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Fluid formalities: insights on small-scale gold mining dynamics, informal practices, and mining governance in Guyana

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Abstract:

Despite the existence of one of the most comprehensive and progressive formal frameworks for artisanal and small-scale mining (ASM) in the world, the majority of gold mining within Guyana's vast landscape nonetheless appears to drift perpetually towards what could be understood as 'informal' activity. These divergences from institutional form appear rooted in a diverse set of explanations, including actors' shared demands for a flexibility that the current institutional framework cannot provide, broader structural socio-economic conditions, and plain opportunism. Moreover, rather than representing harmful transgressions of institutional function, expressions of informality can often be relatively benign in their effects, depending on their nature and temporal emergence within the mining process. The findings from this article therefore suggest that states could do as Guyana has largely done and focus on pragmatic governance approaches that seek to address the most egregious expressions of informality while being prepared to regularize locally-responsive governance modalities as they emerge. As the 'worst' impacts of informality in Guyana are arguably those in which state actors are complicit, it is however clear that civil society and researchers have an important role to play in building a better picture of how mining actually takes place – and in highlighting why (and when) divergences from institutional form need addressing.

Key words: Small-scale gold mining; formalization; Guyana; environmental governance

1. Introduction

In recent years, there has been growing – though still not resounding – enthusiasm for policy initiatives aimed at formalizing artisanal and small-scale mining (ASM)¹ activity globally (Hilson & Maconachie 2017). Underpinned by a so-called ‘legalist’ epistemology, proponents argue that bringing illegal small-scale gold mining activity into the state-regulated, legal sphere can minimize its negative social, political, and environmental impacts, while also enabling miners to benefit from tenure security and access to finance (Siegel & Veiga 2009). Scholars studying ASM dynamics have meanwhile exerted significant energy trying to understand why informality persists, why it is significant, and how it can be resolved (e.g. Van Bockstael 2014; Verbrugge 2015; Hilson et al. 2017).

While some recognize that informality is pervasive in some parts of the ASM world simply because many states lack the capacity or desire to install and enforce formal institutions (Hirons 2011), others argue that informality is itself driven by ‘too much’ formalization, whereby insensitive policies drive miners into illegal activities (Maconachie & Hilson 2011) – or else by ‘the wrong kind’ of formalization that fails to account for unconventional or customary tenure arrangements (Geenen 2012). Others meanwhile argue that the ultimate difficulty of policing dynamic ASM activities makes instances of opportunistic informality inevitable, even where formal institutions exist (Côte & Korf 2018).

As Guyana’s ASM system is already one of the most comprehensively formalized in the world – and as a wide range of spatial and quantitative data is available on the sector – it offers a valuable opportunity to understand better the relationship between ASM activity and formal institutions. And as it is a context that, in many ways, represents the progressive, formalized

¹ A note on terminology. Although the majority of Guyana’s gold mining comprises *mechanized* dredging activity – and therefore differs from the type of ‘artisanal’ mining discussed in much of the literature, the terms ‘ASM’ and ‘small-scale mining’ will be used interchangeably in this article.

‘ideal’ that is promoted in the policy and academic literature, it also offers a useful lens to understand better: how, and why, informality emerges; when and why it is problematic; and how states can deal with it. It is thus these core questions that animate this article.

In interrogating these questions about ASM and informality, this article is guided by the ‘legalist’ understanding of informality (as discussed in Hilson & Maconachie (2017)) that considers informality to mean any practice or activity that transgresses the rules or regulations of a jurisdiction’s legal framework. The terms ‘illegality’ and ‘informality’ will therefore be used interchangeably. While recognizing the importance of the plethora of work that draws attention to the actually-existing plurality and diversity of ASM tenure systems and institutional formations globally, the article nonetheless shares Hilson and Maconchie’s (2017) pragmatic stance: that the most politically sustainable way of addressing such informalities is to ensure that they are sensitively and progressively integrated into the over-arching (and pre-eminent) legal framework.

The article is organized as follows. Section 2 introduces the concept of formalization, examining its epistemological roots, rationalizations, and policy deployment. It then outlines some of the theorizations of informality and, in so doing, engages with some of the critiques of formalization. Section 3 then briefly explains the methods that were used, before Section 4 introduces the Guyanese context. This section stresses the unique historical circumstances that led Guyana to become such a comprehensively and (relatively) progressively formalized ASM environment. It finds that experiences thus far appear to broadly support the socio-economic arguments for attempting to introduce an accessible formal system.

In investigating how mining actually takes place on both State and Amerindian² Lands in Guyana, Section 5 then engages in a detailed examination of mining practices. In accordance

² In this article ‘Amerindian lands’ and ‘indigenous lands’ will be used interchangeably.

with emerging interest in ‘temporality’ as a theme in ASM scholarship (e.g D’Angelo & Pijpers (2018)), the analysis examines three temporally distinct ‘stages’ (or moments) of the mining cycle in turn: accessing land; producing the gold; and processing the minerals. In each stage, the drifts of small-scale gold mining activity in Guyana away from the legal ideal are documented. The section explores how divergences from legal form are being driven by a range of motivations and factors, including the desire for institutional flexibility, specific structural conditions (such as oppressive landlord-tenant relations), and by profit-driven opportunism. In examining informality across the temporal stages of the mining process, this section also examines the impacts of informality, and the steps that the Guyanese state has taken to address these impacts.

The article concludes in Section 6 by discussing the findings and evaluating them in terms of the literature on ASM and formality. In identifying the various drivers and impacts of informality at various stages of the mining process, it offers some lessons to policy makers about where they can focus their attention and resources in their ASM governance efforts.

