly moved in and displaced the miners. This very location is where the newly-created government company, Kafubu Gemstone Mining Company (Kagem), was awarded a license. Presently, Kagem occupies a licensed area of 41 km² in contrast to the average plot size of ASM operators, which is in the range of 400m² (Ministry of Mines and Mineral Development, 2008).

What is even more striking is that the government further disfranchised ASM operators by awarding them plots that were not surveyed or where geological surveys undertaken in the 1980s had shown to have little to no economic viability. This was especially disconcerting for small-scale miners with no capacity to acquire the equipment required to retrieve emeralds that were not as accessible as in the areas they had previously mined. The government further

¹³ There are indications of renewed efforts by Government to place ASM under state and LSM control once again through ongoing efforts to merge ASM mining plots and attract international investors to the NRERA and amethyst mines in Mapatizya (Chadukwa in Tychsen et al., (2018). Although branded as likely to bring greater profitability for ASM licence-holders who will become shareholders, impacts on communities may be adverse.

aggravated the situation by sub-dividing the plots into smaller areas to satisfy the cries of those without licenses, rendering the plots less suitable for any type of mining, let alone emerald mining. As one of the government officials in the Ministry of Mines and Mineral Development interviewed candidly put it, 'by giving them licences, we just threw them into the darkness because Government had taken all the land on which exploration and geological work had been done and the SSMs were given unexplored land'.¹⁴

The 1970s and 1980s were also marked by a socialist political ideology. In fact, in 1972, the country was declared a One-Party State. The government exercised absolute control over the purchase, marketing and distribution of gemstones and banned all other private distribution channels. A 1982 cabinet memo captures effectively the motivation of the state, and proposed a number of provisions:

The abolition of private jewellery and lapidary and the establishment of Govt. owned jewellery and lapidary industry and [that] the state should become the sole buyer and exporter of all mineral resources. [p. 6]

In adherence to this, the Reserved Minerals Corporation was charged with the buying of precious and semi-precious stones and all exports. This was despite the Minister of Mines himself at the time having a very negative view of the efficiency of the Reserved Minerals Corporation. He stated the following about the state corporation:

The involvement of [the Reserved Minerals Corporation] into production will not only lead to disastrous drain of public funds, but will additionally encourage the growth of illegal mining of emeralds in those areas for which a mining licence has

¹⁴ Interview, Ministry of Mines and Mineral Development senior official 2, 28 June 2016, Lusaka.

been issued because there is little evidence of the profitability of its activities while illegal operators continue to make a fortune. [p. 5]

The inefficiencies of this corporation and unfavourable pricing of gems thus stimulated an increase in illegal trading. This is consistent with other studies that allude to government policies encouraging informality in ASM (Hilson, 2013).

The 1980s therefore represented a period of missed opportunity for ASM in Zambia. The end result was that the state achieved its objective of state control over the emerald industry through its stake in Kagem Ltd. It simultaneously ushered ASM operators into areas with little or no economic viability and afforded the sector no assistance. The few mines that had managed to reach the production stage were cut off by government policy that restricted the sale of minerals through non-state channels; this proved to be a death blow to these enterprises. Thus, the sector descended into a state of dormancy, with individuals licensed but lacking the capacity to make realizable gains from the sector. The Zambian experience during this time belies De Soto's assumption that title grants access to a fully functioning market system. It rather shows the conflicts that may emerge with alternate economic systems. It also demonstrates how changes in political systems in turn signal changes in access to resource benefits, with advantages having flowed to members of the party and state-owned agencies during this time, and not to licence holders or other private sector actors.

The early 1990s signalled the end of Zambia's one-party system and with it, the reestablishment of free market enterprise and neo-liberal policies. This transition subsequently influenced the functions of the state and hence perceptions of its role in formalisation. It is under these conditions that the study was undertaken with present day ASM operators and it is to these aspects that the discussion now turns.

3.4. Formalisation as granting of legal title to ASM operators

A field visit to the NRERA revealed that the majority of ASM operators in the area have been relegated to being mere license holders with over 400 licenses under issue but with only four mines in active production. The ASM operators interviewed were mostly retirees who were over the age of 50 and had previously had employment in mines or held vocational jobs.

With regards to attainment of a mining right, almost all ASM operators interviewed stated that they found licencing processes in the NRERA have become progressively easier and more transparent over the years. The introduction of an electronic mining cadastre system through donor assistance has been particularly instrumental in improving processes and making information about the availability of mining rights public and thereby reducing conflicts and increasing investor confidence. The World Bank's 2016 Mining Investment and Governance Review (World Bank, 2016) rates the extent to which ASM is taking place under formal procedures in Zambia as 'High' (2.5 out of 4.0) and the extent to which ASM operators are allowed to legally operate as 'Very High' (4.0 out of 4.0).

These findings are largely consistent with the fact that most respondents interviewed obtained their mining rights after the initial wave of formalisation, specifically when the most geologically-mapped and economically-viable mining rights had already been consolidated under state control. Thus, while the allocation of mining rights has been simplified, it was largely the formalisation of economically-inactive areas.

3.5. Formalisation facilitating access to credit for ASM operators in the NRERA

In the NRERA, an inability to access credit has been a major inhibitor of progress and has rendered the majority of formalised ASM operators dormant. Difficulties with accessing credit support earlier arguments disputing the ability of legal title to facilitate access to it. The substantial amount of capital needed to set up an emerald mine is the main reason behind the sector's dormancy. A review of a budget submitted by the Makali Mine outlines projected annual operational costs for the mine at US\$3,144,000. Costs included the hiring of an excavator and dump truck, core drilling, and workers' wages. When asked if any of the operators had been able to secure such credit from financial institutions using their licenses, not one miner interviewed answered in the affirmative.

Nevertheless, formalisation in Zambia has, to some extent, increased access to credit but not from formal lending institutions nor in a manner that has led to positive outcomes for operators. For instance, the Ministry of Mines, in the late 2000s, disbursed US \$5000 loans to ASM operators in fulfilment of its promise to provide finance to the sector; this, however, was a paltry amount compared to the amounts needed. The Zambia Citizens Economic Empowerment Commission (CEEC), under the Ministry of Commerce, also issued loans amounting to approximately US\$43, 962, to fourteen miners in the Eastern Province in 2013.¹⁵ However, as interviews with CEEC officials revealed, their maximum credit limit for micro-finance is US\$5000 and loans disbursed to the miners averaged US\$3200 per head which was insufficient to finance any excavation activities. They were therefore targeted at those who were already in production and needed only 'top-up' funds for the export of commodities or value-addition. Repayment rates have, however, been low, with the Zambian Government now threatening legal action in an effort to recoup the money. The funding was also strategically

¹⁵ From personal communication compiled at Authors' request provided by the Citizens' Economic Empowerment Commission (CEEC) – Zambia.

disbursed to secure political support from miners, which thwarted more efficient allocation of funds to the best performers by ministry officials.

What has proved to be the most concrete effort to supply credit to emerald miners was disbursements made under a European Union credit scheme. This project was funded by the European Investment Bank (EIB) but was doomed to fail from the start due to a lack of understanding of the needs of ASM operators and unrealistic requirements for the operators to fulfil. The EIB required bankable documents with the requisite technical studies if applications from ASM operators were to be considered. Due to low educational levels among these miners, none were able to submit an application deemed acceptable to the EIB. Moreover, the technical assistance unit (Pre-Production Facility or PPF) of the project that was meant to assist operators in preparing bankable documents only came into operation four years after the loan scheme had been established, therefore proving entirely useless to ASM operators. The Final Project Evaluation notes that the PPF 'failed to assist the "small" small-scale mining sector in preparing one single successful loan application . . . the PPF thus entirely failed to serve its purpose' (p. 27). What was also surprising was that ASM operators were required to cover 30% of the cost of the PPF's services in creating a bankable document. In cases where applications for the loan were successful, miners were required to repay the outstanding 70%. The Evaluation Team itself rated 'the design of this facility as entirely impractical and absurd from the outset as the cash-strapped "small" small-scale miners were to find financial support from third parties so as to be able to obtain a PPF loan to prepare bankable documents in order to be able to submit an application for a loan from a commercial bank under the EIB-run MSDP¹⁶ Loan' (Müller et al., 2008: 28).

Interest rates for the loans were also set at relatively high rates (5.8%) and were to be repaid in Euros, which spelled exchange rate losses for ASM operators. Eventually, high interest rates were reduced and the requirement for repayment in Euros rescinded in an attempt to increase uptake of the project. But even the reduced rates only benefited 'medium-sized' small-scale miners. The most needy miners did not benefit (Müller et al., 2008: 28).

On the whole, the EU project failed to cater to the neediest miners, instead favouring medium scale miners who were better able to service the loans proffered. This beneficent access by the 'medium-sized' small-scale miners illustrates clearly how title proved to be only a minor consideration compared to possession of capital and education. Those who had preferential access to credit were medium-scale miners with the technical know-how (or money to hire relevant personnel) to prepare bankable documents. The experience also revives questions about the willingness of donors to shoulder risks for ASM operators, as proposed by Siegal and Veiga (2009). In this instance, pre-requisites for loans, relatively high interest rates as well as required payments for access to technical support in preparing loan applications all seem indicative of a commercial mind-set on the part of the EIB. It is also consistent with the longstanding perception of ASM as an entrepreneurial activity populated by people looking to 'get rich quick', as opposed to a 'poverty-driven activity' (Hilson and McQuilken, 2014).

¹⁶ The Programme was called the Mining Sector Diversification Programme (MSDP).

3.6. Formalisation not availing greater state support

The lack of support that accrued to, and limited benefits realised by, those in possession of a licence became very clear during interviews carried out with both ASM operators and government officials. The former were asked whether they had received any support from government either in terms of critically needed technical support vis-a-vis provision of geological information, or regulatory support to curb illegal mining activity or pollution. The answer was a near-unanimous 'no'.

One miner remarked, 'My sisters . . . it's very funny in this country...When you get a licence it's yourself now . . . the government doesn't do anything. Government . . . what they need from you is area charges'.¹⁷ Similarly, when another miner was asked what benefits had emerged from possession of a mining licence, the response was: '. . . don't say benefits . . . say what sorrow. If I knew emerald mining was what it was, I would not have gone into it'.¹⁸ The other miners interviewed made similar claims. With regards to access to geological services, miners expressed significant appreciation of the risks involved with emerald mining and explained that there was a great need for such services. Knowing the value, one operator expressed how he had spent his and his wife's pension on core drilling, a geological service that ascertains the presence of emeralds. He was, however, unable to carry out the core drilling in a systematic way and the money run out before emeralds could be secured. This seems to be a common experience in the NRERA. The operators further stated that the government had not responded to letters requesting assistance in curbing the activities of illegal miners in the area. They furthermore explained that neither had complaints to the Zambia Environmental

¹⁷ Interview, emerald licence-holder 1, 13 June 2016, Chingola.

¹⁸ Interview, former emerald illegal miner now licence-holder, 14 June 2016, Kitwe.

Management Agency (ZEMA) regarding illegal miners polluting a local stream within the NRERA been responded to.

Evidently, the degree of access to state support through title also critically rests on state capacity to support the sector effectively, as well as on the individual capacities of miners. Hilson (2016) raises an important point when he writes that 'most government ministries now in place in sub-Saharan Africa are woefully understaffed, under-capitalised and at times, misguided, and are therefore in no position to put aside the resources needed to properly nurture ASM's development' (p. 549). Critical gaps in institutional services do indeed exist across departments mandated to support ASM, making it over-optimistic to expect that units that are themselves undercapitalised will ensure that formalised activity thrives.

With regards to the monitoring of ASM activities, officials interviewed remarked that they are usually exposed to only desk reviews of quarterly reports submitted by mines, as they are often unable to travel to mine sites to verify whether what is presented in these documents is what pertains in reality. In this context, interviews revealed that only those with finances to sufficiently cover the travel, accommodation and survey costs of personnel such as geologists benefited from their services; supporting arguments on access by Ribot and Peluso (2003). Interviews also revealed that due to human resource shortages, units such as the Geological Survey Department no longer employ specialists in certain areas of geology but recruit general geologists to enable flexibility and interchangeability of human resource across mineral terrains country-wide. The implications of this are that even when geologists do make site visits, they may lack specific knowledge of the geology of a particular commodity such as emeralds, limiting their effectiveness (especially considering the country's focus on large-scale copper).

On the whole, it is evident that contrary to De Soto's views, legal title, unaided by state support, is unlikely to lead to sectoral transformation. Conversely, widespread institutional failures undermine the objectives of formalisation and belie its supposed benefits, particularly for the poorest who have no alternative access routes. Even in aspects where government support seems to be available, initiatives are misaligned to ASM needs, showing either a misunderstanding of sector needs or a strategy that seeks to tackle the 'easiest problems' regardless of whether they are only incidental to the root cause of the concern in question.

3.7. Policy limitations: mining taxation, policy turbulence and a policy focus on large scale copper mining

Two other supposedly key benefits of formalisation are that it brings predictability to the ASM sector in that operators are better able to plan around fixed costs versus having to pay bribes in order to continue operating illegally (De Soto, 2000; Siegel and Veiga, 2009), and that this, in turn, expands revenue bases for government. However, in Zambia the mining tax regime has been arguably one of the most unstable in the world, experiencing numerous changes over the last 10 years. This has been due to the fluctuations in the copper price, Zambia's primary export, which today accounts for over 70% of export earnings, and pressure from Civil Society Organizations (CSOs) alleging that mining companies were not paying their fair share of taxes. This had led to serious externalities being imposed on the ASM sector, which often means operators cannot predict their tax rates with any certainty, in turn causing uncertainty among investors.

The dominance of the copper sector was powerfully illustrated in the 2015 budget cycle, during which changes were made to the mineral royalty tax regime based on the cost structure of copper mining specifically and not on operational size or mineral type, as recommended by
UNEP (2012). As stated in the Mines and Development Act, 2015, in Zambia, mineral royalty is a payment received as consideration for the extraction of minerals which all mining companies are expected to pay (See Table 1). Consequently, as it is more costly to process copper from underground mines than it is to process copper from open pit mines, the mineral royalty rate was changed such that underground mines were charged a rate of 9% while open pit mines were charged 20%. This move, however, was made with little regard for the effect that it would have on small-scale license holders who mostly mine open pits and were thus required to pay 20%. This system was abolished in the 2016 budget cycle, following protests largely from the large-scale miners themselves.

There is no specific taxation regime in place for small-scale mining license holders despite the unique needs of the sector. The system, therefore, effectively lumps formalised ASM with the mining conglomerates working in the country, which also happen to be its biggest operators.

Mineral Royalty 1 st April 2003 to 31 st March 2006	Rate
 Former ZCCM mines. Holder of a Gemstone license, Small scale mining or artisan mining right. Holder of any other mining licence. Mineral Royalty April 2006 to March 2007	0.6% 5% 2%
 Holder of a large scale mining license carrying on mining of base metals. Holder of a Gemstone license, Small scale mining or artisan mining right. Holder of any other mining licence. 	0.6% 5% 2%
Mineral Royalty April 2007 to March 2008	
 Holder of a large scale mining license and party to a development agreement signed prior to 1st April 2007. Base metals produced under the license. Gemstone or precious metals produced under the license. Any other minerals. 	0.6% 3% 5% 2%

Table	3:	Mineral	Rovaltv	Rates ((2003-2016)

Mineral Royalty April 2008 to March 2012	
 Gemstones produced or recoverable under the license. Base metals produced or recoverable under the license (norm value). Industrial and Energy Minerals produced or recoverable under the license (gross value). Precious metals produced or recoverable under the license. 	5% 3% 3% 5%
Mineral Royalty April 2012 to December 2014	
1. All mining license holders based on Gross or Norm value accordingly.	6%
Mineral Royalty 2015 Regime	
 Mineral Royalty for underground mining operations as a final tax. Mineral Royalty for open cast mining operations as a final tax. Mineral Royalty 2016 Regime All mining license holders based on Gross or Norm value accordingly.	8% 20%

Source: Compiled from Zambia Revenue Authority Data

An important aspect raised by UNEP regarding taxation, and which was outlined in Section 2.2, is the need to link tax systems to economic capacity, an aspect overlooked in the current Zambian system. Furthermore, large-scale mine operators tend to engage in aggressive tax planning and have powerful lobbying capabilities and are thus able to secure lower mining rates for themselves. This was illustrated quite clearly during 2003–2012, when, paradoxically, small-scale license holders were required to pay higher mineral royalty rates than large-scale license holders (See Table 1). During this period, small-scale license holders were charged a rate of 5 per cent while large-scale license holders were at 2% and some enjoyed a rate as low as 0.6%. Such lobbying has been so powerful that during this time, some large-scale mine operators secured terms that were undisclosed to the public. It was only in 2012 that the rate was harmonised for all license holders to paying a rate of 6%. However, this rate still does not represent an adjustment based on the capacity of small versus large-scale operators.

4. Conclusion and recommendations

In sub-Saharan Africa, the ASM sector faces a number of challenges, many of which require immediate attention. To assume, however, that the benefits of formalisation will be realised once ASM operators are granted legal titles would be premature. Calls for formalisation also have tended to assume the existence of a common vision and understanding of the term, not least of all, amongst implementing governments. But the more common experience is that governments tend to hold to the narrow 'legalist' view that is overly focused on titling. This study found that the role played by government institutions in addressing capacity issues is a key if formalisation is to have positive outcomes. Moreover, the design of policy interventions should take into consideration not only the right to resource use, something that is granted by the title, but also, in line with Ribot and Peluso (2003), the multiple avenues of actual access to such benefits that exist, in this case, with a view to activating these links for ASM operators.

This study further found that the granting of legal title is employed by governments to achieve diverse objectives, some of which may not involve conferring imagined benefits to the sector. In the case of Zambia, for instance, the initial wave of formalisation and the issuance of licences was actually deployed as a strategy to disempower ASM operators who would be reassigned mining rights in areas with little economic viability. The transition from socialist to free market systems also altered the role of the state. These experiences illustrate how formalisation is a dynamic process, subject to change with changes in socio-economic or political context.

On the whole, it is evident that in country contexts such as Zambia, there remains great potential for significant benefits to be drawn from the ASM formalisation process, provided that a more targeted and intentional response is adopted. The key recommendations in the Zambian case are that implementing institutions need to be strengthened and capacity built within them. Weak state capacity, a lack of knowledge about the dynamics of ASM and a lack of policy direction are key aspects that need to be addressed. For starters, Zambia needs a special unit in the Ministry of Mines and Mineral Development that is focused solely on ASM and provision of long term policy direction. This unit would be dedicated to an active strategy to progressively monitor ASM operators for purposes of project development. The current system has no mechanism for benchmarking progress or identifying needs, and only finances support sporadically. Zambia's ASM sector is large enough to warrant this type of focused department. Such a targeted approach has seen success in countries such as Ghana. Secondly, the policy articulation on ASM needs to be well defined. In the current Mines and Minerals policy, only cursory mention is made of ASM. A well-articulated policy document on formalisation of the sector is needed. Colombia, for instance, has a national formalisation policy that articulates in great detail the process and ultimate aim of government's deals with ASM operators.