2. Artisanal and small-scale gold mining sector reform and formalization

To harness the benefits of ASM and to manage better its negative impacts, formalization policies have increasingly been promoted (Spiegel 2012a). These have been broadly based on two sets of institutional structures: private mineral property rights and a supporting regulatory framework. Within formalization discourse, clearly-defined and stable private mineral property rights are the foundation upon which the newly conceived mining sector must be governed. As an International Labour Organization (ILO) (1999, p.4) report argued, “the simple awarding of titles and licences and making them transferable, renewable and long-lasting is the bedrock of viable legal small-scale mining activity”. For the miner, demarcation is considered essential to making extraction a profitable activity through the provision of an inalienable property right

(Siegel & Veiga 2009). It is also believed to enable access to credit and other forms of market-based assistance, as per the arguments of De Soto (2000). From an environmental perspective, rights are also believed to encourage investment and a more ‘sustainable’ use of the resource (Hinton et al. 2003). From a regulatory point of view, tenure clarification and security are considered essential in avoiding conflict between land users, something that is often precipitated by overlapping interests (Hilson 2002). It should also enable the state to maximize revenues by eliminating the illegal and untaxed activity that is taking place outside the formal framework (Huggins et al. 2017).

As well as bringing mining activity into private titles, supporters of formalization also acknowledge the need to introduce formal rules, regulations, and monitoring that will guide and guarantee good mining practices (Siwale & Siwale 2017). Indeed, Clausen et al. (2011, p. 19) argue that the existence of specific rules and guidelines can provide miners with “incentives to develop their claims in an environmentally, socially, and economically sustainable manner”. Rules and regulations may then involve bureaucratic requirements for obtaining mine licences, specific technical requirements for mine management, and procedures for selling gold to the state (Spiegel 2017).

As *enforcing* rules is considered the greatest challenge in ASM governance, the threat of severe censure is considered necessary in deterring infringements; enforcement must moreover be ensured through comprehensive state monitoring (Spiegel 2012b). As meeting these new standards effectively requires “turning an ASM operation into a sustainable and profitable industrial extractive unit” (Seccatore et al. 2014, p. 804), some acknowledge the need to help miners to acquire the technological capacity to meet new formalization requirements (Siwale & Siwale 2017). As this may come at a cost, Siegel and Veiga (2009, p. 51) argue that smaller miners should be ‘capitalized’ “in ways that permit them to move from transient artisanal mining” to more “sustainable small- and medium-scale mining.”

In line with these objectives, countries as diverse as Ghana, Cambodia, Indonesia, and Tanzania have developed and implemented property rights-based reforms, either constructing new institutional structures from scratch, or reforming existing tenure frameworks (Spiegel 2012a; Hilson & McQuilken 2014). A range of other supporting schemes have been promoted that have variously focused on: improving miners' access to finance so that they can invest in less polluting recovery technologies (Siwale & Siwale 2017); providing education to miners on 'best practices' (Spiegel 2012a); and organizing miners into groups in order to exploit economies of scale and niche markets (Childs 2014). States have correspondingly received donor financing to draft new laws and regulations, bolster their regulatory capacity, implement environmental projects such as land reclamation, and accede to international agreements aimed at improving mining sector governance, such as the Extractive Industries Transparency Initiative (EITI), the Kimberley Process, and the Minamata Convention on Mercury (Herbert & Bolton 2018).

2.1 Theorizations of formalization and informality

In attempting to explain why ASM activity is so often 'informal' or 'illegal' – often *in spite of* the existence of the kind of formal framework outlined above – analysts have offered a range of explanations. These variously blame the persistence of informality on: an absence of formal frameworks; inappropriate formal frameworks; weak enforcement; exclusionary formal frameworks; or broader structural conditions. As discussed below, each school of thought implies a different policy response.

2.1.1 An absence of formal frameworks

A number of scholars blame the persistence of informality in ASM landscapes – and thus the range of negativities associated with it – on a systematic policy failure to recognize and support the sector, both in its own right or as part of a diversified off-farm livelihood strategy (Hilson

& McQuilken 2014). This lack of attention leads to a lack of legal recognition, institutions, or policies to support the small-scale sector, meaning that small-scale miners have no option but to operate illegally by default (Siwale & Siwale 2017). While Clausen et al. (2011, p. 18) consider that there has been a relative increase in openness among donors to treating ASM as a potentially profitable economic sector, for them this nevertheless “differs significantly from the attitude of many developing governments”, who have continued to treat it as an “inherently criminal activity that should be suppressed by restrictive laws as far as possible”. Donor attention has meanwhile focused far more on mitigating the impacts (and maximizing the benefits) of large-scale mining projects, through ‘local content’ and ‘governance’ initiatives, rather than supporting ASM (Herbert & Bolton, 2018).

2.1.2 Inappropriate formal frameworks

Where ASM formalization *is* attempted, it may nonetheless have perverse effects by introducing processes and requirements that fail to respond to local cultural or socio-economic realities, leading miners to either ignore or evade (Hilson 2009). One area where formalization efforts have appeared particularly dissonant with local practices is where they have attempted to supplant pre-existing customary tenure formations, causing conflict between miners and the state where miners become criminalized (Nyame & Blocher 2010). This has led some to argue that, where such arrangements are favoured by ASM communities as they are considered more appropriate to their needs, these ‘informal’ governance arrangements should be allowed to *co-exist* alongside the state system, rather than being criminalized (Nyame & Blocher 2010; Van Bockstael 2014; Verbrugge 2015). Others, however, have argued that, the ultimate ‘superiority’ of the mining title in almost all jurisdictions globally means that efforts should be made to enfold such customary arrangements into the over-arching legal framework in order to minimize potential conflict and to guarantee the tenure security of such miners (Hilson & Maconachie 2017).

This suggestion chimes with thinking elsewhere in the natural resource governance literature, where a more flexible attitude to formality has been proposed. Cleaver (2017), for example, has persuasively argued that legal norms are in reality a dynamic process of negotiation rather than being a set of static rules. Ostrom et al. (1999) have previously argued that institutions are as much about shared understandings as they are about legal rules, and, as such, should be seen as subject to change over time. These broader perspectives ultimately suggest that there may be alternative approaches to conceptualizing and managing ‘informal’ ASM activity that move beyond the idea that any mining activity that infringes the rules of the ‘modern’ state should automatically – and unquestioningly – be criminalized. It also suggests that new formal institutional arrangements can be cooperatively worked towards.

2.1.3 Weak enforcement

As the state becomes the source of authority and the enforcer of rules within a formal ASM system, this places a significant burden on its resources (Banchirigah 2008). But with mining often taking place in remote and inaccessible areas, poorly-resourced states typically struggle to enforce formal institutions, giving free reign to illegal operators (Lowe 2006; Spiegel 2012b). As Hirons (2011, p. 352) observes of Guyana, the geographic remoteness of ASM communities presents a particular bureaucratic challenge; as he writes, “under-staffed, under-educated and under-funded regions within Guyana mean that any ASM policies will only succeed in a broader context of commitment to the interior.” Although mainstream analysts acknowledge the limitations of state capacity in minimizing informality, they often assume that resolving such issues is purely a question of increasing surveillance by bolstering officer numbers (e.g. CI-Guyana (2013) and IADB (2017)). By contrast, there is widespread documentation of complicity and collusion between miners and regulatory actors in the literature, with powerful actors regularly being allowed to circumvent official processes and evade rules and regulations (Spiegel 2009; Crawford & Botchwey 2017; Hund et al. 2017;

Peluso 2018). Such problems have long been observed in Guyana by official (GGMC 2015) and unofficial (Roopnarine 2002; Bulkan & Palmer 2016) sources.

2.1.4 Exclusionary formal frameworks

While informality may then be a result of non-existent, inappropriate, or ineffectively-enforced formalization frameworks, other scholars argue that the opposite may also be true: that excessively-restrictive formalization policies can also drive informal or illegal mining (Hilson & Maconachie 2017). For example, the inability of smaller-scale miners to access lands through formal processes due to expensive permits may drive increased illegal activity, with those frozen out resorting to mining outside official zones (Nyame & Blocher 2010). Where access to training or technology is dependent on being a formal property holder, those lacking the ability to acquire property may be driven to practising irresponsible mining, exacerbating further their likelihood of being criminalized (Siwale & Siwale 2017).

Even where formal property can be accessed, new formalization and regularization measures may discriminate against poorer land users, particularly those who were already being squeezed by restrictive structural conditions (Putzel et al. 2015). Clausen et al. (2011, p. 18), for example, highlight how “time-consuming licensing procedures, expensive licensing fees and elaborate environmental risk-assessment requirements” hinder miners’ participation in existing schemes. While the existence of such procedures tends to exclude smaller miners, it correspondingly favours the more powerful and educated miners who can satisfy complex technical requirements and use their power and influence to navigate the bureaucratic system (Spiegel et al. 2015; Spiegel 2017). Solutions for addressing exclusion-driven informality typically revolve around proposals to make the formal framework more accessible to smaller-scale miners, both by making entry requirements to the sector less onerous and providing

ongoing technical and financial support to miners who are within the sector (Hilson & McQuilken 2014; Siwale and Siwale, 2017).

2.1.5 Broader structural conditions

Beyond these *legalist* explanations for informality, others have recognized that informality may be being driven by broader structural conditions, such as class relationships with land owners (Verbrugge 2015; Bulkan & Palmer 2016), land and resource conflict (Geenen 2012), or declining state support (Siwale & Siwale 2017). Such factors may prevent miners from being able to practise the state-approved version of mining, despite possessing formal property.

These observations echo Ribot and Peluso's (2003, p. 165) argument that a realm of factors beyond the purely technical – such as “technology, capital, markets, knowledge, authority, social identities and social relations” – can shape natural resource users' ability to thrive, *even where legal rights have been secured*. Addressing these dimensions in order to minimize informal activity is then clearly a political problem, rather than a purely techno-institutional one (Verbrugge 2015).

3. Methods

In order to examine the contrasts between the legal norms of Guyana's gold mining sector and actual mining practices, a range of methods were used. These included conducting 143 semi-structured interviews with a diversity of different actors, the collection of multiple maps, texts, and Geographic Information Systems (GIS) layers, and the conducting of multiple site-based field visits to actual gold mining operations and Amerindian villages. Data was collected primarily between May 2016 and June 2017 in Guyana, both in Georgetown and across various sites in Guyana's mineral-rich hinterland.

Firstly, an extensive range of documentation – that included laws, regulations, and government and non-government reports on mining, land tenure, environmental projects, and Amerindian

issues – was gathered to establish the policy framework and to capture a range of commentaries on the sector. Much of the mining data were found in the Guyana Geology and Mines Commission (GGMC) library, while other documents were obtained at the National and University libraries.

The Stabroek News, Kaieteur News, Demerara Waves, and Guyana Chronicle archives were also used to search for historical stories and information about mining-related issues, and to track the course of national and local narratives on mining and reform. Spatial data were gathered from the government's Geospatial Information Management (GIM) Unit website³ and the Guyana Lands and Surveys Commission (GLSC). Quantitative mining data were gathered from publicly available data drawn from Annual GGMC reports and from a range of documents in the C. N. Barron library in Georgetown, Guyana.

In order to understand how mining actually took place it was necessary to conduct extensive site-based, ethnographic fieldwork in mining areas. This took place mainly on State Lands in Potaro Mining District and within Maicobie Amerindian village. During the site-based fieldwork, interviews were conducted with different types of miners, Amerindian villagers, businesspeople, and GGMC Mines Officers. These site-based interviews were triangulated with accounts of officials and other 'elite' commentators based in Georgetown.

4. How did Guyana's ASM gold sector become *formalized* in the first place?

4.1 Background

Commercial⁴ gold mining in Guyana is believed to have commenced around the mid-19th century, when a small number of adventurous miners known as 'pork knockers'⁵ began to

³ See <http://data.gim.gov.gy/>

⁴ Amerindians are believed to have mined gold earlier than this for exchange and jewellery (Ashman 2014).