Key policy changes also need to be implemented with regards to the taxation of ASM to create more of the win - win situation that legalists speak of. This could mean putting ASM operators on a presumptive taxation system separate to that in place for the traditional large-scale mining companies. A similar taxation scheme is in place for previous informal sector workers. The design and implementation of a credit scheme adapted to the specificities of the emerald sector is also a crucial point. The successes scored in the design of credit schemes based on the Grameen model may not be appropriate but the principles underlying them and a proper understanding of the sector are needed. Proper monitoring and enforcement of regulations will also be key, as well as a system of tracing where gemstones such as emeralds come from. The cordoning-off of the NRERA to secure the area could be a starting point. Hilson and Ackah-Baidoo (2011) further note the importance of defining key parameters such as the rates of interest, geological information and how loan default rates can be kept at a minimum. For Speigel (2015), there is a need to focus on hire purchase loan schemes for equipment as opposed to providing cash payments. With regards to donor assistance, greater efforts must be made to understand the realities of ASM operators and to design strategies that are better aligned to identified needs.

Chapter 3: Institutions and Production Networks in Formalised Artisanal and Small-Scale Mining

Abstract

This chapter broadens understanding of how organisational patterns adopted by formalised artisanal and small-scale miners influence the distribution of resource rents to their beneficiaries, based on the case of Zambia. Departing from incomplete legalistic and technological explanations of low incomes in the sector, the chapter uniquely employs the Global Production Network and value-chain analysis to comprehensively map actor constellations and processes of rent creation and erosion in Zambia's amethyst mining area. The chapter finds that failures in formal institutional support, have perpetuated low productivity and low technological access in the sector. Moreover, ineffective formal institutions have triggered the emergence of 'substitutive' and 'competing' informal institutions, in line with Helmke and Levitsky, which in some cases substitute for market and state support, but mostly conflict with the state's wealth creation goals. Policy-makers must be mindful that policy interventions that prove incongruent with the needs of miners trigger informal institutional responses that may either support or subvert policy goals.

Keywords: artisanal and small-scale mining, formalisation, institutions (formal and informal), global production networks, value-chains.

1. Introduction

In recent years, the general consensus among most policy-makers and scholars is that, despite the presence of enterprising businessmen looking to get rich quickly, the majority of people engaged in artisanal and small-scale mining (ASM) do so because of unemployment and to escape poverty (Barry, 1996; African Union, 2009; Maconachie and Hilson, 2011). This is particularly the case in sub-Saharan Africa, where ASM employs at least nine million people directly and supports the livelihoods of at least 54 million others (IGF, 2017).¹⁹ But while today, ASM is a life-line for hundreds of communities in rural sub-Saharan Africa, many of the individuals who have transitioned into the sector in the region over the years in a bid to address personal hardships remain mired in poverty (Childs, 2008; Cartier, 2009; Tschakert, 2009).²⁰ This was first reported *en masse* at the World Bank's *Roundtable on Artisanal Mining*, where delegates rightly observed that – 'small-scale informal miners – although better off than their compatriots – are poor' (Barry, 1996:1). Research that has since been undertaken has confirmed as much (see e.g. Childs, 2008; Cartier, 2009; Ross, 2011; Wilson, et al., 2015).

While partial explanations can be inferred from the literature, for the persistent poverty in the sector (technological limitations (Barry, 1996; Noetstaller, 1987), debt traps (Hilson, 2012), exploitative labour relations (Verbrugge and Besmanos, 2016) and operating without legal title (Hilson and Pardie, 2006; Maconachie and Hilson, 2011; Hilson and Hilson, 2015), few scholars directly engage with the underlying causes of poverty (Ross, 2011; Hilson, 2012). Moreover, current explanations fail to capture the interconnectedness of actors and processes in the sector and how different causal factors interact to undermine progress, which has resulted in a fragmented policy approach. The Africa Mining Vision (African Union, 2009), adopted by heads of state from across sub-Saharan Africa, for instance, attributes the failure of interventions in the sector to 'isolated', 'technical-solutions' that overlooked 'other important societal and techno-economic variables' (2009: 28).

¹⁹ Figures considered to be conservative estimates due to the widespread informality of the activity that limits accurate enumeration.

 $^{^{20}}$ Defined here in terms of low incomes that limit asset accumulation and progression to higher standards of living.

This chapter asks how the organisation of production and trade activities in the sector influences the distribution of rents to sectoral actors and probes the underlying reasons for the adoption of divergent organisational patterns by licence holders. The chapter uses elements of the Global Production Network (GPN)²¹ and value-chains as a framework to map actor constellations and productive processes around artisanal and small-scale mining. The chapter hypothesises that divergent organisational patterns emerge in response to failures in formal institutions, in line with Helmke and Levitsky's framework on informal institutions, with some patterns leading to a poverty-cycle for the poorest.

This chapter draws on field research conducted at small-scale amethyst mines in Mapatizya in Zambia's Southern Province, between September 2016 and December 2017. Unlike most studies in ASM which focus on precious minerals such as gold and diamonds (Maconachie and Bins, 2007; Bryceson and Jonsson, 2009; Hilson and Maconachie, 2017), this chapter focuses on amethyst, a semi-precious, bulk mineral that is less associated with 'rush-type' activities.²² Production and trade of amethyst stones in Mapatizya is widespread and is the primary economic activity in the village. The continued high levels of poverty among these amethyst miners within a context of formally-titled mining plots, however, provides the impetus for the present study. If appropriate policy support is to be channelled to the sector, knowledge of the underlying dynamics of the locality's productive activities must be enhanced.

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²¹ Research on the GPN has provided insight into how value is created through 'transformation of material and non-material inputs into demanded goods and services' (Coe et al., 2008: 274-275). GPN goes beyond traditional value-chain analyses that view production as a linear process and rather engages with the multi-dimensionality of actors and networks that contribute to production.

²² 'Rush-type' activities are associated with easy-to-mine, high value, alluvial mining areas (e.g. with gold and diamonds) (Gyan-Baffour, 2003). High expected incomes trigger abandonment of traditional livelihood strategies and lead to unstable communities, which is less so with semi-precious bulk minerals like amethyst.

The chapter begins by reengaging with debates on ASM, livelihoods and poverty, after which, GPN and value-chain analyses are discussed in tandem with Helmke and Lavitsky's framework on informal institutions, in a bid to broaden understanding of the sector's dynamics. The third section introduces the Zambian case study, highlighting how formal institutional settings have focused on rent extraction from licenced operators and less on nurturing and supporting ASM more broadly. The fourth argues how weak state support has led to the emergence of quasiformal production patterns that have resulted in an oversupply of amethyst in the local market and a lowering of prices for players. The penultimate section shows how processes of value creation and embeddedness in local contexts affect outcomes, while the sixth and final section presents major conclusions and policy recommendations.

2. Poverty and ASM: Critical Reflections

Numerous studies have examined how ASM alleviates poverty (see e.g. Fisher et al., 2009; Mallo, 2012; Hilson, 2016), and facilitates rural transformation. Specifically, how a reorientation of livelihoods, becoming for many rural households, a complementary economic activity to farming and in some instances, their main source of income (Maconachie and Binns, 2007; Cartier and Bürge, 2011; Bryceson and Jønsson, 2009; Hilson, 2016; Verbrugge, 2015). However, less attention has been devoted to exploring why, despite ASM's growing economic importance, most of those engaged in its activities remain poor (Fisher et al., 2009; Hilson, 2012). For Cartier (2009: 82), although many people are drawn to the sector because of a desire to alleviate their personal hardships, 'Mining has in many cases, impoverished miners rather than enriched them, thereby further increasing vulnerabilities'. In some instances, miners have been shown to earn more than they would in other livelihood activities but rather inexplicably,

remain caught in a poverty-trap (Barry, 1996; Childs, 2009).²³ Moreover, due to ASM being found predominantly in the informal sector, few studies engage with questions of how and why poverty persists, even in settings where titles have been issued. In fact, even in the context of informal ASM, as Cartier (2009), Hilson (2012) and others point out, the focus has tended to be on the 'impacts and consequences' of ASM rather than unearthing the underlying causes of its problems.

From the literature, there are three major explanations for the persistent poverty found in ASM. Each is examined in succession here, analysis which frames the case of Zambia that follows.

2.1 Role of Technology in Setting the Poverty-Trap

Technological constraints have long been one of the most popular explanations given for persistent poverty in ASM communities. This argument emerged from the dialogue at the World Bank's *International Roundtable on Artisanal Mining* (Barry, 1996), and its champions are among the few who attempt to directly diagnose the underlying causes of poverty in the sector. It asserts that informal miners lack adequate processing techniques and equipment to extract minerals, which leads to low levels of productivity and mineral recovery. Low recovery, in turn, results in low revenues that limit reinvestment and cause an overreliance on inadequate techniques (See Figure 3-1).

²³ Defined as a "critical minimum asset threshold, below which families are unable to successfully educate their children, build upon their productive assets, and move ahead economically over time" (Carter et al. 2007, p. 838); or "any self-reinforcing mechanism which causes poverty to persist" (Azariadis and Stachurski 2004: 33).



Figure 3-1 Negative Cycle Affecting ASM Source: Adapted from Barry, 1996

This argument was nuanced further by officials at the United Nations Economic Commission for Africa (UNECA, 2003), who argued that an influx of miners with low human and social capital on marginal lands leads to low productivity and income per head, which in turn limits their technological access and productivity, hence resulting incomes. This view is shared by Gilman (1999) and Gyan-Baffour (2003).²⁴

Efforts made to respond to technical limitations have, however, had limited success mainly due to three factors. First, the tendency to deal with them in isolation from their wider social, economic and cultural contexts (Hentschel et al., 2003; African Union, 2009). Hilson (2007), for instance, reports how the 'Shamva' central processing unit, hailed as a success story in Zimbabwe for reducing mercury usage and raising the incomes of ASM operators, failed in Ghana due to limited understanding of that country's context (Childs, 2008). The success of the processing unit in Zimbabwe itself also seems to have been short-lived (Dreschler, 2001). Similarly, mercury retorts, which have been distributed across sub-Saharan Africa by

²⁴ Gyan-Baffour (2003) further argues that inappropriate technology leads to environmental degradation and health problems, further lowering productivity.

institutions which comprise what is referred to as the Global Support Facility (GSF),²⁵ have generally failed or in the best of cases, had only temporary success because of a pronounced disconnection from prevailing socio-economic and labour issues (Childs, 2008; African Union, 2009).

A second problem, often overlooked in the literature, is the failure by donors and host governments to correct market failures that limit technological access by ASM operators, even in contexts where formalisation is undertaken. Because commercial institutions are typically reluctant to fund ASM due to operators' lack of collateral and the perceived risk of their activities (Gyan-Baffour, 2003), it has been proposed that donors and governments fill this gap (Siegal and Veiga, 2009). However, donors have on occasion demanded similar collateral requirements as banks, as illustrated in the case of Zambia (Siwale and Siwale, 2017). Donors and governments seem to have been influenced by the view that ASM requires 'only very limited funding', because it is a 'low investment, low-capital intensity activity' (Noetstaller, 1987), which may explain why requests by ASM operators for plant-hire schemes have been generally been rejected (Siwale and Siwale, 2017). This culminates into failures by both market and state/donor institutions to capitalise miners, contrary to formal policy pronouncements at national and regional levels (African Union - AMV, 2009). How licence-holders respond to such failures are a key aspect that this chapter addresses.

Thirdly, technical explanations are limited by their focus on a single segment of the ASM production network. These arguments typically assume that enhanced production directly translates into higher incomes for players, overlooking the challenges that may arise at other

²⁵ The GSF includes the World Bank, DfiD, the UN and national governments and NGOs (Childs, 2008).

points in the production network such as how oversupply, incomplete markets, buyer dynamics and value-addition may influence prices and incomes. Cartier (2009: 8) and Ross (2011) are among the few to highlight this oversight and analyse how buyer networks have shaped the ASM trade and what implications this has for livelihoods. Focusing on the case of Madagascar, Cartier (2009) explains that 'The artisanal miner's ultimate aim is to sell his/her stone(s)' and essentially makes a case for consideration of both production and trade dynamics. This is another critical aspect that the current study seeks to build upon and provide further empirical backing for.

2.2 Informality Curtailing Growth

A second argument that has garnered much support in recent years is the idea that problems associated with ASM – including poverty – are 'expressions of informality' (Hilson and Hilson, 2015; IGF, 2017). Because ASM is usually not recognised by governments, it cannot be targeted for development support (Lungu, 2007). The lack of legal title is also said to constrain access to credit and finance, limiting technological access for improved methods of extraction and higher productivity (Gyan-Baffour, 2003; Hentschel et al., 2003; Fisher et al., 2009; Tschakert, 2009). Much research has thus been devoted to understanding the barriers to formalisation in the ASM sector, including fiscal, political, administrative and cost constraints (Hentschel, et al., 2002; Hilson, 2013; Hilson and McQuilken, 2014; Verbrugge, 2015). But the overall position of these studies is that informality is the problem and once formalised, challenges will dissipate.

Formalisation, however, has its share of detractors. The assumption that the legal *right* to benefit from resources equals the actual *ability* to derive benefits has been particularly challenged (Ribot and Peluso, 2003; Bromley, 2008; Geenen, 2012). For example, in Uganda

and Zambia, possession of licences has not yielded the anticipated benefits, notably increased access to credit or state support for ASM operators (Siegel and Veiga, 2009; Siwale and Siwale, 2017). Such cases underscore the limitations of focusing on the single dimension of legal rights in ASM formalisation exercises without due consideration of how wider production networks function.

2.3 Power Imbalances in Complex Labour Hierarchies

A third explanation for poverty in ASM relates to labour relations, and is commonly identified as a challenge in settings where formalisation frameworks with a unitary focus on mineral tenure rights are at work. The implication is that these frameworks are limited and overlook complex organisational hierarchies (Bryceson and Jønsson, 2009; Fisher et al., 2009; Jønsson and Fold, 2011). Importantly, Verbrugge and Besmanos (2016) draw attention to the exploitative power relations embedded in organisational hierarchies and the fact that issuance of mineral rights usually coexists with weak or non-existent worker rights. In several sub-Saharan countries, including Ghana (Hilson, 2010) and Benin (Grätz, 2003 in Verbrugge and Besmanos, 2016), a tiered system often emerges among actors. For example, in Tanzania, there is a three-tier system comprising permit holders (or financiers in some cases),²⁶ pit-holders (team leaders) and diggers (Bryceson and Jønsson, 2009). In cases such as this, income redistribution across strata is often skewed in favour of mineral right holders, resulting in lower incomes for diggers, despite comprising the largest and generally poorest group involved. In Tanzania, 30 per cent of revenues go to permit holders, 40 per cent go to pit holders, while diggers share one third of the income among themselves (Bryceson and Jønsson, 2009). A

²⁶ While the Tanzanian case shows more formalisation with permits issued by government, this is not always the case. Some permissions may be issued by large-scale mines(McQuilken and Hilson, 2017) while the majority are informal groups (IGF, 2017).

similar dynamic persists in the Philippines, where 70 per cent of revenues after costs were retained by financiers (Verbrugge and Besmanos, 2016). Here, both financiers and diggers are trapped in debt cycles that keep them in ASM: the latter indebted to the former and the former to others.

Unequal labour relations also persist in Zambia, although as will be explained, this manifests in different ways. While organisational and labour-related arguments rightly diagnose the failure of legal institutions to provide for labour protections, they do not clearly theorise the emergence of informal institutions in response to inadequate institutional frameworks. Many, for instance, largely categorise the informal labour patterns that have emerged in the sector as dysfunctional. However, as argued by Helmke and Levitsky (2004), not all informal institutions are dysfunctional. Moreover, such studies focus on descriptions and effects of labour patterns that emerge and inadequately engage with the reasons why they come about. These are important elements provided for by the GPN's emphasis on embeddedness and governance and the Helmke-Levitsky framework on informal institutions, as shall be seen.

On the whole, it is apparent that neither technological, legal or organisational explanations can be viewed in isolation but are rather interlinked, therefore requiring the formulation of a comprehensive framework to better understand outcomes. Technical solutions without grounding in contextual and wider value-chain factors fail and labour dynamics delinked from institutional dynamics that create them similarly fall short. Formalisation strategies must transcend the legal and engage with access issues. Frameworks must be informed by a comprehensive understanding of how the sector operates to create winners and losers at various levels. Although never used before in the context of ASM, McQuilken and Hilson (2017) successfully adapt the GPN as a framework to contextualise the dynamics of Ghana's informal ASM sector. The present study combines the GPN framework with institutional theory to better explore the nuances of formalised artisanal and small-scale amethyst mining in Zambia, in a bid to cast light on how its organisational patterns potentially perpetuate poverty in communities where production takes place.

2.4 Global Production Networks and Institutional Theory

The terms 'global value-chain' and 'global production network' have been used interchangeably to refer to the sequence of activities featured in the production, marketing and final consumption and disposal phases of product cycles. The present chapter merges the GPN and GVC concepts on the basis that value-chains are a sub-set of these wider production networks (Sturgeon, 2000). It then undergirds the GPN framework with a theoretical discussion on how institutions shape GPNs.

Four key concepts are extracted from the GPN framework that effectively link arguments raised for persistent poverty in ASM (Section 2.1 - 2.3) and provide additional conceptual tools for understanding low incomes in ASM.²⁷ The first concept is *economic rents*, defined as 'the excess amount earned by a factor over the sum necessary to induce it to do its work' (Wessel, 1967: 1222). Rents are created through technology, labour, managerial skill, branding and trade policies, but are eroded by high competitive forces between producers, high bargaining power of suppliers and buyers and low barriers to entry (Porter, 1979 in Shafer, 1994; Henderson et

²⁷ For a comprehensive discussion on GPN see Henderson et al. (2002) and Kaplinsky (2000) for GVC.

al., 2002). The GPN's concept of *rent capture* alludes to the extent to which resource-rents are retained in a producer region, which in turn influences poverty.

Second, *governance*, relates to the process through which key players along the value-chain coordinate activities to maximise rent-capture through laws or rules (*legislative governance*), monitoring compliance (*judicial governance*) and enabling players to meet standards (*executive governance*). Third, the concept of *power* incorporates: *corporate power* (the degree to which lead firms influence operations of other firms in the chain); *institutional power* (vested in state agencies, inter-governmental organisations and multilateral agencies such as the World Bank); and *collective power* (deriving from mobilization by agents seeking to influence firms, governments and/or international organisations) (Henderson et al., 2002). Finally, the concept of *embeddedness* alludes to the idea that productive processes are embedded in local networks and territorial contexts which shape operations. The GPN's ideas are consistent with institutional arguments by North (1994) which argue that institutional contexts shape the extent to which entrepreneurs can maximise their objective function (e.g. profits). The GPN's concept of power, however, clarifies how rules are enforced or changed.