⁵ An independent gold prospector, named after the original miners in Guyana who were famous for living off dried pork for long periods in the jungle.

increasingly brave Guyana's interior in search of gold and diamonds (Clifford 2011). These miners were largely composed of freed African slaves who, lacking savings or property, were drawn to the low capital-intensive nature of artisanal mining and the lure of an independent existence (Thomas 2009; Trotz & Roopnaraine 2009). As global demand for gold grew and the availability of technologies that had proven successful in the American West's own mining boom expanded, the British soon sought to get involved in this activity (Lowe 2003).

By 1893, gold production had reached 138,000 ounces (oz.) per year and by 1923 diamond production had reached 214,000 oz. carats, with much of this production coming from larger colonial firms. During this early period, the sector was already becoming heavily regulated, with the colonial administration crafting numerous ordinances and regulations. As well as aiming to maintain control over activity and maximize revenues, these regulations were also believed to have been aimed at limiting the ability of Guyanese to enter the mining sector – a process that for the British threatened their already-scarce labour pool for the sugar plantations (Lowe 2003).

Partly because of this deliberate sabotage and partly because the World Wars had drained British resources for investing in gold exploration, by Independence in 1966, the gold sector had stagnated, with output at a mere 3,045 oz (Lowe 2003). The newly-independent state tried to encourage gold mining activity by declaring vast new areas as 'mining districts', especially in the Mazaruni, Cuyuni, Barima, and Barama areas. But while river dredging activities did begin to expand in the 1970s, gold declarations remained very low, standing in 1984 at just 11,131 oz. (Lowe 2003). This poor performance during the 1970s and 1980s was attributed by some to President Burnham's heavily centralized state socialist experimentation that saw the monopoly buyer, the Guyana Gold Board (GGB), paying far below the market price for gold, driving many miners to smuggle gold out of the country (Bulkan 1998). This period in Guyana's history is considered by some to be significantly responsible for ushering in a new

illicit economic culture that still characterizes the fabric of Guyana's political economy today (Canterbury 2016).

Following Burnham's death in 1985, Guyana began to actively pursue and encourage foreign investment; began stripping back the public sector; and began reaching out to foreign donors and lenders following the collapse of all such relations under Burnham (Roopnarine 2000). Both the World Bank and International Monetary Fund (IMF) argued that Guyana's future economic success was ultimately dependent on increasing natural resource exports – stressing the potential of gold, diamonds, and timber (Colchester 1997). In 1988, Guyana introduced a new Investment Code which was considered one of the most liberal in the whole of South America, with few restrictions on foreign ownership. It also liberalized the role of the state's gold-buying agency, the GGB (Bridge 2002). Importantly, it also introduced a new Mining Act in 1989⁶ that would create significant new incentives for both and small and large-scale miners by increasing the permitted size and duration of all permits and introducing a permissive set of fees and fines (Bridge 2002). For Bulkan (1998), such measures had immediate effect, causing gold declarations and property applications to dramatically rise.

Despite these liberalizing reforms, the institutional structure (and its accompanying culture) retained its patriotic and socialist character, with the Mining Act allowing only Guyanese citizens to apply for mining permits – a deliberate move that has enabled the sector to retain a largely local and small-scale character (Hilson & Laing 2017a). It also retained strict controls on large-scale foreign investment, a measure whose effectiveness is evinced by the fact that, as of 2017, there were still only two large-scale foreign mining companies operating in the country⁷. This is then the set of circumstances that gave Guyana what is arguably the most

⁶ Mining Act Cap 65:01 of 1989.

⁷ Bulkan (1998) attributes this hostility to foreign investors to the ideological orientation of Guyana's main mining union, the Guyana Gold and Diamond Miners Association (GGDMA) – an attitude that could equally be attributed to economic self-interest.

comprehensively – and progressively – formalized ASM sector in the world (Hilson & Maconachie 2017).

4.2 Current context and legal framework

Today, as has been the case since the late 19th century, all subsurface minerals belong to the state, and miners can rent land located within one of the six State Mining Districts on a small, medium, or large-scale permit from the regulator, the GGMC – firstly to prospect, and then to mine – in order to extract the minerals in exchange for a tax and royalty⁸. As well as being permitted in Mining Districts on State Lands, mining can also take place within Mining Districts falling on Amerindian Lands (which comprise 15% of Guyana’s land area), although this process is much more strictly regulated and contentious (Hilson and Laing 2017b). To mine on a new property on Amerindian lands, the miner must first apply to the GGMC, and then have the permit approved by a two-thirds majority of the relevant Village Council. Across both contexts, the annual fee for a small-scale claim is only GY\$1,000 (US\$5), making commencing mining an affordable process⁹.

The scale of formal property occupation today is represented in Figures 1 and 2, with blue areas showing medium-scale prospecting permits (PPMS) (which can only be prospected), and red areas showing medium-scale mining permits (MP) on which mining can legally take place. What is striking about these maps is that they not only show how large a swath of Guyana’s land area has been locked up in mineral properties; they also illustrate the intensity of coverage. The area south-west of Bartica, in Figure 2, for example (which is represented by the yellow

⁸ Mining Act Cap 65:01 s7.

⁹ The process for mining on medium-scale properties is more complex and expensive. Medium-scale properties are initially rented from the GGMC as medium-scale prospecting permits (PPMSs). While as PPMSs, the rental fee is US\$0.25 per acre for the first year, rising by US\$0.10 each year. During this phase, miners are required to carry out extensive prospecting on the land before permission is granted (IADB 2015). After the property is converted to a mining permit (MP), the rental goes up to US\$1 per acre per year.

square in Figure 1), could certainly be said to evoke Ferguson's (2007, p. 72) description of private titles as resembling “ordered gridlike spaces”.

Figure 1: Medium-scale mineral property distribution in Guyana as of 2015

Source: GIS layers adapted by author from GGMC Geoserver. Accessed at <https://geoserver.ggmc.gov.gy/>

Figure 2: Medium-scale mineral property distribution west of Bartica as of 2015

Source: GIS layers adapted by author from GGMC Geoserver. Accessed at <https://geoserver.ggmc.gov.gy/>

The combination of Guyana's formalized system and the expansion in demand for properties has meant that it has one of the highest *formal* mining sector occupations in the Amazon region, with most of the country covered in 'in production' mining blocks. This is illustrated in Figure 3, where Guyana has been circled in red.

Figure 3: Map showing formal mineral property coverage in the Amazon

Source: Adapted by author from National Geographic

In addition to applying for a formal mineral property, a miner is obliged to pay GY\$1,000 (US\$5) to register each dredge¹⁰, GY\$1,000 to register each engine, GY\$1,000 to register an excavator or piece of earth-moving equipment, GY\$1,000 to register each worker, and GY\$100,000 (US\$500) for an environmental bond¹¹. Medium-scale property holders must also provide the GGMC with an Environmental Management Agreement, which covers 14 areas, such as tailings¹² management and mercury usage. They must also have a closure plan, and a contingency and emergency response plan. Once mining commences, a comprehensive set of

¹⁰ A dredge is a mechanized set-up for alluvial mining involving the use of hydraulic mining methods supplemented by a diesel-powered gravel pump that feeds a locally-constructed wooden sluice box.

¹¹ Mining (Amendment) Regulations No 3 of 2005 s226.

¹² The slushy waste material of the dredging process.

rules and regulations governs activity, specifying everything from the inspection requirements for tailings dams¹³, the types of safety equipment required when handling mercury¹⁴, the minimum distance mining is allowed to take place from the low water mark of a river bank¹⁵, and the percentage of gold required to be paid to Amerindian village councils if mining is taking place on their land¹⁶.

These rules are embodied not only in specific mining laws and regulations, but also across related laws, such as the Amerindian Act and the Protected Areas Act. Miners transgressing any of these rules risk being fined or having equipment confiscated by the GGMC, whose Mines Officers are charged with paying regular monitoring visits to operations across the country. While actively mining, the miner is obliged to keep an up-to-date production book, recording the amount of gold produced per ‘wash-down’¹⁷. The miner is required to pay 5% royalty on the gold sold to the GGB as well as a 2% tax to the government. Although the paperwork requirements are laborious, they are also inexpensive relative to the gold revenue derived from the mechanized dredging production system (Hilson & Maconachie 2017).

Overall, this combined legal structure of formal properties and relatively accessible administrative fees has led to undeniable employment creation and other indirect economic benefits in Guyana – in contrast to other Latin American countries where the prioritization of large-scale mining in the development of mining laws and regulations has contributed to a corresponding lack of local benefits (Hentschel et al. 2002). In Guyana, as many as 100,000 people (15% of the population) are believed to be benefitting directly or indirectly from the mining sector (IADB 2017). In total, in 2017, gold accounted for almost 60% of Guyana’s

¹³ Mining (Amendment) Regulations No 3 of 2005 r245.

¹⁴ Mining (Amendment) Regulations No 3 of 2005 r127.

¹⁵ Mining (Amendment) Regulations No 3 of 2005 r251

¹⁶ Amerindian Act 2006 Cap 29:01 s51 (1).

¹⁷ The process of extracting gold from the sluice box. It is typically carried out every few days.

export earnings and a quarter of its Gross Domestic Product (GDP) (Guyana Bureau of Statistics 2017).

5. How does gold mining *actually* take place in Guyana? Drifts towards informality across three stages of mining: accessing land, producing the gold, and processing the gold

5.1 Accessing mining land

5.1.1 State Lands

Although there has evidently been a formal system in place for accessing mining lands for many years (with some currently-held small-scale claims located as far back as the 1950s and medium-scale properties recorded and mapped using GIS data since the 1990s), in practice, mining properties have not generally been accessed by miners on State Lands in Guyana via the state. On the contrary, property access has typically been accessed through an informal ‘word of mouth’ arrangement that effectively represents a bypassing of the formal system. The reasons for the development and pervasiveness of this practice are not entirely clear but appear strongly related to the political-economic structure and culture of the mining sector. Indeed, before the wider economy experienced an up-turn during the 1990s, only a few businesspeople and successful miners in the country were able to invest in multiple properties, with poorer miners – who lacked the finances, discipline, or inclination to invest in properties – remaining content to pay landlords informally for a ‘position’ (a contract) on a property in exchange for a percentage of the gold (Bulkan & Palmer 2016). Although data is scarce, it is believed that it has long been the case that around three-quarters of miners and dredge owners have been landless and have operated essentially as tenants on others’ properties (Lowe 2006; Thomas 2009).

This ‘word of mouth’ nature of ‘getting a position’ typically benefitted both the landowner (who was free to break the contract, or vary its terms, at any time) and the dredge owner (who

was saved the inconvenience of going through the official application and registration channels that invariably involved expensive trips to Georgetown). Both parties could keep profits they were making secret from the regulator, leaving opportunities for under-declaration and smuggling. But while such an informal process was seen as uncontroversial, it appears that it was the effective normalization of this ‘tributor’ system¹⁸ as the sole remaining method of accessing land amidst rampant land competition in the 2000s that led it to becoming perceived as more problematic. Indeed, as the gold price rose in the 2000s (and as the mechanized method of land dredging became more common), a much more competitive atmosphere in the interior was ushered in. The rapid increase in demand for properties is illustrated in Figures 4 and 5, which show the expansion in demand for small-scale claims and medium-scale mining permits.

Figure 4: Total small-scale mining claims in Guyana vs world gold price¹⁹

Source: Adapted by author from GGMC Annual reports and kitco.com

¹⁸ The name for the route of land access by which a landless tenant miner (the ‘tributor’) acquires a place to work through a private landlord.

¹⁹ Gaps denote missing data.