While the GPN provides valuable insights into the various factors that shape processes and capacities for rent creation and helps map interconnections between actors, it does not offer theoretical grounding for how and why divergent patterns of production emerge for players in the same context. Furthermore, while acknowledging the role of institutions, the GPN primarily emphasises formal institutions such as policies and regulations while informal institutions are less explicitly engaged with. These limitations are problematic particularly for regional contexts such as SSA where despite progressive formalisation, the informal sector remains the largest in the world (Medina et al., 2017).

Building on ideas by North (1990; 1994), Helmke and Levitsky (2004), argue that informal institutions tend to emerge in formalised contexts based on two dimensions: the effectiveness with which formal rules are enforced and the degree of consistency between the goals of agents in formal institutions and those of informal actors. They develop a typology of four informal institutions that may emerge based on these two dimensions: complementary, accommodating, substitutive and competing (See Table 4).

Outcomes/goals	Effective formal institutions	Ineffective formal institutions	
Convergent	Complementary	substitutive	
Divergent	Accommodating	competing	

 Table 4: A typology of informal institutions

Source: Helmke and Lavitsky (2004)

Complementary informal institutions exist side-by side with effective formal institutions²⁸ and achieve similar goals to what formal institutions intend. They emerge to 'fill gaps' left by formal institutions by responding to problems not dealt with by formal rules or creating incentives to comply with formal rules. *Accommodating informal institutions*, on the other hand coexist with effective formal institutions but seek to achieve divergent goals. While such institutions do not violate the letter of the law, they go against the spirit of the law and create incentives that undermine the goals of formal institutions. Helmke and Lavitsky (2004) give the example of how even though Chile's executive-legislative power sharing arrangement

²⁸ Defined as rules that are enforced and which actors expect to be enforced (Helmke and Levitsky, 2004).

confers significant powers on the president, these powers have seldom been used due to the established informal practice of interparty executive-legislative consultation.

In the third instance, are *substitutive informal institutions* which, similar to complementary institutions, share the same goals as formal institutions. However, they exist in the context of weak formal institutions, where effective enforcement fails. Examples include cases where village associations provide public services that the state fails to supply. Lastly, *competing institutions* operate in contexts of weak formal institutions where enforcement of formal rules is not consistent, incentivising actors to break them. Outcomes of competing informal institutions are contradictory to laws and include corruption and clientelistic practices. Motivations for creation of informal rules are: incomplete formal institutions; second-best solutions in cases where actors would like to follow formal rules but cannot attain to legal requirements and lastly, conflicting goals in which players would like to undertake unpopular or illegal activities (Helmke and Levitsky, 2004; Estrin and Prevezer, 2011).

The Zambian case study that follows critically engages with how licence-holders in ASM settings adopt production and trade patterns in response to institutional effectiveness and goal congruency of between formal and informal actors.

3. Locating Zambia's ASM Sector in the Global Amethyst Production Chain

The case of Zambia's amethyst production is particularly interesting due to it occurring in a formalised setting and the mineral being semi-precious, which, as noted, is distinct from the informal ASM operations engaged in the extraction of precious minerals in informal contexts



Figure 4: Amethyst Production (2001-2015)

Source: Ministry of Mines and Minerals Development - Personal Communication (2016) that have received extensive coverage in the literature (Tschakert, 2009; McQuilken and Hilson, 2017). Zambia is one of the world's largest amethyst producers (Anckar, 2006), with output in the range of 1000 tonnes per annum (See Figure 1).²⁹ Production has, however, tended to fluctuate, and experienced a drastic decline in 2015, probably owing to the global plunge in commodity prices that commenced in 2014 (World Bank, 2015). In Zambia, amethyst production is largely concentrated in Mapatizya, Kalomo district in the country's Southern Province. But deposits are also found in the Central and North-West (Anckar, 2006).

²⁹ Ministry of Mines and Mineral Development internal communique, 2016.

The weak link between licencing and productivity is demonstrated by the fact that even though mining in Mapatizya began in the late 1950s and most plots were licenced by the 1980s (60 licences having been issued by this time), at present, only about 10 mines are actively producing (Anckar, 2006). Although the majority of mining licences for artisanal and small-scale mining are in the hands of Zambians, the bulk of stones are produced by Kariba Minerals, a joint venture between the Zambian Government and the UK-based multinational, Gemfields Inc. Kariba is one of the largest amethyst producers worldwide, working the largest high and low-grade amethyst ore deposit (ZCCM-IH, n.d.). It is unlikely that Kariba's location on top of the richest amethyst area is coincidence. Rather, it is likely that formalisation was strategically used to concentrate the most highly mineralised areas into state hands, following the approach taken in the country's emerald sector (Siwale and Siwale, 2017).

Conversely, capital constraints and poor geological knowledge limit most Zambian licence holders from producing. The Zambian Government has, however, recently restated its intention to build the productive capacity of ASM in its Seventh National Development Plan (2017), with an emphasis on enhanced participation of operators in mineral value-chains. But previous attempts made to accomplish this, through donor funded initiatives, failed, underscoring the need for policy actions to be informed by critical knowledge of the sector's operations, which is often lacking.

To help bridge this gap in the artisanal and small-scale amethyst sector, between September 2016 and October 2017, field visits were made to Mapatizya, where a combination of 102 group, and individual semi-structured and in-depth interviews were carried out with mine-licence holders, mine workers, gemstone traders, government officials etc (See Table 4 below). This research was undertaken with a view to determining how production is carried out, and to

broadening understanding of what implications this has for income earning amongst different actors in the supply chain. The sample captured key players at different points of the amethyst production network in Mapatizya, allowing for a variation in perspectives. Since only about 10 to 15 ASM mines are in active production, the inclusion of 7 licence-holders (even though two sets of respondents were joint partnerships of the same mines) was insightful while discussions with community members (mine-workers and stone traders) allowed for insights into possible impacts on incomes and poverty. While, this is not a basis for generalisation to the entire population as with quantitative research; findings of the study can be used to draw implications for similar contexts, in line with Yin (2012). The study was, however, limited in capturing players like transporters (even though some mine-owners revealed prices paid to them) and lacked access to international players. Further, there was no complete sampling frame and so because licence-holders were the key contact point, more of them and their workers were interviewed while discussions with community members and mine-licence owners revealed the prevalence of informally seeking permission to work at licence-owner mines (JPAs).

Stakeholder	Number of Participants	Data Collection
1. Amethyst Mining-Licence Holders	7	In-depth interviews
2. Joint Production Arrangements	7	In-depth interviews
(2 licence-holders and 3 informal		
miners)		
3. Informal Miners (Illegal)	2	Semi-structured interviews
4. Stone traders	22	-6 individual, semi-structured
		interviews
		-5 Group interviews with 2 to 4
		participants
5. Stone traders and market traders	9	Community/institutional mapping
		exercises involving 2 groups with 3
		and 6 participants respectively
6. Mine Workers (diggers, sorters,	34	Semi-structured interviews
haulers, supervisors, security)		
7. Government Officials ³⁰	21	In-depth interviews
8. Multilateral Agency and	2	In-depth interviews

 Table 5: Stakeholders in Amethyst Production Network (June 2017 to March 2018)

³⁰ This number includes the total number of government officials interviewed even in related studies that showed how the institutional framework around ASM functions.

International NGO		
Total	105	

Source: Compiled by Author

Poverty levels in Mapatizya are relatively high, despite its status as one of the world's largest amethyst producing localities. Field visits revealed that Mapatizya has limited water access; no electricity;³¹ no senior secondary school, limited healthcare facilities; and mainly thatched, mud-brick houses that are often at risk of destruction during the rainy season. The arid geographical terrain constrains farming activity, making ASM the main livelihood activity for the population of approximately 5000 people (Anckar, 2006: 112). Anckar (2006: 112) described poverty in the area as 'striking', demonstrating the limited rent capture by the area.

4. Embeddedness and Governance of Zambia's ASM Sector

As alluded to in Section 2.4, the organisational patterns that emerge in the ASM sector are largely an expression of the wider institutional context in which they are embedded, hence the importance of developing a broader focus that then narrows down to specific contexts, as proposed by the GPN and institutional scholars (North, 1990; Henderson et al., 2002; McQuilken and Hilson, 2017). In the Zambian case, there are some facilitative elements to the institutional setting but also several inhibitors to ASM growth.

In terms of facilitative aspects, Zambia shows signs of being a strong state through its success in ensuring that most ASM operators are formalised. In 2016, the World Bank rated Zambia 'Very High' (4.0 out of 4.0) in terms of the degree to which ASM is legally recognised (World Bank, 2016). Analysis by Tychsen et al. (2018) reinforces this, confirming that 75 per cent of

³¹ Many residents have recently come to rely on portable Chinese torches for lighting (the Kariba Minerals area is the only one with electricity, powered by generators).

ASM in Zambia is licenced. This contrasts with 70 to 80 per cent of ASM activities occurring in the informal sector in many countries (IGF, 2017). The *Mines and Minerals Development Act*, 2015 (MMDA, 2015), allows for mining licences to be granted to artisanal and small-scale miners for periods of two and 10 years, respectively. Mining licences for ASM can only be granted to Zambian nationals, while small-scale mining rights can be granted to companies with a specified percentage of Zambians. This restriction of rights to Zambians shows a degree of resource nationalism and is viewed here as an exercise of *legislative governance* that seeks to ensure that rents primarily accrue to citizens. Zambia's Mineral Resources Policy of 2013 similarly commits to support ASM through extension services, technological support, gemstone marketing and facilitation of access to finance (GRZ, 2013), while the Africa Mining Vision (AMV), to which Zambia is signatory, similarly affirms a commitment to capacity building and technological support (amongst others), to the sector.

However, despite this formal institutional support, informal bureaucratic norms towards ASM remain unchanged as do certain key policy positions. The most significant being that the country suffers from a large-scale 'bias' – in which large-scale mining has traditionally been prioritised and valued over ASM. Specifically, Zambia's tax and mining governance system is primarily configured to maximise rent extraction from its leading sector, large-scale copper mining, a phenomenon observed in other resource-rich developing countries (Shafer, 1994). No attempt been made to customise systems for ASM. Rather, systems designed for large-scale mining are applied uniformly to ASM, an observation made by government officials in a group interview, where one stated:

...they would be expected to report in the same way that a big mining company would report ... But the truth of the matter is that there are challenges. Most of them

are too small to even understand the keeping of records, so record keeping is a challenge for them.

Another official made a similar observation:

Then in terms of mineral royalty, mineral royalty in this country we have standard rates... it doesn't matter if you are big or small you pay the same amount... But of course, most of them don't even have, they are not as profitable... Once you've gotten the mineral royalty it's like you've gotten a reasonable chunk out their activities (referring to ASM operators).³²

It is, therefore, apparent that the challenges faced by ASM operators are known but because large-scale mining is the bigger priority in Zambia, the need for customised service is ignored. This has resulted in heavy costs for ASM operators, who are required to make multiple payments, including a licence application fee of approximately US\$90; submission of an Environmental Project Brief (US\$1300); registration as a limited company under the Patents and Companies Registration Agency (PACRA) with payment of associated fees; royalties of 6% and corporate tax of 30%; valuation fees for minerals (from US\$30 per export consignment); mineral analysis certificate fees (US\$22.50); mineral trading permit (US\$210) and ground rents charged per unit of land occupied (ZEITI Report, 2016; Zambia Mining Cadastre Office Internal Communique, 2016).

A second and interrelated challenge is that ASM is often marginalised in policy discussions, except during periods when copper prices plummet and additional revenues become a priority. In the 1990s, for instance, copper mining's contribution to the national budget significantly reduced as a result of privatization and low copper prices. In 2002 and 2003, the total allocation

³² (Group interview, senior government officials, Lusaka, 6 July, 2017).

to the mining sector amounted to 0.9 and 0.1 per cent, respectively (IMF, 2004). To promote diversification, the first Poverty Reduction Strategy Paper (PRSP) targeted interventions in small-scale mining, specifically under the EU Mining Sector Diversification Programme (MSDP) and World Bank's Support to Economic Expansion and Diversification (SEED). An official who had been involved in implementing the former explained in an interview that:

...there was a lot of effort from a lot of stakeholders and government was a very strong stakeholder then because everyone was pushing the diversification agenda, it was a hot thing. But along the way, copper prices went up and people got a feel of Chinese money now and I think ever since that time, some of the very strong stakeholders have not been there to look at these other issues. In a way that led to a slump in small-scale mining activity in the country. (Interview, former senior official on MSDP, Lusaka, 12 December, 2017)

This illustrates how state incentives to support ASM are conditioned by the availability of resource-rents from the leading sector. The 'rules of the game' – in the language of North (1990; 1994) - thus seem to be that ASM is supported when resource-rents from copper are threatened, an observation supported Auty (1993) in his study of the resource-curse. The launch in 2014 of the ACP-Development Minerals Programme, which targets ASM specifically, coincided with a decline in global copper prices. Furthermore, the refusal by the government to yield to petitions by small-scale miners over reducing the 6 per cent royalty³³ are illustrative examples of *institutional power* and *legislative governance*, specifically, deliberate moves made to capture rents from ASM operators. Many licence-holders find that the 6 per cent royalty that must be paid despite losses is detrimental to their operations. As one stated emphatically, 'Royalties have really choked us...They are just making it impossible for us to

³³ Which is consistent with World Bank advice that taxes on production for ASM be minimised in favour of profit tax, as they directly increase costs of production (Noetstaller, 1987).

go into export markets'.³⁴ Low profitability in ASM, therefore, is not only a result of challenges related to production, but also taxation, which undercuts re-investible surplus and constrains operators from accessing international markets, where prices are higher.

The tax structure reflects the comparative *corporate power* of large-scale copper mines, who paid only 0.6 per cent royalties between 2003 and 2007, and 6 per cent between 2012 and 2014 (Siwale and Siwale, 2017). They recently lobbied to have their royalty payments linked to prevailing commodity prices, and as result, now pay between 4 and 6 per cent of profits, depending on the price of copper (Mines and Minerals Development Act (Amendment) No. 14, 2016).³⁵ Large-scale mining companies therefore possess informal access to power-holders within the state machinery and are able to influence policies in their favour (*rules of the game shaped by power-holders*). Conversely, ASM operators have been charged a standard 6 per cent throughout. Legislation has thus focused not on building capacity or systemic efficiency across the production network, but rather on maximizing rent-extraction.

A third challenge is the limited and, on many occasions, inappropriate institutional support to ASM operators. In Zambia, this was found to be the case with artisanal and small-scale emerald operators (Siwale and Siwale, 2017), who are largely left to operate on their own. Despite being licensed, they are not monitored by the government. There is presently no government unit dedicated to the development of ASM in Zambia (*weak judicial governance*), an observation made initially by officials at the World Bank (World Bank, 2016). Efforts made by the government and donors to make available financial and/or technological support to ASM operators who are in the greatest need of support have also largely failed. In the late-2000s,

³⁴ Interview, woman mine-owner 1, Lusaka, 2 December, 2017.

³⁵ See Siwale and Siwale (2017) for detailed discussion on taxes and ASM in Zambia.

loans amounting to US\$5000 were offered to ASM operators but proved grossly insufficient to stimulate productive activity.³⁶ Continued undercapitalization impacts productivity, profitability and employment creation in rural communities and can be linked to the emergence of informal institutions around production in the sector, as will be later shown.

A final institutional limitation relates to training and marketing (facilitation of occasional participation in exhibitions to be precise) support, which is not offered as part of a holistic strategy to support operators at each stage of the value-chain. Rather, training and marketing seem to substitute for support to production, with mining association members noting that it is no use requesting for plant-hire schemes as they are turned down.³⁷ In the latest iteration of donor support under the African Caribbean Pacific – European Union (ACP-EU) Development Minerals Project (2014), funds have once again been directed to technical training with only limited support for production.

Moreover, the way in which training activities are organised has created perverse incentives for both government and mining association members. Training takes place in attractive locations in cities or holiday locations, with allowances offered to participants, instead of at demonstration sites in Mapatizya, where more ASM operators can attend and gain hands-on experience. Workshops have therefore become associated with rent-seeking for leaders of associations, who seek to control who attends. Government and NGO officials also seek to benefit from allowances while multilateral agencies use them to spend their budgets. The technical training also seems focused on the demand-side vis-à-vis building capacity of ASM

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³⁶ See Siwale and Siwale (2017) for detailed discussion.

³⁷ Interview, male mine-owner, 7 July, 2016.

operators to approach financing institutions for funding without dealing with supply-side factors, such as continued distrust of operators by lending institutions.

These contradictory institutional dynamics that support ASM on paper but undermine its progress through inappropriate implementation and an LSM-bias importantly shape the production networks that ASM operators join and organisational patterns adopted which, in turn influences incomes. Moreover, the LSM-bias that characterises policy-makers also illustrates Helmke and Lavitsky's characterisation of *accommodating informal institutions*. In this case, formal and informal institutions work at cross-purposes as while policy documents show a shift in favour of ASM, bureaucrats maintain a sceptical perspective of ASM. Meanwhile, LSM wields significant corporate power that turns crucial policies around tax in their favour. It further shows a cyclical interplay between the formal and informal, as policies made in one arena may be undermined by subsequent policies made through informal interventions in other arenas.

5. Value Creation in Mapatizya

One of the major strengths of the GPN framework and institutional analyses, when applied to resource-rich settings, is that they go beyond state-centric limitations in explaining why natural resources do not translate into positive development outcomes and allow for firm and local level analyses. What becomes evident in the case of Mapatizya is that ASM operators possess autonomy beyond the state and an ability to devise survival strategies despite limited support. This supports North's (1994) arguments that institutional change is usually triggered by entrepreneurs. Some ASM operators have, for instance, been able to mobilise labour, finance and occasional access to machinery through social networks, which has helped them to maintain production over several years.

However, strategies adopted are usually second-best solutions leading to sub-optimal outcomes for actors, in line with Helmke and Lavitsky, as the resource pool of most players is restricted to loan sharks charging high interest or family and friends, while their claims are often insufficient to be used as collateral in banks. Consequently, mineral production in Mapatizya has manifested as: i) Mine owner-driven operations (MODs); ii) Joint Production Arrangements (JPAs); and iii) illegal mining.

5.1 Production Patterns and Rent Creation in Mapatizya

5.1.1 Mine-owner driven operations (MODs)

These refer to semi-modern mining enterprises in which licence-holders have the responsibility of securing legal title and operating capital, acquiring fixed assets (such as buildings), ensuring that legal frameworks are followed, recruiting and paying workers, and marketing outputs. MODs offer three important benefits that make them key candidates for state support.

First, they offer the greatest potential for contribution to national revenues and upscaling of ASM. Licence-holders are typically urban-based and not the poorest of the poor but are relatively educated and possess sufficient finance or are in networks with some capital to kick-start operations. Among the licence holders interviewed were retired mining engineers, business administrators and tailors, most of whom reside in Lusaka (the capital) but periodically stay at mining camps for weeks or even months to supervise work. These actors show the greatest commitment to observing formal state requirements, including making tax payments (EITI Reports 2014, 2015),³⁸even though the consistency with which this is done is unclear. These actors are also part of mining associations and have the most interface with the

³⁸ Featured under unilateral disclosures by government entities in the reports.

government. They can therefore be easily targeted by government for both monitoring and support as they are few and yet usually occupy the same plot for years. This is an approach that was attempted in India, in which educated individuals who were unemployed were offered licences and supported on the condition that they provided employment to the rural community. Later, government support was removed but they continued to run independently (Barry, 1996).