Figure 5: Medium-scale mining permits in Guyana vs world gold price

Source: Adapted by author from GGMC Annual reports and kitco.com

Accompanying the rise in land demand was an intensification in the concentration and scale of control of mining lands by just a few individuals in Guyana, a phenomenon known as ‘landlordism’ (Bulkan & Palmer 2016). With as few as 50 Guyanese individuals owning and controlling access to 12,279 of the total 18,000 claims nationwide – more than half of all claims – and a similar number (and composition) of individuals owning and controlling access to around 60% of the medium-scale mining permits (1,719 out of 3,773), a minority of businesspeople suddenly controlled access to the majority of mining lands (GGMC 2015). Such a development had, paradoxically, been facilitated by the permissive formal framework that placed no limit on property accumulation (Bulkan & Palmer 2016). What it meant however was that the official route of land access for landless miners was now effectively closed off, with miners now dependent on the whims of land owners for permission to work. Moreover, as a mass of new miners entered the sector, facilitated by the availability of cheaper machinery, the erstwhile more personal nature of the arrangements between miners and land owners was transformed amidst a more ‘cut-throat’ business culture. Landlords began renting out their claims and permits to multiple tenants who would all compete for the property’s resources,

creating frequent conflicts when one operation found gold close to another. For the state, this began to present a regulatory challenge, with the lines of responsibility between the land owner and the miner(s) becoming increasingly confused.

Despite the benefits of the ‘tributor’ system, the lack of regulations governing it amidst this changing context was leading it to become a growing source of exploitation and conflict. One of the main allegations was that landlords were routinely using tenants as cheap prospectors, whose purpose was essentially reduced to finding gold on the landlord’s claim, only for them to be expelled when they found gold, leaving the landlord free to move their own equipment onto the property. Afraid of being thrown off from the land, miners began to conceal the amount of gold they were making, further driving conflict and insecurity. For Bulkan and Palmer (2016, p. 683), these forms of exploitation were partly a result of the fact that the Mining Regulations (1972) concerning landlords (rentiers) and tenants (contractors) did “not impose any technical obligations on either the rentier or the contractor and afforded no security of tenure to the contractor”. Recognizing the pervasiveness and popularity of the ‘word of mouth’ arrangements between landowners and miners, but cognizant of the fact that it had become a source of abuse, exploitation, conflict, and violence in the interior, the GGMC sought to regularize the process in 2012. As IADB (2015) notes:

The Mining (Amendment) Regulation 2012 seeks to regulate further the relationship between claim holder and renter by recognizing renters as “independent contractors”, providing for written agreements between parties, prohibiting a renter from making agreements with two claim holders simultaneously for the same gold producing equipment, and providing that the claim holder shall not interfere with the work of the renter; and management and responsibility in exploration, mining and quarrying.

As part of this newly-regularized process, the landowner, dredge owner, and Commissioner of the GGMC are all supposed to sign an official contract outlining the terms of operation.

According to Mines Officers, such a process is now widely-understood as the legal norm, even if not completely adhered to. Indeed, despite the regularization of the landlord-tenant relationship, many miners reported during fieldwork in 2017 that landlords often still refused to be bound to written contracts, instead preferring to allow the miner – at the prospecting stage – to come onto the land under a ‘word of mouth’ agreement. This puts landless tenant-miners in a weak and vulnerable position vis-à-vis the landowner, as a GGMC officer explains:

Landlords encourage miners to break the law... work without documents... because they want to help them, or because they want to put them in a situation where they can exploit them... With no paperwork they can be accused of raiding if anything goes wrong²⁰

This insecurity and stress of being thrown off from the claim they are working on meanwhile drives many miners to try to evade the official system altogether, resorting to ‘raiding’ in order to bypass the landlord-controlled system (Kaieteur News 2016). Mines Officers in Mahdia confirmed that ‘raiding’ is now one of their biggest concerns and dealing with related land conflict is one of the greatest current drains on their resources. In 2017, the state attempted to address this situation by introducing a ‘syndicate’ avenue of land access for landless miners (Stabroek News 2017). Such a policy enables groups of landless miners to access and work on land as a group and has been widely seen as a measure intended to help miners circumvent the landlord route of accessing land. The emergence of this policy illustrates again the flexible approach to land governance that the state has employed in Guyana – in this case responding to smaller miners' claims of injustice to open up an additional route of formal land access.

5.1.2 Amerindian Lands

While Section 4.2 indicated that there is a legal process for commencing mining on indigenous lands, in practice – and as with accessing mining properties on State Lands – an informal

²⁰ Interview, government official, 11th November 2016.

system has also evolved in this context, partly through a misunderstanding of the laws but mainly served by the needs of both villagers and miners for a flexible process. Despite being strictly illegal, this process is being tacitly permitted by the GGMC, which recognizes the co-benefits of the system, while being wary of criticisms that it is enabling degradation in Amerindian communities. Today, mining is believed to be occurring on almost every Amerindian village in Guyana²¹ (Hennessy 2015). This section will examine the history and texture of this process through the lens of one Amerindian village in Guyana: Maicobie, in Region 8.

Although frequently overlooked in both indigenous activism and policy narratives, Maicobie is an example of one of the many Amerindian villages in Guyana that has got deeply into mining. Although this participation has become more structured and conscious in recent years, it began as a result of the village's geographical proximity to mining activity, as illustrated in Figure 6. Maicobie has been the site of significant river and land mining since the 1960s, and as land dredging became more popular in the 1990s, the village began to receive requests from outside miners for permission to mine on their land.

²¹ One village, Jawalla, in Upper Mazaruni, was said to have had over 80 dredges operating within its titled land as of April 2017, controlled exclusively, and illegally, by villagers, but permitted by GGMC. Another village, Isseneru, featured on the GGB Top 100 producers for 2015, having registered itself with the GGMC as an official gold producer (IADB 2015).

Figure 6: Map highlighting Maicobie's location within Guyana's mineral landscape as of 2015. Orange blocks represent mineral properties; pink blocks represent Amerindian titled lands.