A second benefit of MODs is that they create employment opportunities through processes of rent-creation and reduce poverty. Rural-based workers under MODs are usually either hired under performance-based or fixed-salary arrangements. They include labour hierarchies similar to those outlined by Verbrugge and Besmanos (2016) in the Philippines, and Brycesson and Jonsson (2009) in Tanzania: diggers, stone haulers, sorters and graders, supervisors and security personnel (usually only one or two of these). However, unlike the cases detailed by Verbrugge and Besmanos (2016) concerning exploitation, in Mapatizya, these are semi-modern firms with organisational structures including an owner, managers/supervisors and labourers. The supervisors do indeed have greater experience or may have worked at Kariba Minerals and so offer special skills, which commands higher salaries. Based on feedback from the mine owners interviewed, an average of 53 mine workers were employed across four mines, although the figure fluctuates (See Table 2 below). Salaries for diggers and sorters typically range between US\$40 and US\$50 per month, while supervisors receive between US\$75 and US\$100 per month.

Table 6: Selected Licenced Mine-Owner Driven ASM Amethyst Mines in Mapatizya

Mine	Date Mine	Number of	Mechanisation &	Price	Occupational
Owner	Acquired	Employees	Production		Background
1. Mine 1S	1989 but	35	18-21tonnes/month	Low	Auto-
(Male-run)	started		Fully mechanised with bull-	grade:	mechanic
	2000		dozer and excavator	\$0.5/kg	
	bought			High	
	from			grade:	
	someone			\$1/g	

2. Mine 2K (Male-run)	2013	42 workers	 Manual 500kg per day run on mine; With excavator: more than 1 tone per day Regular use of excavator 	Low Grade: \$1.5/kg - \$6.5/kg High Grade: \$25 to \$1500/kg	1)Former general manager at Kariba Minerals 2) Former mining engineer at Kariba
3. Mine 3G (Female- run)	Early 1990s	70/80 workers	-Pick and shovel with occasional excavator	Low Grade: \$0.8/kg High Grade: \$10/kg	Former tailor
4. Mine 4C (Female- run)	1980s	56 workers	-Pick and shovel with occasional excavator		Former secretary

Source: Generated from Interview data by Author

These wages, on one hand, are critical to livelihood support, but on the other, create a poverty trap. From interviews held with workers, wages are their primary income, with only a few complementing this with farming or livestock rearing. The wage pays for food, water (which costs \$0.20/20 litre container),³⁹ school fees, clothing and asset accumulation (purchase of cattle, goats or chickens). The cost of living in Mapatizya is, however, quite high due to its isolated geographical location and high transportation costs (the nearest town, Kalomo is 100km away and Lusaka, 450km away). Territorial embeddedness in a context in which farming is limited also makes access to food more difficult.

The monthly wage received by labourers is thus inadequate. Most mine-workers reported that the sum received depletes before the end of the month. This low wage is what primarily perpetuates the poverty amongst the groups found at the bottom of the supply chain. It most likely exacerbates an indebtedness similar to that found in other ASM contexts such as many areas of Ghana (Hilson, 2012). It also leads to children dropping out of school early to earn money or because their parents cannot afford to support them. This was observed during visits

³⁹ Most residents cover long distances of over a kilometre to 5km to access water and a contribution of 20cents goes to the water committee which manages the stand-pipes. Water access is costlier than in urban areas.

to Mapatizya. To cope with their hardships, many miners have resorted to stealing stones and selling them to illicit gemstone traders (this was observed during a field-visit, during which some women were caught having hidden amethysts in baby clothing). This creates a cycle in which licence-holder rents are in turn compromised by security costs and illicit mineral trade. The practice of stealing stones is, however, widely accepted as "legitimate" in the village, because it helps to alleviate poverty, which undermines wider sanctions to curb it. This is particularly the case with security guards and care-takers who seem to assume positions of *de facto* mine-owners when licence-holders are away, creating *informal access rules to resources* that compete with government and licence-holder goals.

Low incomes are, however, not limited to labourers but extend to licence-holders who, despite being in a higher income bracket, face inconsistent revenue flows. Interviews held at the homes of some founder members of the Association of Zambian Women in Mining (AZWIM), for instance, confirmed that they are not wealthy. After 20 years of mining, those considered betteroff are rather in the lower-middle income bracket, living in medium to highly populated areas of the city as opposed to the more wealthier sections, as well as relying on family members to complement their erratic income. Claims of exploitation, which Verbrugge and Besmanos (2016) observed at ASM sites visited in the Philippines, are therefore plausible but must be considered in tandem with the under-capitalised state of licence-holders and the wider institutional framework that fails to support them.

A third benefit of *MODs* is that they seem to engage in processes of learning and have increased their rent accumulation in recent years through technological use. In Mapatizya, MODs have evolved from operations which solely rely on picks and shovels to setups which – despite the exorbitant costs involved – hire excavators, a telling sign of the agency of these actors. Two

women mine owners interviewed pointed out that the plant hire locations closest to their sites are in a town called Choma, which is approximately 145km away (via Kalomo), and Lusaka, 450km away. Typically, an excavator is hired from Lusaka at a cost of approximately USD\$500 to US\$600 per day (this excludes the fuel and transportation costs of approximately US\$160/trip).⁴⁰ When asked to detail major challenges she faced, one woman, explained that:

It's machinery, because you can't do mining without equipment. Because we used to cheat ourselves that we can do pick and shovel but it used to take a lot of time. But then we learned that we can easily hire machinery. You can hire machinery and where the machine will work maybe for one day, you heard Mrs Mutale [pseudonym] said she hired only for one day, she paid for only one day, it would mean that that one day, if you have to do pick and shovel it would take maybe 10years (chuckles) ... But we could not think of that but as years went by we started learning that we can hire but buying is expensive (Interview, woman miner, Lusaka 1 July, 2017).

Technological access among these players is thus increasing. It seemed even higher in malerun enterprises, leading to *technological rents* and higher employment levels. However, the extent to which such rents are shared with labourers depends on the types of employment arrangements in place. Technology has, for instance, resulted in lower rents for performancebased diggers who are paid less when an excavator is available. As one mine-owner explained in an interview:

Ok it would be like a Kwacha (US\$0.1) per kilo; if it's pick and shovel. But if it's with machinery, because the machinery would have helped them to take the stone, its half - its 50ngwee (US\$0.05). So it means if you have 30tonnes, it means you are going to spend ZMW15,000 (US\$1, 660/worker/tonne with machinery). If its

⁴⁰ This estimation is based on the current diesel price of K10.70/l (US\$1.16) reduced from K11.40/l in January, 2017 by the Energy Regulation Board.

pick and shovel, 30tonnes its ZMW30,000 (US\$3,321). Because now you've paid for diesel, you've paid for machinery, that's why now it must be cheaper. (Interview, woman mine-owner, 1 July, 2017, Lusaka).

As shown here, rules for rent-distribution are determined by mine-owners, with limited reference to formal labour laws, largely based on what the owner can afford. But with the potential for increased productivity, diggers are able to extract more which may also lead to higher pay. One young man, for instance, explained that because he is paid per kilo, he can earn as much as K1000 (US\$100) if he produces one tonne. He seemed motivated by this, further explaining that because of his successes, he now owns some goats and two cows. The outcome for performance-based workers, however, depends on their physical capacity to extract more (which favours males), as well as whether more people are employed after an excavator is hired. Other licence-holders reported that they prefer salaried arrangements, stating in interviews that although performance-based work favours them, their employees preferred fixed monthly salaries, which provides them with more financial security and stability.⁴¹ State limitations in monitoring labour conditions have thus allowed MODs to design their own rules for labour relations but may also be *accommodative* rules that exploit labour for profit.

On the whole, MODs lead to local rent-capture through labour costs, contributing to the local economy. However, the high cost of excavator-hire and externalisation of revenues by licence-

⁴¹ Interview, two mine-owners, Lusaka, 5 October, 2017.

holders to the cities where they reside may be higher. Final transportation and shipping costs, especially to China and India, are also significant channelling rents outwards.

5.1.2 Joint Production Arrangements (JPAs)

Because licensing has yielded limited benefits in terms of capitalization, contrary to claims made by advocates of formalisation such as De Soto (2000), there are few MODs in operation. The majority are Joint Production Arrangements (JPAs), which have emerged between several licence-holders and informal miners. In these setups, licence holders circumvent the overhead costs of hiring and managing labourers or securing equipment by allowing informal miners to work their claims in return for a share of the output. These types of operations are by no means unique to Zambia; similar setups are found in other parts of sub-Saharan Africa, including Tanzania (Jonsson and Fold, 2009; Bryceson and Jonsson, 2009; Fisher, 2008), Niger (Hilson et al., 2018) and Ghana (Mcquilken and Hilson, 2018).⁴² Joint Production Arrangements have the effect of increasing the number of amethyst suppliers and reducing economic rents for MODs and the wider community as there is no control over who sells and at what price or under what conditions. As Fisher (2008: 207) explains, commenting on JPAs in Tanzania, "it means that many hundreds of people can be incorporated within a claim holding." Technically, these informal arrangements are not prohibited by law, but nevertheless create informal competing institutions that undermine state goals of revenue generation. Taxable output is reduced since it is shared with informal miners and enters an illegal trading market.

Furthermore, because licence-holders who have forged JPAs have lower overheads, their chances for accumulating higher rents are also higher, especially compared to the possibility

⁴² The difference between the Zambian case and other cases is that *licenced-mine-owner driven operations* in which the mine owner does shoulder costs and responsibilities of recruitment and running the mine are present.
of not producing at all on account of limited investment capital. Nevertheless, their limited control over informal miners may also mean they cannot control the rate of production (*weak governance*) as informal miners may opt to exit the arrangement at will. But the opposite is also possible, in which informal miners face dangers of expulsion from land at the owner's discretion. Fisher (2007) and Banchirigah (2008), for instance, report cases of insecurity and exploitation for these informal players from JPAs.

Such risks are much less in *MODs*, where workers exhibited traits of career miners, similar to what has been found in other countries in the region, such as Tanzania (Bryceson and Jonsson, 2009). These individuals work consistently at the same mine for a number of years and also live within the same locality, showing potential for organised labour power. Such groups could potentially push for higher wages and safety standards, unlike the workers found at sites under *JPAs*, where licence-holders have limited obligations to informal miners.

Joint Production Arrangements may, however, also occur between foreign investors and licenced mine-owners. In such cases, foreign investors (usually Chinese) enter into agreements with undercapitalised mine-owners and support them with capital in exchange for a percentage of output. Foreign investors are otherwise legally prohibited from holding mining licences for artisanal and small-scale mining, creating potential *licence rents* for Zambians. Such investment has, however, been limited as miners fail to come up with bankable documents and technical geological reports to attract investors: only one mine-owner interviewed in Mapatizya engaged in such a partnership.

In some cases, miners simply illegally enter licenced plots and steal stones – a case of *competing informal institutions*. This is often facilitated by security guards, who are either bribed or conspire with relatives and friends living within the community. One licence-holder in particular, was quite vocal about how frustrated he was over how what was meant to be a restricted mining area now had settlements. It is these settlements that have spawned the illegal trade, an illustrative example of – in GPN terminology – *territorial embeddedness*. There are, however, very few illegal miners (JPAs being more common), and most target Kariba Minerals' tailings.

These three competing production patterns have increased competition and rent-erosion at the subsequent node of the network where trade takes place. Formalised operators have been affected the most.

5.2 Amethyst Trading in Mapatizya

In Zambia, amethyst trading is characterised by formal and informal patterns, each with implications for rent-creation. Licenced mine-owners often export through legal channels, which require them to value their stones at the Geological Survey Department, where they are issued a valuation certificate that forms the basis for calculations of royalties payable to the government after export or at point of sale (ZRA, n.d.). Most ASM operators export their amethysts as rough stones with little value-addition, which, in turn, limits the quantity of rents which accrue to them. However, one Indian owned mining and jewellery enterprise⁴³ has managed to increase its profitability by vertically integrating its activities, from extraction

⁴³ Although primarily involved in emerald mining, the enterprise sources a variety of other gems across Zambia.

through cutting and polishing, to jewellery design/manufacture and retail as implied by valuechain research. This has allowed the owners to create, enhance and capture rents across the value-chain. An interview with the owner underscored the importance of education and strong managerial skills in ensuring success. As a mining engineer, he claims to have been able to convince foreign investors to partner with him and investments have been made into brand building, creating brand rents for his jewels. Sales and marketing skills have also facilitated his entry into both local and international markets such as the United States (e.g. an outlet in Delaware, established through an AGOA Agreement). Such local manufacturers provide a domestic market for local traders through local sourcing of gems which are then sold as finished products both locally and internationally.

Conversely, some licence-holders in Mapatizya lack the managerial skill and technical capacity to attract international investors and face exploitative relationships with foreign buyers. The *territorial boundedness* of these mine-owners also means they are restricted from selling their output internationally due to prohibitive transport costs, leading many to sell locally at a much lower price. One miner remarked in an interview that selling from within the country is a 'rip-off,' citing the high price differentials between local and international prices.⁴⁴ She further complained that some foreign buyers acted as though gemstones were 'picked from their back yards' and that they had no workers to pay when they offered them such low prices.

With regards to mine-owners who do succeed in exporting, vulnerabilities are faced with regards to contract enforcement. Some mine-owners shared how Chinese buyers reneged on agreed prices once shipments arrived in China, knowing that high storage and accommodation

⁴⁴ (Interview, woman mine-owner 1, Lusaka, 2 December, 2017, Lusaka).

costs would force ASM operators to accept any price. Weak institutional arrangements for enforcement of contracts therefore limit profitability and the ability to scale-up operations.

In the case of the illicit amethyst trade, the Zambian case shows that trading rights are highly important, despite much of the focus in both the literature and policymaking circles being on possession of mineral rights. In Mapatizya, the illegal trade significantly undermines benefits from formalised mineral rights through a lowering of amethyst prices due to oversupply. Although Zambia has largely succeeded in ensuring that mine plots are licenced, there are currently few mechanisms in place to monitor and enforce amethyst trading laws which has allowed for *competing informal institutions* around trading. Almost all residents interviewed in Mapatizya sell amethyst but almost none seemed to have trading licences (apart from licenced mine owners).⁴⁵ One or two traders indicated that their licences had expired and they had failed to renew them on account of increased licence fees (now US\$210 up from US\$60 some years prior), while some are discouraged by having to put together paperwork, since most are illiterate. Illegal trading is however part of the community fabric – informal traders even referred to themselves as 'ba iligo' (the illegals) – which is a common term denoting that they lack the necessary documentation for trading. However, there is a general acceptance that this is the means through which most of the community is sustained.

Informal traders in Mapatizya operate at two levels: 1) those who operate locally and buy stones from miners in JPAs and illegal miners, and aggregate these to sell to Zambian and foreign buyers who come to the mine-gate; and 2) those who travel to Mapatizya and buy from local sellers but have links to foreign buyers in Lusaka (Chinese, Indian or West African buyers) or

⁴⁵ Interviews from field visits in September, 2016, Mapatizya and July and October, 2017 with informal amethyst traders.

abroad. Mapatizya-based traders who buy and sell locally are, in line with the GPN, *territorially* bound, unable to cover the high transport costs from Mapatizya to Lusaka or external markets. They usually obtain the lowest prices, buying low grade amethyst at K1 to K2/kg (US\$0.2/kg) and re-selling at ZMW4/kg (US\$0.4 per kg), while MOD-produced stones range from US\$0.5 to US\$6.5/kg for low grade amethyst.

Low-priced stones from JPAs create competition with MODS. One licenced mine-owner, when asked about the impact of the illegal miners, explained:

they are ... I would say, a danger. Why do I say a danger? Because most of the stones that they have are stolen stones.... So because its stolen stones they don't have any over-heads so even when it comes to selling, they sell at such a low price. So now the competition when trying to sell is very high because everyone wants to buy something at a low price so that they can make their profit. (Interview, woman mine-owner, Mapatizya, 2 July, 2017).

This account draws attention to the deleterious impact of competition between formalised and illegal miners at the intra-country level. It reinforces arguments made by Kaplinsky (2000) that low barriers to entry and high competition become a major source of erosion of rents along the value chain. However, the fact that informal traders may pay more per kilogram than what mine workers receive from MODs (\$0.05-\$0.1/kg) provides an incentive to steal stones and sell them in local markets at \$0.1 to US\$0.2/kg which in turn undermines MOD profitability.

The incomes of informal stone traders are also typically very low and inconsistent. Unlike miners hired at MODs, who receive monthly incomes (even though not highly consistent), informal stone traders only gain income when they are able to sell their stones. Their need for complementary income is therefore more acute. When asked what they most rely on for their sustenance, one female stone trader explained in an interview that:

...most times our greatest help comes from selling foodstuffs at the market stands – sometimes we sell chibwantu (local beer) or sweet potatoes. For the stones, you can stay for 5 or 6 months without selling the stones, to be honest. You can stay for 5 or 6 months and you can't eat the stones... you just put the stones aside forever waiting for a buyer (Interview 02/07/2017, Mapatizya).

Other traders interviewed similarly lamented the absence of buyers, sometimes for up to one year. Stone trading thus involves erratic incomes. The lack of buyers, over time leads to oversupply as traders accumulate stones and then compete to sell them when buyers surface. The high bargaining power of buyers and the intense competition between players has eroded rents.

Ironically, these illegal traders seem amenable to formalisation, provided that it is linked to tangible benefits such as centralised buying markets, where the exploitation that arises from international buyers directly exploiting destitute miners and traders can be curbed. This may support arguments by North (1994), that losers from existing institutions seek to change them. However, in this case, traders are constrained from making demands on the system due to powerlessness. Some proposed in interviews that if the government was willing to purchase their gems and hold onto them until international prices increased but in the meantime, pay them for the merchandise, then the level of exploitation might decrease. Indeed, such a buying platform, if guided by standardised rules regarding who has a legal right to trade, information on the grades of stones and corresponding prices, may ensure not only increased rent-capture for miners and traders but also higher rents for the government. As it stands, miners are also disadvantaged by their access to limited information on grading and pricing. However, government has been slow to set up such platforms.

Low levels of trust between local traders and desperation have also prevented collective action in price setting and trading among amethyst traders. The European Union, for instance, sponsored the construction of a buying centre in Mapatizya but it lies idle mainly because miners do not believe it is safe to take their stones there over fears they will be stolen. Stone traders suspect each other of jealousy and sabotage, with some claiming that their neighbours poison the minds of prospective buyers against them. Others also felt that even if a common price was agreed, others would still sell at a lower price in order to secure a higher market share, undermining the entire plan. These internal community wrangles are heightened by divisions along ethnic and political lines, limiting possibilities of traders working together (*weak collective power*).