Source: GIS layers adapted by author using QGIS from data downloaded from Guyana GIM Unit portal. Accessed at <http://data.gim.gov.gy/>

Although critics argue that these relationships were exploitative, villagers would often receive financial compensation and supply labour in cooperative arrangements (Bulkan 1998). At that time, Maicobie villagers themselves were not heavily into mining within the village, with the majority of the male villagers tending to travel outside to a ‘workground’ in Blackwater, Tiger Creek, or further afield. This is a practice that was further catalysed in the 1990s by the proximity of the village to the Omai Gold Mine, which, according to Bulkan (1998) was the destination for many Amerindian men from all over the country. According to some villagers, the reluctance to become dredge owners was due to a lack of prior entrepreneurial experience and the perception that owning machinery was a risk – indeed, most Amerindians prefer the flexibility of working on someone else’s claim, and they are generally the most sought-after workers due to the perception that they are the most hardworking ethnic group (Colchester 1997).

However, at the encouragement of a local East Indian businessman who had married into the village – and stimulated by the rising gold price – more and more Maicobie villagers began acquiring their own dredges in the mid-2000s and began operating them within the village in activity that continues up until the present day. In addition, the Village Council continued to

invite ‘outsiders’ onto the land in return for a fee, or ‘tribute’, of around 10% of gold production. At its peak, in 2013, there were, according to villagers, around 45 dredges operating in the village, and the monthly high of (recorded) gold production was around 90 oz. At the time of fieldwork for this article in 2017 these amounts had fallen to around 15 dredges and only around two or three oz. per month, with the majority of these dredges now being operated by outsiders who pay the Village Council a tribute. According to villagers, the cheaper Chinese machinery that they had acquired quickly broke down, and easily available – as in, shallower – mineral reserves that such 4-inch²² dredges could extract became exhausted.

The paradox here is that *all* of this described mining activity is in strict contravention of the mining laws. According to the Amerindian Act, because Amerindian titled villages do not own the sub-surface land rights in their villages (which reside in the state) they are only permitted to practise (non-mechanized) ‘subsistence’ mining, on their land²³. Anyone – villager or otherwise – wishing to practise mechanized land dredging must do so only within a mineral property that has been granted by the state²⁴. As *new* small-scale claims cannot be staked on titled indigenous lands, prospective miners (either Amerindian or non-Amerindian) would have to apply to the GGMC for a *medium-scale* prospecting permit and convert it to a mining permit, which would in addition need to be sanctioned to by two-thirds of the Village Council²⁵. In reality, however, the vast majority of Amerindians in Guyana are practising – or allowing – land dredging on their village lands. This is because Village Councils generally assume (wrongly) that their Absolute Grant allows them to mine discretionarily ‘within the village’, and to invite outsiders onto the land in exchange for a tribute.

²² The ‘inch’ measurement refers to the diameter of the pipe that sucks up the gold-bearing gravel and sand from the mining pit. The greater the diameter of pipe and the more powerful the engine, the greater the amount of material that can be passed over the sluice box, and – theoretically – the greater the velocity of gold extraction. In general, the 4-inch dredge, which is the smallest size used in Guyana, is used by poorer miners to mine shallower deposits.

²³ According to the Amerindian Act 2006 Cap 29:01 s52, Amerindians may exercise a “traditional mining privilege”, meaning they can carry out “artisanal mining” or “subsistence” – i.e. non-mechanized – mining.

²⁴ According to Amerindian Act Cap 29:01 s52.

²⁵ Amerindian Act Cap 29:01 s48.

This misunderstanding appears to stem from the fact that the Amerindian Act explicitly outlines a process through which the Village Council can extract a tribute from outsider miners²⁶. However, what is little understood is that this only applies to *new* official applicants and companies. Pre-existing legal claim holders have no obligation to pay the village a tribute, and those who the Village Council has arbitrarily invited onto village land have no legal right to be there. The confusion has been compounded by the GGMC, which has tacitly endorsed a process of permitting villagers and invited outsiders to mine within titled village lands provided they are mining according to the regulations and their paperwork is in order. This means that though Amerindians do not have *de jure* rights to claim tributes, they have effectively acquired *de facto* rights (Bulkan 2011). This echoes the experiences on State Lands, where the informal practice of ‘tributing’ was initially allowed by the GGMC while it appeared to serve the interests of miners and land owners.

Although the GGMC is often criticized for overlooking such contraventions of the laws, in this example, however, it seems that the practice of allowing mining to continue within villages has been done with some goodwill. Indeed, the GGMC tolerates it in order to enable communities to benefit from activity that the GGMC knows to be their only real source of income. In the meantime, the upshot of this is that there are currently hundreds of illegal mechanized mining operations working within indigenous lands across Guyana. While a senior GGMC official admitted that they were aware of how widespread such activity is, for the moment they appear to be tolerating it²⁷. This means having to accept occasionally problematic instances where careless practices on illegal operations are the source of conflict or disaster. One such incident occurred a few days before fieldwork for this article in Maicobie, when a miner died after a pit wall collapsed on one of the illegal operations from which the village was receiving a tribute

²⁶ Amerindian Act 2006 Cap 29:01 s51 states that “A miner shall pay the Village tribute of at least 7% of the value of any minerals obtained from Village lands from small or medium-scale mining.”

²⁷ Personal communication, government official, 8th July 2017.

(Stabroek News 2017). Although at the time the GGMC blamed the village and shut down the operation, it kept quiet about the legality of the operation in question. The operation apparently re-commenced a few days later.