5.3 Local Impacts of the Global Trade

At the local level, the amethyst trade has also been impacted by dynamics at the global level, both in terms of commodity price shocks and advancements in technology that re-shape demand for stones. Technology now allows for production of synthetic gems and artificial alteration of stone colour (Weldon, n.d.), which impacts demand. In Mapatizya, ASM operators marvelled about how, in the past, international buyers had demanded only their high-grade amethysts but how today, all grades, including those initially discarded as waste, are in demand. But the rise in demand is not often sustained at a consistent rate as shown by the urgent need for buyers expressed by the local traders during site visits.

Despite the availability of synthetic stones, international amethyst dealers still seem to hold a preference for Zambian amethyst due to its remarkable colour (GIA, n.d.; Gemfields, n.d.; ZCCM-IH, n.d.). The challenge, however, has been that in addition to the wide availability of amethyst internationally, there have also been inefficiencies in production of Zambian stones which, in turn, leads to inefficiencies in the wider value-chain. One mine owner, for instance, explained in an interview that she had lost a set of buyers with whom she had established a

relationship on account of a temporary shut-down of her operations in 2016, which prevented her from fulfilling the orders she had received.⁴⁶ While mine-owners and traders sometimes work together to come up with consolidated shipments that meet demand, there is limited coordination or development of systemic efficiency as alluded to the GPN, as operations are largely run disparately across buyers. Although government and donor-led initiatives have, in the past, focused on the marketing of gemstones, these efforts have, overall, been undermined by a context of low productivity. *Executive governance* that builds the capacity of local actors to meet market demand and build systemic efficiency into the chain is therefore crucial, as is the need for brand building.

6. Conclusion

This chapter demonstrates how failures in formal institutional structures trigger divergent responses from players. Organisational patterns adopted by formalised ASM operators are conditioned by capacity constraints and wider institutional structures that induce some to adopt modern firm structures, with higher productivity levels; while others adopt *competing informal* institutional forms that undermine profitability, incomes for the poorest and compete with government's goals of revenue generation. The question of how actors respond to legislative frameworks in ASM discussions have hitherto focused on the illegal, dysfunctional response. However, through introduction of institutional theory to ASM discussions, this chapter has shown that divergent patterns emerge with some conforming to formal rules despite weak state support. Furthermore, it importantly shows that informality lives not only in informal settings, as contended by Helmke and Levitsky (2004). This also supports arguments of path-

⁴⁶ Interview, woman mine-owner 2, 2 July, 2017, Mapatizya.

dependency by North (1994), as shown in the case of tax systems kept in favour of large-mines despite policy changes in favour of ASM. The study further contributes to institutional theory on informal institutions showing the importance of not only the effectiveness of formal institutions and the goals of agents, but also emphasising the importance of the capacity of actors to comply with regulations. Most MODs, for instance, involve individuals who, though not wealthy, have access to a degree of capital needed to fund initial operations while JPAs are run by technologically constrained actors.

The finding that divergent production patterns may emerge in resource settings leading to divergent implications for incomes is also consistent with broader institutional arguments for the resource-curse by Mehlum et al., (2006), who contend that whether resources are a 'blessing' or a 'curse' depends on the institutions in place. If institutions are 'grabber friendly' – or support rent seeking activities then resources lead to lower national incomes as productive firms switch to rent-seeking. Conversely, institutions that are 'producer friendly' lead to higher incomes. In this chapter, the ineffectiveness of state institutions to enforce trading laws and monitor operations, are interpreted as creating incentives for the emergence of JPAs and informal trade. The findings of the chapter, however, enrich such analysis by introducing the Helmke-Levitsky framework which challenges the dichotomous view of institutions and introduces additional aspects that sharpen this analysis.

At a policy level, this chapter importantly supports the use of GPN and value-chain analyses as important frameworks through which dynamics at various points in the ASM production network can be understood, and policies for support better devised (McQuilkern and Hilson, 2017). Unlike previous discussions on poverty in ASM that focused on specific aspects such as labour dynamics and technological limitation, the chapter draws these aspects together showing their interconnectedness and averting further incidences of 'isolated', 'technical' solutions as alluded to in the Africa Mining Vision (African Union, 2009). Moreover, undergirded by institutional analysis, the chapter moves beyond an engagement with the manifestations of ASM dynamics (e.g. labour patterns) to underlying reasons why, which are linked to the effectiveness of formal institutions. Through a clearer understanding of how productive activities in ASM are organised and how actors respond to formalisation interventions when these are ineffective or do not meet their needs policy makers are better able to anticipate the impacts of their policies.

Chapter 4: Collective Action in Artisanal and Small-Scale Mining: The Case of Zambia's Mining Associations

Abstract

This chapter examines the link between rural producer organisations and economic outcomes for artisanal and small-scale miners. A case study of mining associations in Zambia's amethyst and emerald sectors was undertaken, in which field-visits and a series of key informant interviews were conducted. Contrary to the literature on fourth generation cooperatives, the chapter finds a high degree of external dependence on the government and donors for operations, leading to a streamlining of activities to what these entities are willing to offer and less to member needs. Association leaders have become gate-keepers to donor and government assistances, showing limited accountability. Meanwhile, benefits of collective action associated with these groups are less apparent, with individual mine-owners relying more on informal, trust-based relationships than formal associations. Governments and donors attempting to use these organisations as a means of supporting artisanal and small-scale mining must devise mechanisms through which transparency, accountability and democratic self-governance can be promoted in them and low trust-levels countered, if these groups are to be effective.

Keywords: artisanal and small-scale mining; associations; collective action; governance; donor-government intervention

1. Introduction

This chapter analyses how rural producer organisations (RPOs)⁴⁷ in the artisanal and smallscale mining (ASM) sector operate and the extent to which their services counter constraints faced by operators in the sector. RPOs have risen to prominence in recent years, in response to challenges of capital constraints, low productivity and weak market access faced by smallholder rural producers across sub-Saharan Africa (Schwettmann, 2014; Latynskiy and Berger, 2016). These groups emerged⁴⁸ to fill a gap left by the state following liberalisation in the 1990s, in which the state pulled back from a prominent role in economic and productive activities in the economy (Develtere, et al., 2008). RPOs have since been promoted by policymakers as having the potential to spur rural development. The United Nations, for instance, declared 2012 the 'International Year of Cooperatives' highlighting their impact on poverty reduction and socioeconomic development (UN, 2011).

While the predominant focus, with regards to RPOs, has traditionally been on small-holder farmers (Bernard and Spielman, 2009; Delvetere et al., 2008; Ragasa and Golan, 2012; Fulton and Giannakas, 2013), scholars, donors and African governments alike have recently sought to support and work through RPOs in the artisanal and small-scale mining (ASM) sector (Benkenstein, 2012, Maconachie, 2011; IGF, 2017). Donor initiatives such as the Development Minerals Programme (since 2014-), funded by the European Union (EU) and targeting the African, Caribbean and Pacific (ACP) group of countries, for instance, seeks to improve environmental, health and safety standards, as well as strengthen mining value-chains in ASM

⁴⁷ RPOs are private entities that, through their members or governing bodies, are directly involved in primary production of rural-based goods for profit (Bosc, et al., 2001).

⁴⁸ RPOs had existed prior to the 1990s but were highly controlled by the state which led to their inefficiency and subsequent dissolution (Öjermark and Chabala, 1994).

through the improved capacity of mining associations (UNDP, 2014). Individual country governments, like Ghana (2006) and Zambia (2008), have also sought to encourage the formation of mining cooperatives by making access to loans by miners conditional on being part of cooperatives or associations (UNECA, 2011; Personal Communique, 2017). Indeed, the 2017 *Global Trends in Artisanal and Small-Scale Mining Report* by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF), mirrors this optimism in its recommendation '[e]ncouraging miners to form cooperatives and associations' as a key organizational step to building sustainable ASM (IGF, 2018: vi).

However, while such RPOs are hailed as key pathways to enhanced income generation and growth in poor ASM communities, little is known about how existing mining RPOs actually operate, the factors that have shaped their institutional form and their degree of effectiveness in improving productivity and profitability of ASM operators (Latynskiy and Berger, 2016). The few studies that have discussed mining associations typically do so in the context of broader studies and so only provide fragmented accounts of instances in which these groups were or were not useful (Dreschler, 2001; Hentschel et al., 2002). This has led to mixed accounts, but no systematic analysis of mining associations in a particular context or across countries.

Using the case of Zambia's amethyst and emerald sectors, this chapter investigates how mining associations operate (what motivates their formation, how they governed, who they represent) and what benefits they offer to members. The study relies on a combination of in-depth interviews and group interviews conducted between July, 2017 and January 2018.⁴⁹

⁴⁹ See Appendix 3 for a summary of respondent groups and further discussion on study limitations.

Participants for the study were selected using purposive sampling which is widely used in qualitative research for selection of information-rich subjects (Palinkas et al., 2015). Four groups were targeted including: members of mining associations in the amethyst and emerald ASM sector, community members, government officials and members of multilateral agencies engaged with ASM. Open interviews were held with representatives from the two associations engaged with amethyst mining: Kalomo Miners' Association (KMA) and the Association for Zambian Women in Mining (AZWIM), while the Emerald and Semi-Precious Small-Scale Mining Association of Zambia (ESSMAZ) was interviewed for emerald mining. The groups are primary-level associations representing miners in their respective geographical areas and specific minerals.⁵⁰

To gather rich descriptions of on-going and past experiences, current and former executive members of associations were interviewed as well as some general members. Data was also drawn from group interviews conducted with community members from Mapatizya in a related study, which, though not specifically targeted at gaining information on associations yielded, important insights into perceptions of community members towards associations and their usefulness. Each of the primary groups interviewed are members of the Federation of Small-Scale Mining Associations of Zambia (FESMAZ), which is the umbrella body for small-scale miners. The three local-level associations were selected because they are the only mining associations representing amethyst and emerald miners in the country⁵¹ and are also the oldest and most well established in small-scale mining in Zambia.

⁵⁰ Except for AZWIM, which represents women in mining across Zambia.

⁵¹ The Chamber of Mines, tends to represent mainly large-scale interests, side-lining ASM (Dreschler, 2002).

Key findings from the study show that mining associations in Zambia are highly reliant on the government and donors for assistance. The internal governance and accountability structures of these organisations are relatively weak with little evidence of regular meetings, information dissemination, regular elections or joint decision-making. While mining associations have provided an avenue for training and market access, they have failed to achieve the goals of increased economies of scale in input supply, credit access, enhanced negotiation and price control through consolidated supply or effective lobbying of government. The major contribution of the chapter is in capturing the internal workings of these groups, which has received limited attention in the literature, and showing the complexity of stimulating collective action and resolution of constraints faced by ASM operators through these groups. These insights are critical for governments and donors seeking to support ASM communities through associations and also provide useful insights into why these groups have failed to trigger effective extraction and use of resources for rural development.

The chapter begins by engaging with debates on the viability of collective action through RPOs (Section 2) before introducing the Zambian case (Section 3) and analyzing the activities of current mining associations (Section 4). The fifth and final section concludes and offers policy recommendations.

2. Rural Producer Organisations and Collective Action

Rationales for RPOs: The current drive behind the formation of RPOs, fundamentally rests on the assumption that rational individuals, with a common interest, will cooperate to achieve that interest (Olson, 1971; Hardin, 1982). Two primary interests are often envisioned as shared among rural small-holder producers: economic and political interests.

In the first instance, cooperatives have been popularly pursued as a means to alleviate poverty and stimulate economic development (Kaswan, 2014). This has been most evident in the context of small-holder agriculture. Rural small-holder farmers are shown to battle with numerous problems including: low productivity, low access to capital, weak market access compounded by information asymmetries and poor infrastructure; and high geographical dispersion, all of which make collective action both critical for higher incomes (Heinemann, n.d).

These challenges are, however, not unique to small-holder farmers but are shared, to a larger, if not greater degree by artisanal and small-scale miners, which would explain why the cooperative model is now pursued for ASM operators. ASM operators similarly grapple with low productivity (Noetstaller, 1987; Barry, 1996; Childs, 2008; Ross, 2011); face more severe constraints in access to finance due to high equipment costs (Siwale and Siwale, 2017) and, unlike small-scale farming where lending institutions have been established that are tailored to farmers' needs, ASM operators are viewed as highly risky investment which commercial institutions are mostly unwilling to fund (Siegel and Veiga, 2009). Noetstaller's (1987) seminal report on ASM, was among the first to highlight the importance of cooperatives for cost effectiveness in ASM, effectively placing them on the policy-agenda. This was later reinforced during the World Bank hosted, International Round-Table on ASM in 1995 (Barry, 1996).

To build small-holder competitiveness and counter their limitations, collective action through RPOs has been strongly pushed forward as offering the following advantages. Firstly, RPOs can engage in cost reduction strategies including maximizing economies of scale through joint sourcing of inputs, technical assistance and shared logistics (e.g. transportation). Secondly, RPOs can assist rural producers in understanding markets including fluctuations in prices of goods. Thirdly, they can improve bargaining power of small-scale producers with market intermediaries through consolidating supply and fourth, they can bolster non-price factors such as reputational gains, productive efficiency and product quality (Heinemann, n.d; Bienano and Sautier, 2005; Latynskiy and Berger, 2016). Through legal recognitions, producer associations also have the potential to engage in legally enforceable supplier contracts, have easier access to sources of credit and strengthen their power to lobby with government over relevant policies (Heinemann, n.d.). Together, these goals would serve the common good of small-holder producers.

A second common interest, beyond the economic rationale, is the political advantage: RPOs, and particularly cooperatives are considered to be intrinsically democratic in nature (Kaswan, 2014; International Cooperative Alliance, 2018). The poverty of the poor is argued to lead to powerlessness and voicelessness over their lives. The institutional structure of cooperatives, that provides for members to have equal voice in the group's governance is, thus, envisioned to lead to the empowerment of members (Kaswan, 2014). Cooperatives are also associated with informally reorienting the outlooks of members away from competition and individualism to cooperation and shared interests (Kaswan, 2014).

Contesting the Viability of Collective Action: While cooperatives have been optimistically associated with such positive outcomes, the very idea of collective action on the basis of common interests has been strongly refuted. Mancur Olson (1971:1), for instance pointed out that, the assumption that because individuals act in favour of their own individual selfish interests, they will act in favour of common group interests is grossly erroneous.⁵² He

⁵² Called the fallacy of composition, to 'assume that we can speak about groups in the same ways in which we can speak about their members' (Hardin, 1982: 1).

emphatically argues that 'rational, self-interested individuals will not act to achieve their common or group interests' (p. 2). This is because the idea that a self-interested individual would pursue the interests of a large group is inconsistent. If one is self-interested, then they cannot pursue the welfare of a large group. Moreover, because the shared benefits that would arise from collective action would yield only slightly higher returns for the individual, they are usually not inclined to cooperate except if coerced into cooperation or if individuals in the group are given incentives beyond the perceived benefits of cooperation (e.g. government subsidies).

This is argued to be particularly the case in the context of perfect competition, which has specific relevance to the ASM context. Olson (1971) argues that although firms in perfect competition share a common interest for higher prices – which would only be possible if a higher price was secured for all players, they also have an individual goal of selling as much of their output as possible in order to cover costs of production, which is contrary to the group interest (Olson, 1971). Firms in perfect competition have been known to pursue higher output, rather than working together to control industry price, even though higher output lowers the total industry price and results in lower profit margins for individual firms (Olson, 1971).

Olson's ideas are supported by Shafer (1994), who argues that in contexts where numerous, geographically dispersed firms predominate and are embroiled in intense competition, 'collective responses and market control are out of the picture. Instead, firms must pursue individual market-conforming strategies' (p. 27). These arguments are particularly confounding for ASM operators who do face low barriers to entry and high competition and weak bargaining power with suppliers and buyers, all of which are pegged as incompatible with collective action. Olson (1971) argues that the state could intervene to control prices in

favour of producers and that state engagement could be attained through lobbying. However, he counters the viability of this option by arguing that due to the time and resource costs of lobbying, individual firms are unlikely to engage in lobbying in favour of the group interest. As will be shown, Olson's arguments are strongly borne out in the case of Zambia's ASM sector. However, they do not apply uniformly to all players as certain actors pursue lobbying for status and strategic reasons.

Hope for Collective Action: Despite Olson's important, though morbid arguments, numerous collective action movements involving large groups nevertheless occur, raising questions as to why (Hardin, 1982). A key limitation of Olson's argument (and the prisoner's dilemma scenario⁵³) is that opportunities for collective action are considered as a one-shot or static dilemma, whereas most social dilemmas are recurrent (dynamic) with previous actions of players influencing subsequent actions of other players. Hardin (1998) and Ostrom (1998), argue for cases of rational cooperative behavior based on informal rules of reciprocity – in which, as Hardin writes 'Since your cooperation tomorrow may depend on my cooperation today, I have incentive to cooperate today' (Hardin, 1982: 3), demonstrating rationality based on previous action.

Factors such as trust, reputation, rule-making, sanctions, and communicative action play a key role in shaping decisions to cooperate (Ostrom, 1998). Ostrom (1998) depicts the process of cooperation as a self-reinforcing cycle, in which the more individuals reciprocate, the more they gain a reputation of trustworthiness and cooperation is bolstered leading to cooperation

⁵³ Also referred to as a social dilemma and refers to situations in which 'individuals in interdependent situations face choices in which the maximization of short-term self-interest yields outcomes leaving all participants worse off than feasible alternatives' (Ostrom, 1998: 1).

dividends. The reverse is, however, true for failure to reciprocate. Face to face communication further reinforces the inclination to cooperate because it places individual identity at risk of reputational costs if people do not keep their word (Ostrom, 1998). Ostrom's arguments are supported by Tsai (2002) who finds that Chinese villagers willingly contributed to public service provision based on strong social networks and fear of reputational costs.⁵⁴ Local government institutions that demonstrated that they could be trusted through a track record of well targeted public projects also received more community support when they sought contributions, demonstrating a virtuous cycle of trust and cooperation. However, like Olson (1971), Ostrom supports the view that reciprocity is most likely in small groups.

Concerning arguments of reorienting members towards shared community interests through RPOs, creation of membership-based organisations, in and of itself, has, instead, been argued to create incentives that work against the ideals of collective action (Mude, 2006). The likelihood of corruption is, for instance, argued to increase in cooperatives. Harris (2007), for example, argues that where personal ties between friends and family are strong,

the norms of specific reciprocity and particularised trust towards the members of the 'in-group' are strictly enforced within the group, but these norms are not equally applied to the outsiders. This type of social environment helps to foster in-group favouritism, which can easily lead to corruption (2007: 2).

Thus, bonding social capital, which is associated with allegiance to members of the group but not outsiders (as opposed to bridging capital which is more inclusive), is linked to greater corruption. Mude (2006) finds that in the case of Kenya's coffee cooperatives, significant

⁵⁴ Villages with multiple lineage groups however, showed less cooperation unless they were unified on other grounds.

deterioration was observed when ownership and administrative controls were given to members. In this case, the rules for election of leaders were captured by corrupt individuals which compromised the effectiveness of the groups. Kaswan (2014) similarly challenges claims of democratic governance in these groups.

In the context of ASM, mixed, fragmented accounts of the effectiveness of these organisations have been given. In South Africa, for instance, some mining associations are noted to have secured projects for members. In Malawi, they managed to raise capital for machinery and marketing of gemstones is accomplished through the Gemstone Association of Malawi (although the efficiency is unknown) (Dreschler, 2001). Conversely, in Zimbabwe and Malawi (limestone mining) the failure of projects that showed great promise is attributed to managerial failures and possible monopolization of benefits by leaders of associations (Dreschler, 2001). There is therefore limited systematic research on how these groups work even though there seems to be a common push towards the formation of these groups (IGF, 2017).

The section that follows introduces the Zambian case and seeks to understand the internal workings of associations and the extent of their effectiveness by drawing upon the theories of collective action discussed in this section.

3. Cooperatives in Zambia

Mining is central to Zambia's economy and has been since Colonial times. In 2016, mining accounted for 70 per cent of Zambia's export revenues and contributed to 12 per cent of GDP (World Bank, 2016). Much of this revenue, however, derives from large-scale copper mining, which is the economic mainstay. This dependence has placed Zambia in a vulnerable position as changes in international copper prices have periodically plunged the country into economic

crises. Diversification of the mining base to gemstones has for a long time, thus, been on the government's agenda.⁵⁵ Because most gemstone licences are in the hands of artisanal and small-scale miners, and these players have been largely dormant (Tychsen et al., 2018), enhancing the capacity of these operators has similarly been a priority.⁵⁶ Most recently, Zambia's Seventh National Development Plan (2017) restated the Government's commitment to increasing exploration, mining and processing of gemstones and to enhancing the capacity of artisanal and small-scale miners to produce (7NDP, 2017). The extension of cooperatives to sectors beyond agriculture has also been emphasised as a means of job creation, particularly in rural areas where poverty is highest (7NDP, 2017).

3.1 Roots of Bifurcated Collective Action in Zambia

In the Zambian case, the logic of collective action (LoCA) represented by Olson (1971) and the hard, rational choice models, co-exists with the softer, behavioural approach to rationality (Ostrom, 1998 and R. Hardin, 1982). Collective action is dichotomised along traditional lines based on narrow, trust relationships in the informal setting (Ostrom Model) and formal cooperation through RPOs (LoCA) reflecting historical antecedents and holding different implications for effectiveness. Historically, *formal* Zambian cooperatives did not emerge organically from local groups seeking to advance their common interests but were introduced as foreign tools of control by the British Colonial Administration (Boyd-Wilson, 1949; Develtere et al., 2008). The organisational model adopted by the British, contrasted with indigenous, informal ways of cooperating in traditional Zambian society and this foreign model

⁵⁵ Diversification into other minerals featured in the first, second and third National Development Plans (1966-1979) (Republic of Zambia, 1979).

⁵⁶ This does not imply that it has been systematically pursued and supported but that it periodically and rhetorically features as a priority.

was never fully integrated into the traditional. Rather the British highly prioritised the replication of the British model in the local setting through rigorous monitoring of cooperatives. The approach is exemplified in this excerpt from Boyd-Wilson's first annual report of the progress of the cooperative movement in Zambia in 1949. He wrote:

In my 1947 Report, I stated ...that the successful development of a cooperative movement in Northern Rhodesia {present day Zambia} is assured provided sufficient trained staff is made available for the *very close and constant supervision necessary for all types of African societies*. The progress made during 1948 would appear to substantiate this statement, but it has been very strongly borne in upon me that *an even greater degree of supervision is necessary than was originally anticipated*. In spite of the insistence on a high standard of education for applicants for the posts of African Inspectors, *intensive training and close supervision of them by European staff is continuously necessary*, with the result that it is not advisable for more than four or five societies to be placed under the charge of one Inspector if they are to be given the very close supervision required (Boyd-Wilson, 1949:9 Emphasis added).

The groups were thus under extensive European supervision, illustrating the 'otherness' of the institutional form to the local population, that, in the Administration's view, necessitated constant oversight. At the time of Boyd-Wilson's report, the number of cooperatives had increased from eight in 1948 to about 77 in 1949 with a membership of 7,167 including the first 10 Zambian cooperatives. This is consistent with Olson's arguments that these groups form in response to external authority and incentives as prior to this, only a few societies existed.

Farmer cooperatives were given tangible advantages in terms of loans and marketing of produce but this effectively created a vertical relationship of dependence on the state for assistance and coordination. Thus, as will be shown in the current context, individuals seem to

be drawn together in formal organisations by prospects of state or donor assistance. Conversely, when individual producers and traders seek to reduce transaction costs through joint sourcing of inputs or joint logistics, their natural tendency seems to be to turn to small groups of neighbours or friends and not to this external institutional form. The exception being when the government takes the lead role in providing incentives and services through cooperatives. Formal, colonial institutions thus failed to supplant, informal cooperation that existed before, perhaps owning to the fact that these informal groups still retained a functionality that formal cooperatives did not fill.

3.2 Reinforcement of a Top-Down Model to Cooperatives

The vertical relationship of dependence on the state by cooperatives was only deepened at independence in 1964. The government, with donor support, actively sponsored cooperative initiatives as tools for rural development and from approximately 500 cooperatives at independence, this number expanded to approximately 1300 in 1993 with 400,000 members (Öjermark and Chabala, 1994). Cooperatives during this time (1988) were made solely responsible for marketing of produce and sourcing of supplies, receiving protection from competition (Republic of Zambia, 1984). However, they lost their autonomy as they were coopted into the then, One Party State government and also became highly inefficient, creating a drain on state coffers (Öjermark and Chabala, 1994). Internal operations of cooperatives were closely controlled by the state which set their economic parameters and guided their internal operations including financial and personnel concerns. Following the defeat of the United National Independence Party (UNIP) at the polls in 1991, cooperatives were mostly dissolved for their inefficiency. In 1991, Zambia transitioned to becoming a multi-party democracy, ushering in market liberalisation and the roll-back of the state.

During the post-colonial era, collective action through RPOs was not triggered by the common interests of cooperative members, but more by external state control in line with Olson (1971). Cooperatives scored limited success in countering of challenges faced by rural producers during this time and a culture of member-run, formal organisations was not created nor capacity for self-governance built, as government structures expanded to oversee these groups.

Consistent with observations in the rest of SSA, liberalisation, paved the way for new, heterogeneous types of cooperatives that were less structured and hierarchical (contrary to the British unified model, and more like the social economy model of the French) (Develtere et al., 2008 and Schwettmann, 2014). With this model 'a cooperative is just one of the many legal or institutional entities that bring together people sharing the same social and economic objectives' (Develtere et al., 2008: 5). This extended beyond jointly owned enterprises to loosely held producer associations, foundations and trusts that emerged outside the traditional area of agriculture and extended to housing, transport and mining. Schwettmann (2014) records that by 2013, there were 1,805 cooperatives in Zambia with a membership of about 906,000. A major argument raised in favour of this 'third generation' of cooperatives is that they are 'authentic self-help organizations ... from the grassroots, being rooted in local communities, giving voice to local producers, and building strength in local economies' (Salazar-Xirinachs and Léautier, 2008: x). It is this third-generation model of cooperatives that this chapter focuses on.

The chapter however argues that formal RPOs are still highly dependent on the state and are external to indigenous forms of cooperation. There is therefore a dichotomy between how RPOs and collective action through informal networks of producers and traders unfold. The poor performance of collective action through mining associations seems to reflect the failures Olson alludes to, whereas, at an interpersonal level, sporadic cases of cooperation based on trust and reciprocity seem evident.

4. Operations of Present-Day Mining Associations in Zambia's Amethyst Sector4.1 Underlying Drivers to Formation of Mining Associations

There are two major reasons that underpinned the formation of mining associations in Zambia. Firstly, the Zambian Government in conjunction with donors had an interest in organising the sector for better alignment with policy goals. Initial discussions around the need to form mining associations, seem to coincide with international discussions on ASM at the time, showing a degree of policy diffusion. The World Bank's International Round-table on ASM for instance, occurred in 1995 and conferences on ASM also seemed to have been taking place across the region (Dreschler, 2001).

However, of greater importance was the economic crisis that Zambia suffered because of a plunge in copper prices and privatization of the copper mines that decimated the country's taxtake during the late 1990s and 2000s (Fraser and Lungu, 2009). This led to a focus on diversification into small-scale gemstone mining amongst others. The decision to create formal structures for collective action in ASM therefore did not arise organically from mine-owners, even though informal networks of miners predated formal organisation. Interviews with three founder members of the Association of Zambian Women in Mining (AZWIM), for instance, indicated that two of them were first approached by the Government to do a presentation on small-scale mining at a Southern African Development Community-European Union (SADC/EU) conference in 1994. They were later invited to another conference by the United Nations Development Fund for Women (UNIFEM) in Zimbabwe. It was from these conferences that women were encouraged to form associations in respective countries to address women's concerns in the sector. In 1997, the Association of Zambian Women in Mining (AZWIM) was formed with about 50 members.⁵⁷

A second reason for association formation was the possibility of accessing support from government and donors, which is largely consistent with Olsen's argument (1971). Kalomo Miners' Association (KMA) began in 1999 in response to rumours of donor interest in the sector and a possibility of accessing grants and lobbying government for support⁵⁸. The EU funded Mining Sector Diversification Programme (MSDP) and the World Bank's SEED projects were later launched in 2001 and 2003 respectively, and among the outputs expected for the MSDP was facilitation of loan access, access to domestic and international markets, provision of technical and entrepreneurial skills and strengthened capacity of mining associations (EU, 2001 internal communique). The SEED project aimed more at strengthening the regulatory framework around gemstone mining but also sought to provide support to associations (World Bank, 2003).

The formation of the Federation of Small-Scale Miners was later prompted by donors to create a single representative for the multiple mining groups that had emerged across geographical locations and in line with various minerals. This introduced a two-tier structure: primary associations directly engaged at local levels and an umbrella structure at the national level.

Following these initial groups and the support they received, including opportunities to attend international gemstone fares and study tours, other groups seem to have emerged hoping to

⁵⁷ Interview, AZWIM Founder Member 1, 6 October, 2017), Lusaka; AZWIM Founder Member 2, 1 July, 2017, Lusaka; AZWIM Founder Member 3, 4 December, 2017, Lusaka.

⁵⁸ Interview, KMA founder member, 12 July, 2017, Lusaka.

secure similar benefits. An official at the Ministry of Mines expressed frustration at what he called the 'uncontrolled mushrooming' of small-scale associations, which he felt were motivated by personal interests rather than representation of members. He, for instance, stated that some individuals came to their offices seeking licences in the name of associations but in fact wanted them for themselves.⁵⁹ One of the few gemstone miners who has successfully, vertically integrated his productive activities from extraction to jewellery production and trade in local and international markets, similarly argued that 'Associations are formed as a fundraising tool for the people who form them.'⁶⁰ Mining associations have, therefore, come to be viewed as money-making schemes for their leaders by government officials and the more successful small-scale miners.

Overall, mining associations in Zambia emerged from both donor and government facilitation, contrary to arguments of grass-roots mobilisation in the liberalisation era (Develtere et al., 2008). This does not however imply that the government continues to control these groups; as it does not. However, they do remain part of government's rural development strategy as shown by the emphasis on cooperative formation in Zambia's Seventh National Development Plan (2017). While government support is not, in itself negative, formation of these groups at government and donor initiation has continued the top-down relationship from Colonial and post-Colonial times. As was observed during the World Bank's Roundtable on ASM, government cooperatives usually end up being 'legal conveniences in which each miner works for himself or herself, rather than true revenue-sharing arrangements' and this undermines the spirit of member-based cooperation (Barry, 1996:8). However, while formal organisations

⁵⁹ Telephone interview, senior official - Ministry of Mines, 15 March, 2018, Lusaka.

⁶⁰ Interview, mine-licence holder E1, 23 November, 2017, Lusaka.

have not organically emerged, informal friend circles do exist but their lack formal structure and small size make them invisible and less useful to the state, as will be later shown.

4.2 Membership and Diversity of Associations

The number of members in associations and their diversity provide important indicators of the usefulness of the group to sectoral actors and of the networks that individuals have to draw upon for their economic activities. However, conceptualisations of membership may vary in formal and informal settings and must not be taken for granted.

4.2.1 Estimating the Number of Participants in Zambia's Mining Associations:

A critical aspect regarding the current leaders of mining associations is that they are products of an informal system and so have been primarily socialised into informal behaviour. Following formal procedures such as building and maintaining membership rolls is therefore often foreign unless they have a professional background. Rather, it is taken for granted that people engaged in mining within the locality are members, regardless of whether they formally identify with the groups (informal members).⁶¹ The membership of mining associations is therefore difficult to ascertain on account of the unavailability of association reports that clearly enumerate members.

Two Executive members of the Association of Zambian Women in Mining (AZWIM), for instance, presented conflicting reports of the number of their members. While one estimated over 90 members (excluding women engaged in mining of industrial minerals), the other

⁶¹ One mine-owner was, for instance, introduced by an executive member of KMA as one of their members, but in a follow-up interview, did not identify with the group but felt that because his mine was in the area, he was obliged to claim membership, even though he had not attended any meetings or participated (Telephone interview, Mapatizya mine-licence-holder, 28 April, 2018, Lusaka).

estimated between 500 and 700 members including the recent upsurge in women in industrial minerals inspired by the UNDP's ACP-EU development minerals project. It is likely that many more women are now classified as miners on account of the ACP-EU development minerals project which has recognised stone crushers as miners, hence the 'over 500 members' estimation. However, these 500 to 700 members are most likely informal, rather than formally registered, paid up or actively engaged members. Kalomo Miners' Association (KMA) has an estimated membership of 20 mine-licence holders; while the Emerald Miners (ESMAZ) estimated between 100-150 paid up licence holders.⁶² The Federation has 14member associations but it is unclear whether all are mining groups as the Federation's constitution allows for inclusion of any organisation they deem fit (FESMAZ, 2007).

Although RPOs are mostly defined as being locally rooted (Bosc et al., 2001), only a few residents of Mapatizya, reported involvement in mining associations. These low levels of participation by community members may be due to three major factors. Firstly, associations seem to vary in terms of criteria for membership, with some referring only to licence-holders as members (KMA and ESMAZ), while others like women's AZWIM seem highly inclusive, focusing not only on mining-licence holders but including informal stone crushers, traders and even men (although men are not permitted to vote or hold office). KMA also seemed to have an antagonistic relationship with traders who are mostly informal, with an executive member interviewed mentioning that informal traders are usually unwilling to listen to advice on mining and trade and are only in pursuit of quick money.⁶³ Some traders interviewed in Mapatizya similarly expressed that although they saw the value of being part of an association and felt it

⁶² Interview, KMA executive member, 10 October, 2017, Lusaka and ESMAZ executive member, 19 July, 2017.

⁶³ Interview, executive member KMA, 17 October, 2017, Mapatizya.

could attract buyers, they felt excluded and were labelled as illegal by association members because they lacked licences.⁶⁴ Secondly, limited participation on the part of some traders may also result from divisions on tribal lines as the traders who expressed feelings of exclusion belonged to the Bemba tribe, while the association representative resident in Mapatizya is from the Tonga tribe.⁶⁵

A third factor limiting membership is the loss of trust in associations. Previous experiences of deception by local association leaders has bred a lack of trust in local organisations limiting subsequent attempts at collaboration through formal structures and a greater reliance on narrow, trust-based friendship networks. Thus, just as public state institutions suffer reputational costs from a history of past competence failures, these groups suffer similar costs that act as a subtraction from the movement towards 'cooperators' dividends' (Ostrom, 1998; Bustikova and Corduneanu-Huci, 2017). During field-visits, for instance, a member of AZWIM ardently sought to convince other local residents to pay a subscription fee to join the group. She expressed frustration that women continued to say: 'we paid, but they stole our money' - in reference to apparent payments made in the past that had yielded them no benefits. Moreover, local residents shared other instances in which they had sought to work together through community-wide groups but leaders of community groups had 'stolen' their money. Much reference was, for instance, made to an incomplete market structure in the middle of the village: apparently, both government disbursements and local contributions were made towards creation of a local market but according to local perceptions, the committee leaders stole their money and in the end the structure could not be completed. The absence of neutral external

⁶⁴ Interview, stone trader 1, 20 October, 2017, Mapatizya.

⁶⁵ There has been a long-standing ethnic cleavage and political rivalry between the Bemba and Tonga groups (Osei-Hwedie, 1998).

parties to enforce agreements also acts as a detractor from possible collective action (Ostrom, 1998). Only in social aspects such as funerals do all community members band together, regardless of tribe or other cleavages, to assist one another, because the informal norms around death are so deeply entrenched and reinforced with sanctions for deviance. Community maps drawn, however, show only a few occasions in which community assets have been built up collectively.

4.2.2 Member Diversity in Associations:

A clear distinction exists between two types of individuals who join mining associations and the extent of their involvement in associational activities. On one end of the spectrum, is a class of low capacity, undercapitalised miners and traders – mostly, formerly self-employed (e.g. tailors or caterers) or retired from public service (e.g. secretaries or administrators). These either have dormant mines or struggle with basic production methods. On the other end of the spectrum, are multinationals and small to medium scale businesses. The behaviour of the latter group strongly accords with Olson's argument that even though actors could mobilise to lobby government for preferential treatment, most competitive firms will not invest resources into mobilization and lobbying. One successful jeweler, for instance, remarked '…the guys who are doing business don't have the time to sit…with them (associations) and …try to fight their causes, we are too busy trying to make a living.⁶⁶ The bigger players, however, nevertheless do join these associations partly to gain social licence to operate and in the hope, that through these groups, illegal mining on their property can be curbed.

⁶⁶ Interview, Mine-licence holder E1, 23 November, 2017, Lusaka.

The KMA and ESMAZ are, for example, very proud of the fact that big players such as Kariba Minerals (a joint venture between government and Gemfields – a multinational) and Kagem (similarly under Gemfields but in emeralds) and Gemcanton,⁶⁷ respectively, are their members. Ironically, these bigger players come to be exploited by the smaller players (Olson, 1971). On one hand, the big players are highly respected and most favoured by poor miners because they offer support but have no interest in taking up leadership of the association. However, they have been turned into 'donors' as one executive member called them, who are periodically approached for funding for events or community projects and yet with no accountability over how funds are utilised.⁶⁸

Conversely, poor miners use associations as means of securing benefits from government and are highly invested in maintaining their positions of leadership. Relatively successful, small-scale miners who are not as large as MNCs but are educated, professionals with a history in mining, therefore constitute a threat for association leaders and so reported being excluded from meetings, participation at workshops and internal information.⁶⁹ This has led to a situation in which associations are led by a certain cadre of leaders who are not best qualified to champion the cause of the sector.

Motivations for Joining Associations: Members shared different motivations for joining associations. For some, ASM has become an important retirement avenue and being part of the association seemed helpful; for others there was a recognition of common problems faced in

⁶⁷ According to Zambian Mining Law, artisanal and small-scale mining is defined according to areas size, hence MNCs with several interlinked, small plots are still classified as small-scale (Tychsen, et al., 2018).

⁶⁸ Interview, Mine-licence holder E1, 23 November, 2017, Lusaka; Telephone interview, medium-scale minelicence holder, 25 April, 2018, Mapatizya.

⁶⁹ Interview, 2 joint venture mine-licence holders, 5 October, 2017, Lusaka.

the sector and the need to work together and to jointly lobby government; others still perceived an opportunity for loan access while others felt under obligation to join by virtue of being in the same locality as the association. The extensive initial trips to international fares are also said to have created an attraction for some while others derive a sense of importance from attending workshops and interacting with those from multilateral agencies. The food and allowances offered to participants at workshops are also non-trivial to ASM operators. Discussions with an official from the Zambia Development Agency (ZDA), for instance, revealed that during a recent training workshop, participants were given an allowance of K700 (about \$70) in addition to accommodation and food. For many small-scale miners who are selfemployed, this is a significant sum and an important opportunity otherwise inaccessible to them.

4.3 Do Mining Associations Result in Anticipated Benefits for ASM Operators

As alluded to in Section 2, there exists a strong rationale for ASM operators to work together. As high cost producers, they could leverage economies of scale in input supply to alleviate their weak technological access and low productivity (Noetstaller, 1987). Lending institutions may also be more willing to lend to groups than individuals while joint marketing to protect producer prices would aid poor operators who are otherwise driven to sell their minerals for a pittance due to oversupply, isolation from markets, reliance on market intermediaries. However, to what extent do these benefits actually materialise? This section explores benefits offered by mining associations in the Zambian context.

4.3.1 Benefits of Training

Mining associations in Zambia are financially weak and highly dependent on Government, donors and non-governmental organisations (NGOs). As such, their activities mirror only that

which donors and government are willing to offer. Table 1 below captures the main activities that association leaders said their groups offered and these largely align with the areas of training and marketing offered by donors, NGOs and the government. The ACP-EU Development Minerals Programme (since 2014 to the present), for instance, focused on training in environmental management and value-addition amongst others, with only small amounts available for small grants. The Zambia Development Agency (ZDA), which is a state unit that aims to support enterprise development in Zambia, has also stopped offering loans to small-enterprises but focuses on training. Repeated requests for machinery and financing made to governments and donors have been consistently turned down or else provided in ways that made them inaccessible to ASM operators (e.g. EU funded Mining Sector Diversification Programme – MSDP loans). Association leaders have thus adjusted to donor and government goals in spite of the fact that training activities are undermined by the lack of productive capacity to implement lessons learned, while links to export markets are similarly of limited value since miners cannot fulfil the orders they are given.

Association	Joint Supply	Unified Pricing	Facilitation of Credit Access	Exhibitions (local & international)	Training	Market Access (transportation, client links)	Links to Community Development	Links to Government
1. Mining Association A (ESMAZ)	No	No	Under govt and donor programmes	No	under donor/govt aid	No	No	Yes
2. Mining Association B (KMA)	Νο	No	When Govt. or donors offer it.	Yes	under donor/govt aid	Partly	-Clinic -Roads -Boreholes -Mineral Processing Centre -Police Post	Yes
3. Mining Association C (AZWIM)	No	No	Under govt and donor programmes	Yes	under donor/govt aid	Partly	- Jointly with KMA	Yes
4. Mining Association D (FSSMAS)	No	No	Under govt and donor programmes	Yes	under donor/govt aid	No	-Jointly with KMA	Yes

Table 7: Services Rendered by Mining Associations

Source: Generated by author from interview data

This bias in favour of activities of secondary importance to miners is baffling because it is pursued despite limited, to no proof of success. The fragmented approach to aiding associations is unlike the holistic approach of the Colonial administration, which showed a concern for the development of the entire value-chain (Boyd-Wilson, 1949). The Zambian government has, for instance, been slow to set up a unit dedicated to ASM. Bureaucrats are rather content to conduct training activities even when they show limited impact on the sector. This has led some association members to allege that government officials and NGOs use trainings as an opportunity to gain allowances while miners do not benefit in any way;⁷⁰ officials in multilateral agencies similarly benefit from the status quo since it implies continued employment.

⁷⁰ Interview with Federation Executive Member (7 July, 2016), Lusaka.
Associations have also become useful tools for policy implementation in the current liberalised context. This role has also been observed in other contexts like Tanzania (Dreschler, 2001). An official from the Ministry of Mines revealed that in cases of policy change, the government relies on associations to inform members of changes (e.g. the recent creation of an electronic platform, which the Government would like miners to migrate to). NGOs and multilateral agencies also face significant pressure to spend allocated funds which makes workshops an easy route – thus in the current context associations may inadvertently exist to serve the goals of their would-be helpers while their efforts at lobbying for member interests go unheard.

4.3.2 Benefits of Joint-Input Sourcing

The bifurcated view of collective action, in which formal structures are viewed as vertically oriented to government aid while informal networks are viewed as horizontal and dependent on members within small friendship groups, is most evident in the cases of joint input sourcing, marketing and price control. Because the idea of a 'member-driven', formal, organisation, in which members themselves are the key driving force and not external actors, has never been strongly inculcated in cooperatives from Colonial to post-Colonial times, these formal structures are not often perceived as arenas for joint action by members. Rather, informal, narrow trust groups are the first resort.

Miners and traders in ASM communities do not operate entirely independently but rely on networks of neighbours and friends in achieving business goals. During the author's first field-visit to Mapatizya, for instance, the mine owner whose mine was to be visited, arranged to travel with two other mine owners, which lowered the cost of transporting supplies to the remote mining area from Lusaka (about 350km away). Similarly, hiring of excavators is sometimes done by groups of friends who may or may not be part of an association. The mining

associations, therefore, do not play a role of coordinating the actions of miners in such a way as to facilitate lower production costs and neither do they seem to be perceived as the mechanism through which this can be done. The matter of capacity is also pivotal as mineowners seek to join together with others who can contribute capital to advance a cause. Most members of associations are, however, poor making them less useful to join with in joint input sourcing and illustrating the fact that in some cases, collective action by weak actors may still fail to achieve desired ends. Informal networks, therefore substitute for the weak capacity of associations (Helmke and Levitsky, 2004). However, unlike Helmke and Levitsky (2004), who assume that informal networks emerge in response to inadequacies of formal institutions, this case more strongly captures why informal networks persist in spite of the creation of formal ones (Lu, 2015; North, 1990).

The fact that informal links, external to the association are more naturally resorted to and prove more effective than working through the association seems to imply that when members think of receiving government aid, associations are perceived as most appropriate. However, when members seek to accomplish something without state aid, informal friendship ties matter more than associations. None of the association leaders for instance mentioned joint input sourcing as a goal. Rather, the need for machinery was only mentioned in reference to government support. As has been observed in other settings, the substitution of informal institutions where formal ones falter may have contributed to the continued weakness of formal mining associations since so few demands are made on them (Tsai, 2002; Helmke and Levitsky, 2004).

4.3.3 Benefits of Price-Control and Joint Marketing

In the area of being able to raise or maintain producer prices, or to control supply for the benefit of members, this has proven difficult. Firstly, associations lack the legal authority to control prices and questions arise regarding how this would be done and its desirability. Secondly, they also lack the legal authority to control supply. Community members engaged in amethyst trade however urgently expressed the need for such price control in view of the exploitation they often suffer from foreign buyers.⁷¹ Their failure to jointly agree on prices depicts a classic instance of the logic of collective action: without an external controlling agency, individual traders are not motivated to sell their amethyst a set price lest other traders unilaterally lower their prices and secure more buyers (Ostrom, 1998). The lack of trust and external enforcement agents therefore make this difficult.

Similarly, the lack of trust in Associations undermines joint marketing through them, even though the practice of informally consolidating shipments between traders is common. The EU Mining Sector Diversification Programme (MSDP), for instance, built the residents of Mapatizya a *Gemstone Processing Centre* which not only offered machinery for value addition to amethyst but provided a platform for consolidated supply and joint marketing. But alas, it failed. A major problem, as some residents and former leaders interviewed stated, was a lack of trust among members.⁷² Although people were invited to bring their amethysts to the 'Centre' for polishing, there were fears that materials would be stolen. The Centre also had potential to serve as a point where amethyst supplies could be consolidated and jointly sold. However, miners and traders could not entrust minerals to the Association and suspected that there might be cheating even when it came to allowing individuals to sell on behalf of others. However, among narrow trust links, joint supplies routinely take place. This challenge harks back to the Colonial era when cooperatives were first introduced. In the 1948 Annual Report

CEU eTD Collection

⁷¹ Interview, woman stone trader (1), Mapatizya (17 October, 2017); Group Interviews 4, 5 and 6 (17 and 18 October, 2017), Mapatizya.

⁷² Joint interview with member of AZWIM and KMA (17 October, 2017), Mapatizya.

of the Registrar of Cooperative Societies, a year after cooperatives were officially legislated, Boyd-Wilson wrote:

One of the greatest obstacles in the way of cooperative development is the prevailing lack of mutual trust amongst the African population, and, in a number of the new societies formed during the year, it has been all too obvious that this lack of trust is justified. It is difficult to find an African who possesses the strength of character and educational qualifications necessary for the holding of an important office in a consumer's society and who is prepared to do the job without attempting in some way to make something for himself out of it. Petty thefts of stock and cash have been numerous, both on the part of committee members and employees, but as is so often the case these have been most difficult to prove in court and so far there have been no convictions (1949: 9).

The long-standing challenges with trust are thus a critical issue that has persisted across time and limited the effectiveness of these groups. It must therefore be taken into account even by policy-makers seeking to use these groups.

4.3.4 Internal Governance of Mining Associations

Linked to the low levels of trust in associations is the weak procedural integrity and weak leadership that have caused associations to lose legitimacy. While the first crop of association leaders in the early 2000s was dynamic with high levels of professional competence, the current leadership seems to exhibit less capacity to engage government and donors or mobilise members.

Under the leadership of a mining engineer during the 2000s, Kalomo Miners' Association (KMA) was, for instance, entrusted with EU donor funds to jointly construct a Gemstone Processing Centre in Mapatizya with a donor and community engagement (which is in stark

contrast to present times when associations cannot be trusted to organise training events).⁷³ Other projects undertaken at the time included construction of a clinic, police-post and water points for the village, while roads between mines were also graded (since that time it seems no other community projects have been done through associations in Mapatizya). In Table 1, the community engagement projects outlined were accomplished during this period of more technocratic leadership.

However, these years of success also coincided with donor and government interest in the ASM sector. The former KMA president recalls:

But along the way, copper prices went up and people got a feel of Chinese money now and I think ever since that time, some of the very strong stakeholders have not been there to look at these other issues. In a way that led to a slump in small-scale mining activity in the country (Interview held in December 2017, Lusaka).

This withdrawal of government and donor interest precipitated the departure of professional leadership and the entrance of a new crop of leaders across the associations in 2009.

The lack of oversight and accountability of these organisations has compromised their procedural integrity and internal governance. Across the three associations, elections have not been held in the past approximately eight years. This is consistent with cooperatives in other parts of Zambia where annual general meetings are seldom held (Loloji, 2009), short-circuiting possibilities of democratic self-governance for members. Leadership across associations is largely by inheritance in which leaders hand-pick successors from among existing networks. In the few cases where elections have been held, there were allegations of irregularities in

⁷³ Interview with founder member of KMA (December, 2018), Lusaka.

which individuals ineligible to vote were recruited by the association president to bolster his support base.⁷⁴ Leadership thus circulates within a narrow circle and those with potential to lead are not interested in taking up positions as discussed in Section 4.2.2. Narrow leadership circles also raise concerns around corruption which were voiced both in the case of ESMAZ, KMA and the Federation. In some cases, cartels have formed through which donations from donors are alleged to be personalised or sold by leaders.

Benefits are also limited to specific players while others are excluded. A community member in Mapatizya, as well as the owners of a more successful mining venture, both noted how information about workshops seldom circulated and that they only came to learn about workshops after the fact. The fact that top executive leaders are the primary contact point for government and NGOs also makes this most likely.⁷⁵ Payment of subscriptions is also low owing to the limited benefits and lack of transparency in disclosing use of funds. The fact that Associations exist without clear reports and auditing of accounts or even bank accounts, as some executive members seemed to imply,⁷⁶ also shows a failure on the part of the Government to oversee the activities of associations.

5. Conclusion and Recommendations

This chapter sought to understand how mining associations operate and to evaluate the extent to which the current optimism by the UN, donors and governments, surrounding the introduction of cooperatives and associations in ASM is validated by present experience. The

⁷⁴ Interview, ESMAZ member, 19 July, 2017, Chingola.

⁷⁵ Telephone Interview, ZDA official, (15 March, 2018).

⁷⁶ Interview, founder member 2 AZWIM (4 December, 2017), Lusaka.

key findings are that mining cooperatives carry a dependency over-hang from the Colonial and post-Colonial periods and continue to rely on government for financial support. However, whereas cooperatives were strategically used by the Colonial government to meet policy goals through effective bargains, mining associations are presently only sporadically supported with no comprehensive strategy for sectoral development. Democratic self-governance was also never developed in cooperatives during Colonial and post-Colonial periods. As a result, most associations were found to suffer from weak internal governance in which annual general meetings have not been held in years, reports are either not kept or information not circulated and leadership is through inheritance and self-selection.

Many of the benefits of collective associated with mining associations such as joint input sourcing, marketing and pricing were limited in the Zambian case. While training workshops and occasional international tours to market gemstones are held, these benefits are closely controlled by association leaders and information shared only with loyalists. Although some association members have occasionally managed to work jointly with other players, the associations have not been the mechanism for cooperation but rather friendship ties based on trust external to them have been more effective. Weak levels of trust between members and in communities surrounding them have also significantly undermined cooperation.

A key contribution of this study is that it illustrates how the logic of collective action (or consequentiality) tends to be dichotomised from the logic of appropriateness in the context of ASM. While the logic of collective action based on strict rationality is applied to formal associations, informal trust-based groups are characterised by the logic of appropriateness characterised (based on norms of trust and reciprocity), confirming arguments by Olson (1971) and Ostrom (1998) for collective action within big and small groups. This creates a policy

challenge for policy-makers who normally need to operate through formal structures, as opposed to invisible, sporadic, informal groups.

The study provides important insights into internal governance challenges of mining associations, which though based on associations in Zambia shows applicability to wider contexts in sub-Saharan Africa. Knowledge of their internal governance weaknesses and capacity constraints will allow governments and donors to adopt a more informed approach in seeking to promote ASM growth through associations. The case shows that while associations provide an important link between miners and government and multilateral agencies; the process of getting actors to actually cooperate is more complex and will require a long-term strategy in which trust lost by associations is gradually regained. In the mean-time, community residents engaged in amethyst trade seem more likely to trust 'neutral agencies' such as government or NGOs in marketing their produce or running centres for joint processing. Mechanisms must also be found through which member participation in associations can be increased and made more inclusive.

The presence of an ASM unit in Government would play an important role in reviewing records of associations to ensure procedural governance is observed and that members are given opportunities to hold leaders accountable. Strategies adopted must also seek to ensure that stronger players in the ASM sector with the potential to better lead associations are encouraged to participate. The present study opens up various avenues for future research into collective action through RPOs that is vital for the stimulation of sustainable incomes in ASM. Further research into how mining cooperatives, following the strict business model would be important as would comparative studies with mining associations across countries to better understand factors responsible for success and failure across contexts would be important.

Chapter 5: Conclusions

The central research question that this thesis addresses is: 'How do interactions between formal and informal institutions shape resource use at the subnational level?' The thesis undertakes to broaden understanding on how resources influence development at the subnational level, specifically, in artisanal and small-scale mining (ASM) communities. The research opens a new area of inquiry into whether a 'micro-level resource-curse' of constrained development despite resources can be said to exist in ASM communities and how institutional factors may underpin it. The thesis argues that in contexts where large-scale mining is the leading sector, resource development at the artisanal and small-scale is marginalised, limiting its impact on rural development. Key mechanisms through which this occurs are through a large-scale mining bias in policy and sectoral support, the emergence of second-best informal institutional patterns in production and trade that perpetuate poverty and failed collective action.

The findings of the research show a significant degree of consistency with traditional resourcecurse arguments at the macro-level and specifically with rentier state arguments. Due to the state's preoccupation with resource-rents from the leading sector, efforts at economic diversification are undermined in favour of externally generated resource-revenues (Auty, 1993; Karl, 2007). However, while resource-curse discussions have typically assumed that only the non-extractive sectors are side-lined (Shafer, 1994; Karl, 2007), this research shows how even the development of secondary mineral resources (i.e. ASM gemstones) is challenged by pre-existing institutional structures that favour large-scale mining and redistribution of revenues to social sectors most visible to the voter population. The fact that formalisation of ASM is embraced in legal documents and pronounced as a priority and yet receives limited state support in terms of monitoring, facilitation of access to finance and technology or customised taxes, all support arguments by North (1990) that institutions are slow to change and that it costs less to maintain the status quo. However, it also supports arguments by Karl (2007) that political elites and foreign multinationals benefit from the status quo and so lack incentives for reform. The allocation of the richest deposits of emeralds and amethysts to the Zambian government and multinationals, for instance, benefited these parties. Conversely, it resulted in the displacement of ASM operators. Presently, the Zambian government is engaged in efforts to merge ASM mining plots in the emerald and amethyst areas, into larger concessions that can attract international investors (Chadukwa in Tychsen et al., 2018). This further illustrates how changes in formal institutions may not alter perceptions of actors, as the government maintains a predisposition towards foreign LSM over empowerment of small-scale mining communities.

Meanwhile, investments are made in developing state capacity to monitor the leading sector but not non-leading sectors (e.g. ASM), in line with arguments by Shafer (1994). Zambia's Mineral Value-Chain Monitoring Project is, for instance, a current donor funded initiative supported by Norway, the EU and World Bank to strengthen the government's capacity to monitor mining companies (GRZ, 2017). The focus of the project is, however, primarily on LSM while ASM is vaguely referred to as a future area of concern after LSM (Group interview, senior government officials, Lusaka, 6 July, 2017). These dynamics further demonstrate the difficulty of changing entrenched institutional structures and incentives for maximised rents from LSM. Indeed, while policies may change overnight, underlying institutional structures and normative frames are more resistant to change (North, 1994). These are important determining factors for the success of ASM interventions in resource-rich states where LSM dominates. Thus far, ASM debates seem to show limited engagement with incentive structures of policy-makers and ASM operators. However, if interventions proposed by researchers are to be effective they must be based on knowledge of existing institutional structures and incentives of players, and must seek to reconfigure these for change.

Beyond state-centric factors, findings of the dissertation also provide important support for RC arguments with regards to how weak institutions may lead to the emergence of rent-seeking activities that compete with productive entrepreneurial activities. In the case of ASM in Zambia, a combination of capacity constraints by ASM miners, weak state support and weak enforcement of laws has led to the emergence of competing production patterns between mine-owner driven operations, joint-production (quasi-formal) arrangements and informal mining activities and trade. These competing patterns undermine incomes and rural development opportunities for all players.

This provides support for the second hypothesis that 'In the context of weak institutions, there will be a rise in rent-seeking ASM licence-holders whose activities undermine those of productive entrepreneurs and lead to low incomes for ASM communities.' However, in the case of JPA, rent-seeking does not take the form of lobbying the state for preferential treatment, as ASM operators generally hold limited political clout. However, mine-licence owners who do not invest in building up the productive capacity of their mines but only rely on informal miners to work their claims in return for a significant share of the output display a form of rent-seeking. These players essentially receive passive incomes and are not associated with progressive improvements in mining techniques or scaling up of operations as is the case with mine-owner driven operations. Similar patterns are observed in other countries, in which permit

or claim-holders are associated with exploitation of poor rural workers (Verbrugge and Besmanos, 2016). However, an important aspect of the JPAs is that they allow community members who may otherwise be excluded from benefiting from resource-use to benefit.

Ultimately, the study shows an interaction between the institutional context and state governance at the macro-level and dynamics at the local level that interact to constrain resource-led rural development at this micro-level.

5.1 Avenues for Future Research

Overall, the thesis attempted to introduce artisanal and small-scale mining (ASM) to resourcecurse debates and to dispel the view of mining as purely large-scale. By introducing such a micro-level lens to resource-curse debates, the study drew on largely inductive approaches to explore the factors that underpin poor developmental outcomes from resource exploitation at community level. While this study focused on areas of production networks, rural producer associations and formalisation as factors shaping resource outcomes, it did not employ econometric analyses capable of establishing causality. Future research could strengthen findings through econometric tests at the subnational level, where appropriate. Secondly, resource-curse literature is significantly comparative in nature – drawing parallels between resource-rich areas and resource-poor ones. Future studies could benefit from comparisons between agricultural communities and small-scale mining communities to determine the extent to which outcomes vary in the two contexts. ASM literature already provides initial evidence of higher incomes in mining communities than in agricultural communities (Childs, 2008; Bryceson and Jønsson, 2009; Fisher et al., 2009), however, the net impact of resources on rural development is yet to be established. Moreover, other aspects such as the impact or resources on education and social security would also be important contributions.

Another fertile area for future research is an application of major resource-curse theories to the micro-level. Efforts to diagnose the 'local resource-curse' have already began in contexts such as South America (Loayza, et al., 2013) but have not extended to small-scale mining in which resource rents accrue to dispersed non-state actors and not to the state. In this regard, it would be valuable to know how ASM operators are affected by fluctuations in commodity prices, what coping mechanisms they employ during downturns if any and how they are influenced by upsurges. Existing research already shows some indications of micro-level resource curse effects in the sense of high levels of HIV/AIDS in these communities, social vices of prostitution and high consumerism (Hentschel, 2003). However, systematic data on whether all ASM operators respond similarly across age and gender lines remains limited. Knowledge of what measures, if any have been put in place to curb these negative effects and their effectiveness is similarly an area for further exploration.

5.2 Limitations of Study

As with any study, this research project has several limitations that have influenced the final outcomes of the research. Firstly, the research is area specific, focusing on the case of ASM amethyst and emerald mining in Zambia. The context specificity may, therefore, limit the applicability of findings to wider contexts beyond Zambia. Furthermore, the qualitative, case-study design meant that the sample population evaluated was small and not amenable to statistical generalisations. However, despite these limitations, the study provides valuable insights into an under-researched area: formalised ASM and its link to rural development. Hitherto, most ASM studies have focused on informal contexts (Maconachie and Binns, 2007 - Sierra Leone; Tschakert, 2009 - Ghana; Echavarria, 2014 - Colombia; McQuilken and Hilson, 2017- Ghana), where most ASM activities are located. This study therefore, provides important insights into outcomes in a formalised context and provides policy-makers with understanding

on how poorly designed and weakly enforced policy measures may shape outcomes in the sector. Future studies can build on this initial work through cross-country comparisons of other areas where formalised ASM occurs.

With regards to the case-study approach and small sample sizes across individual chapters, future research could potentially benefit from larger sample sizes. However, the findings from the research are not invalidated by the small sample sizes as attempts were made to triangulate data and respondents selected were those with a long history of ASM mining and involvement in mining associations. The key informants, therefore, hold the institutional memory of both associations and miners. Beyond this, there was consistency between the reasons why various licence-holders think they have failed to engage in production and perceptions of government officials. Additionally, while statistical generalisation may be questioned, the research findings provide insights into how micro-level resource dynamics are linked to broader resource-curse theory and provides for analytical generalisation to contexts with similar circumstances (Hammersley et al., 2000; Yin, 2010; Palinkas et al., 2015).

A third limitation relates to data collected for the study. On one hand, interview data and field observations provided rich insights into processes through which resources have had only a limited impact on rural development. This is evidenced through prevailing low incomes among the majority of ASM operators, limited communal assets such as having no secondary schools and limited basic services (water and electricity) and the continued lack of actual access to minerals despite holding mining licences. However, while this provides important qualitative insights into poverty dynamics, it does not provide a quantification of the net effect of resources on rural development which would be valuable for future research. Census data at constituency level was also limited for the study area. Lastly, although the study derives hypothesises and uses them as a guide to the research inquiry and interpretation of findings, rigorous hypothesis testing based on statistical tools was not engaged with. Rather, a qualitative approach was adopted which, though providing important insights could be bolstered through use of mixed methods.

5.3 Conclusion

In summation, this dissertation provides qualitative support of findings from institutional arguments for the resource-curse. The thesis shows that even though RC literature is largely focused on country-level and regional dynamics, it can be usefully employed to understand how resources at the micro-level may still not result rural development for communities. Drawing upon institutional theories to interpret micro-level dynamics shows a transmission of macro-level dynamics to the micro-level, even though in nuanced forms. Forms of rent-seeking and low levels of trust in mining associations, for instance, largely mirror the lack of trust in state institutions and the corruption that pervades them in RC countries (Leite and Weidmann, 1999; Dietz et al., 2007). While the negative impacts of rent-seeking that lead to the undermining of productive entrepreneurship are similarly evidenced in ASM contexts (Lane and Tornell, 1997). Notions of positive outcomes from dispersed, non-state production therefore, do not materialise, largely undermined by weak state support. However, the findings of this study provide insights beyond the narrow realm of resource use in ASM, rather, they confirm the centrality of institutions in shaping development outcomes in general. As long as socially accepted and enforced norms and rules do not favour productive activities and growth, positive outcomes are unlikely to emerge.

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Appendix 1: Chapter 2

Interview guide for Emerald Mining Licence-Holders (Formalisation)

Background Data

- 1. What is your age?
- 2. What is the highest level of education you have attained?
- 3. What is your occupational background?
- 4. Did you have experience in mining when you began mining operations?
- 5. What motivated you to become a small-scale miner?
- 6. Is this your only occupation?
- 7. When did you first begin mining operations?

Acquisition of Formal Title

- 8. What factors influenced you to apply for a mining licence?
- 9. What steps did you go through to secure a mining licence?
 - a. Which departments did you have to go to?
 - i. Did you have to travel to Lusaka for the licence or did you secure your licence through a regional office?
 - ii. What are the requirements for a licence? Clearance with PACRA, tax clearance etc.
 - b. how much were you required to pay for the licence?
 - c. How long did it take you to secure a licence?

Benefits and Costs of Formalisation

- 10. Were you offered any support upon completion of registration and granting of a licence?
 - a. Does the Ministry of Mines/ZDA or any other Govt entity furnish you with information on services available post acquisition of a licence?
 - b. Does the Ministry of Mines send officials to monitor your operations?
 - c. What benefits has possession of a licence enabled you to secure (e.g. Microcredit, technical support, information on and facilitation of access to markets, facilitation of value-addition).
- 11. What are your costs as a licenced miner in terms of payments required by Government? Tax returns? Annual returns PACRA? Labour laws
- 12. Have you ever been penalised under the Mining Act? Have you heard of any miners who have been fined, arrested or otherwise persecuted?
- 13. Have heard about the European Union Credit Facility for Small-Scale Miners? **Constraints to Growth**
- 1. What challenges have you faced in your operations?
- 2. What challenges to small scale miners like you face?
- 3. Have any of the following actors assisted you in addressing these challenges
 - a. Government (the ministry, ZDA, citizen empowerment commission) b. Associations

Benefits of Membership in Associations

- 1. Are you a member of any association? Why?
- 2. What are the benefits of membership to the association?
 - c. Have you accessed any funding through your Association?
 - d. What are the costs of membership?

Market Access

- 1. How do you get your commodities to the market?
- 2. What are your volumes of production?
- 3. Do you maintain records?
- 4. Have you participated in any of the local auction sales that have taken place in Zambia?
Appendix 2: Chapter 3

Interview Guide for Amethyst Mine Owners (Production Networks)

- 1. Could you tell me the steps you go through from extracting amethysts to selling them?
 - a. In terms of who you employ, how many they are, how they are paid etc.
 - b. Do you have access to machinery?
 - c. How do you manage to secure machinery?
- 2. How do you finance extraction of amethyst?
 - a. Have you received any government loans?
 - b. Do family members contribute to financing your activities?
- 3. Do members of the association work together to support each other in meeting costs?
 - a. Who do you most rely on for support?
- 4. Do buyers like the Chinese or Indians sponsor mining activity?
- 5. Who do you sell your stones to?
- 6. Are there any challenges faced with trade routes?
- 7. Are you able to meet demand?
- 8. How do the amethysts leave the country? Are people able to export without paying tax?
- 9. What payments do you make to the government?
- 10. Have you been able to acquire any assets from mining?
- 11. What are the costs you incur in producing and selling amethysts?
- 12. How much do you sell for? Do you make a profit?

Appendix 3: Chapter 4

Respondent Summary for Mining Associations

To gain an understanding of the operation of mining associations and their link to production and trading activities of miners, interviews were held with association members, stone traders, a representative from a multilateral agency and some government officials. The most detailed interviews were held with leaders and former leaders of associations who were directly asked about services offered and internal dynamics of groups. Former leaders who either undertook a career change that drew them away from a leading position, or served their term and are now less active were highly informative as they no longer directly represent the groups. Current leaders were more guarded in response but freely explained governance challenges of previous leaders. Ordinary members were also highly informative. The limitation of the study, however, was that only a small number of general members of associations were interviewed owing to limitations in access to members (sometimes located in distant locations), the absence of a directory of members from association leaders and reluctance of some members to be interviewed. However, most leaders who were interviewed were founder members who have been there from the start of these groups. Moreover, most of these leaders have circulated across the mining associations holding positions in KMA, AZWIM and the Federation. ESMAZ had the least direct interviews with numerous attempts to contact the president having proved futile. However, another member of the executive and a general member – who is also a board member (although he is conflicted about whether he is truly a board member because he receives no reports and has not been invited to meetings but is only periodically approached for money and so was classified as a member for the study). Even though more ESMAZ members were not directly interviewed for this chapter, they were interviewed for the related chapter on their experiences with mining licences. Statements made relating to associations were captured from there and the limited reference to associations was also taken as indicative of their importance. Similarly, with community members, their discussions on stone trading activities and production collected for the chapter on production networks were reviewed to assess the references made to associations and the prominence of these groups as they navigate various difficulties. Because the thesis evolved in an inductive way, in which one element led to another area of inquiry which was subsequently developed, some respondents (including the communities) were not subject to detailed inquiries specific to associations. Rather, data was drawn from previous interviews on an interrelated chapter which was similarly valid.

Association	Description	Number of Respondents
1. Association of Zambian Women in	Executive Committee Members	4
Mining (AZWIM)		
	General Members	1
2. Kalomo Miners' Association	Executive Committee Members	4
	General Members	5
3. Emerald and Semi-Precious Small-	Executive Members	1
Scale Mining Association		
	General Members	2
4. Federation of Small-Scale Miners	Executive Members	2 (the federation consists of members
		from all other associations (so includes
		the 17 listed above)
5. Multilateral agency official and		1
former association leader		
6. Government officials		2
7. Community Members (Stone	Group Interviews	
traders, Market traders)		
	Group Interview 1	2
	Group Interview 2	3
	Group Interview 4	4
	Group Interview 5	4
	Community Mapping Exercise	
	Stone-trader Community and	3
	institution mapping exercise	
	Market Trader Group Community and	3
	institution mapping exercise	
	Group Interview 6: Women Stone-	4
	Traders (Mus/Gla)	
Total		45

Table 8: Respondent Summary for Mining Associations

Interview Guide: Mining Associations and Members (The guide used is from the Social Capital Assessment Tool by the World Bank and is copied here). Questions were however,

selectively used and where respondents showed less knowledge other questions were pursued

in their area of expertise.

1. ORGANIZATIONAL IDENTITY

1.1 Name of organization	
1.2 Type of organization _	
1.3 Membership	
1	

1.4 Location (district, village, neighborhood)

2A. Origins and Development

- 2A.1 How was your organization created? Who was most responsible for its creation (e.g., government mandate, community decision, suggestion of outside NGO)?
- 2A.2 What kinds of activities has the organization been involved in?
- 2A.3 In what ways has the organization changed its structures and purpose? What is the main purpose of your organization today?
- 2A.4 As the organization developed, what sort of help has it received from outside? Has it received advice and/or funding or other support from the government? What about from nongovernment sources? How did you get this support? Who initiated it? How was the support given? What benefits and limitations has the organization derived from this support?

2B. Membership

- 2B.1 Can you tell us about the people involved in your organization? How do they become involved? Are all people in the community involved? If not, why are some members of the community not involved?
- 2B.2 Why do people join or are willing to serve (as officers/leaders/board members) in the organization? Is it hard to convince people to continue being active in the organization? What kinds of requests/demands do they make on the leadership and organization?
- 2B.3 Are active members in this organization also members of other organizations in the community/region? Do people tend to be members of just one organization or join many simultaneously? Can you explain why?

2C. Institutional Capacity

2C.1 How would you characterise the quality of **leadership** of this organization, in terms of... ...stability?

- ...number of leaders/availability?
- ... diversity/heterogeneity of leadership?
- ...quality and skills of leaders?
- ...relationship of leaders to staff and to the community?
- 2C.2 How would you characterise the quality of **participation** in this organization, in terms of...

- ...attendance at meetings, both internal to the organization and externally with other organizations?
- ... participation in decision making within the organization?
- ...dissemination of relevant information prior to the decision?
- ... informal opportunities to discuss the decision?
- ... consultation processes with base organizations or with the community?
- ...broad debate, including opposition positions, and honesty?
- ...dissemination of the results of the decision making process?
- ...the number of women, young people, poor people who work in the organization and who occupy positions of responsibility in the organization?
- ...whether any groups within the community feel excluded from the organization? What groups are they?
- ...the level of participation of more prosperous families (elites) in the organization?
- ...whether elites are sympathetic, supportive, interfering, adversarial, or negative influences?
- 2C.3 How would you characterise the **organizational culture** of this organization, in terms of...
- ...the existence and level of knowledge of the procedures and policies?
- ...whether the procedures and policies are carried out? Whether there are problems with nonattendance at meetings, theft of property or supplies?
- ...conflict resolution mechanisms, both within the community and within the organization? ...the nature of conflicts between the organization and community members?
- 2C.4 How would you characterise the **organizational capacity** of this organization, in terms of...
- ...carrying out specialised activities (e.g., credit, commercialization)?
- ... supervising and contracting consultants?
- ... preparing financial reports for banks, donors, and government?
- ...reacting to changing circumstances (e.g., price fluctuations, change in government)?
- ...developing specific plans for the future (instead of reacting to opportunities as they present themselves)?
- ...reflecting on and learning from previous experiences?
- 2D.5 Could you describe your relationship with the government? Have you had experience in trying to get government assistance? What was your experience? Which level of government do you find most cooperative (local, district, national)? Has the government made particular requests of your organization?
- 2D.6 Is your organization linked to any government program? Which government program(s) is your organization involved with? Why those particular programs? What sort of role does your organization play in the program? Are there certain characteristics of these programs that make it easier for your organization to work with the programs?
- 2D.7 Do you feel sufficiently informed about government programs and activities? What are your sources of information?
- 2D.8 Have you attempted to give inputs to the government? What were the circumstances? What have been the results? What kinds of challenges did you have to deal with? (Probe for any role in planning, operation, and maintenance of government-sponsored services.)
- 2D.9 Has your organization been invited to participate in any of the various government development planning processes? What do you think about these planning mechanisms?

2D.10 In general, how do you assess your organization's actual influence on government decision making at the district level?

3. MEMBERS INTERVIEW GUIDE

3A. Organizational History and Structure

- 3A.1 How did this group start?
- 3A.2 Who have been the leaders of this group? Who are the leaders now? How and why did the leadership change over time? What are the qualities of leadership?
- 3A.3 Why did you decide to join this group? What kinds of benefits do you get by being a member of this group?
- 3A.4 How are the leaders of this organization selected? How are decisions made? To what extent do you feel the organization represents your concerns to the outside world and to the government?
- 3A.5 Why are some people not members of this organization?
- 3A.6 How do you feel this organization complements, replaces, or competes with government institutions' activities in the community?
- 3A.7 How do you feel this organization complements, replaces, or competes with nongovernmental institutions' activities in the community?
- 3A.8 What would you do to make this organization more effective?

3B. Institutional Capacity

3B.1 How would you characterise the quality of **leadership** of this organization, in terms of... ...stability?

- ...number of leaders/availability?
- ...diversity/heterogeneity of leadership?
- ...quality and skills of leaders?
- ...relationship of leaders to staff and to the community?

3B.2 How would you characterise the quality of **participation** in this organization, in terms of...

...attendance at meetings, both internal to the organization and externally with other organizations?

- ... participation in decision making within the organization?
- ...dissemination of relevant information prior to the decision?
- ... informal opportunities to discuss the decision?
- ... consultation processes with base organizations or with the community?
- ...broad debate, including opposition positions, and honesty?
- ...dissemination of the results of the decision making process?
- ...the number of women, young people, poor people who work in the organization and who occupy positions of responsibility in the organization?
- ...whether any groups within the community feel excluded from the organization? What groups are they?
- ...the level of participation of more prosperous families (elites) in the organization?
- ...whether elites are sympathetic, supportive, interfering, adversarial, or negative influences?
- 3B.3 How would you characterise the **organizational culture** of this organization, in terms of...
- ... the existence and level of knowledge of procedures and policies?
- ...whether the procedures and policies are carried out? Whether there are problems with nonattendance at meetings, theft of property or supplies?
- ...conflict resolution mechanisms, both within the community and within the organization?
- ... the nature of conflicts between the organization and community members?
- 3B.4 How would you characterise the **organizational capacity** of this organization, in terms of...
- ...carrying out specialised activities (e.g., credit, commercialization)?
- ... supervising and contracting consultants?
- ... preparing financial reports for banks, donors, and government?
- ...reacting to changing circumstances (e.g., price fluctuations, change in government)?
- ...developing specific plans for the future (instead of reacting to opportunities as they present themselves)?

... reflecting on and learning from previous experiences?