5.2 Producing the gold: Evasion, opportunism, and state integrity

While the process of accessing mining lands on both State and Amerindian Lands has then typically diverged from the idealized legal forms – divergences that have been variously addressed by the state – there is similar evidence of legal divergence in the way that mining is actually practised. These transgressions range from the more benign, such as failures to keep up-to-date records of gold production, to the more serious, such as failures to use a retort when handling mercury or to prepare properly a tailings dam or pond. Such practices are not confined to either State or Amerindian Lands, but can occur on both, with the consequences of transgressions that result in environmental degradation, for example, often much worse for Amerindians who, unlike miners, are spatially-bound to a titled area of land: miners can simply move somewhere else (Hennessy 2015)

The scale of these ‘illegal’ mining practices is however difficult to estimate, for several reasons. Foremost is the lack of GGMC capacity to comprehensively monitor activities in real-time. Despite improvements in spatial monitoring capacities in recent years (thanks to funding from the Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme), human resource capacity within the GGMC is still minimal. With only around 90 officers monitoring at least 4,000 licensed dredges (at of the time of writing) spread across 83,000 square miles of thick forest, it appears inevitable that many transgressions will simply not be reached or recorded (Clifford 2011). However, while officials today acknowledge that *some* illegal activity still goes unmonitored due to its geographic remoteness and inaccessibility,

what data are made available nonetheless indicate that ‘illegal’ operations (those that are shut down each year) only represent around 12% of total operations²⁸.

These *relatively* low estimates of illegal mining activity (especially when compared with commonly cited figures suggesting that around 80% of ASM activity globally is informal²⁹) do however sit awkwardly with both anecdotal accounts of miners’ routine transgressions and the emerging empirical evidence of environmental degradation in Guyana’s landscape – a reality conveyed by Figure 7. Indeed, although GGMC monitoring capacity and logistics have been strengthened since the IHRC (2007) conducted fieldwork in 2005, it nonetheless estimated that, at that time, while there were 1,500 officially registered dredges in Guyana, there may have been as many as 9,000 *unregistered* dredges operating. This therefore casts doubt over official accounts. Moreover, the recent publicization³⁰ by civil society groups such as the Guyana Human Rights Association (GHRA) of the massive scale of environmental damage caused by the illegal mining of rivers and riverbanks suggests that the extent of illegal and informal practices over a number of years may be far greater than that reflected by the GGMC’s own data. While the majority of rivers in Guyana are now considered to be ecologically ‘dead’ (with the GHRA (2017) claiming in 2017 that the Puruni River was in “a ruinous mess of tailings and devastation”), there have also been growing concerns about the widespread effects of mercury pollution on riverine and indigenous communities (Guyana Chronicle 2017).

²⁸ These estimates are based on GGMC monitoring reports for 2016 that recorded the number of operations that were shut down (otherwise known as being given ‘Cease Work Orders’) out of the total that were monitored.

²⁹ Such as claimed in International Labour Organization (1999) and IISD (2017a). Veiga et al. 2014 moreover claim that only 1% of ASM operators may be formalized in some Latin American regions.

³⁰ See GHRA (2017).

Figure 7: A photo of degradation to river banks and areas along the Potaro River in 2017

Source: Stabroek News

But if Guyana's mining institutions are so relatively accessible, what is driving such frequent lapses in legal practice? And if official accounts only report a minority of operations being shut down each year, what explains the vast ecological degradation? A common answer to both of these questions is corruption. Although corruption is ubiquitously associated with the ASM sector in general and with the GGMC in particular, the exact practices constituting corruption in the field are somewhat opaque – partly because researching corruption is such a difficult and (often) dangerous occupation (Boekhout van Solinge 2014). However, according to the research conducted in Potaro for this article, the main mechanism of corruption is the selective enforcement of rules, according to which officers monitoring an operation will find an abuse of the regulations – either administrative or environmental – but will overlook it in exchange for a reward, typically an amount of gold.

The amount of gold requested by officers reportedly varies, depending on rumours about the productivity of the land, the severity of the offence, or even factors such as the season (Mines Officers are apparently more demanding as Christmas approaches). One miner suggested that

Mines Officers, like everyone in the interior, are attracted to gold, and that the larger the amount an operation is making, the greater the scrutiny the Officer will put the operation under. As one miner explained:

If you gotta 20-inch dredge and you're only producing 2 pennyweight a year... nobody comes to ask why this 20-inch dredge is only producing 2 pennyweight of gold... But if you've got a 4-inch pump and you're producing 100 ounce... Everybody comes to ask you: "Tell me something... Where is the 100 ounce you're producing? Where is your toilet? You got anywhere to put your bin? These trees too close to your camp!"³¹

These findings reflect those of one prior study³² which found that there was "a standard bribe of one ounce of gold to get a Mines Officer to ignore a tailings dumping problem" – a significant amount considering that a Mines Officer is only earning around GY\$100,000 (US\$500) per month and that, as of 2017 one ounce of gold was worth around US\$1,300. A miner questioned in Mahdia was unsurprised at the suggestion of pervasive miner-officer corruption, exclaiming that "99% of wardens are corrupt!"³³. If such a quip turned out to be anything like accurate, the entire official picture of the state of the mining sector may be called into doubt, evoking Mosse's (1999, p. 45) observation of official policies as virtual "Baudrillardian simulacra."

Another form of corruption witnessed during fieldwork was where Mines Officers forge relations with illegal miners and give them prior warning of monitoring or enforcement visits. When accompanying some GGMC officers on an enforcement visit to an illegal operation in Potaro, for example, it was discovered that a GGMC officer had already warned the illegal miners in advance of the GGMC visit, most likely in return for a pay-off, enabling them to move their machinery away from the area in time. Over a period of time, the ubiquity of such

³¹ Interview, miner, 19th May 2017.

³² See IHRC (2007, p.13).

³³ Interview, miner, 29th November 2016. Here 'warden' is slang for Mines Officer.

abuses has contributed to the erosion of respect for officers and the GGMC and a decline in willingness to take rules seriously. From this perspective, it is then difficult to escape the conclusion that the majority of mining activity probably takes place under only part-legal conditions whereby most operations are formalized (i.e. taking place within formal properties), but actual mining practices are invariably transgressing the formal rules in some way, enabled by corrupt officers (e.g. Van Bockstael 2014).

There are however different ways of understanding corruption that go beyond the simple ‘opportunism’ narrative. As the mining community is so close-knit in Guyana, Mines Officers will often know many of the miners personally, having built up relationships over many years of sharing time together in the interior. Officers’ monitoring activities are also often highly dependent on the hospitality and cooperation of hinterland communities, and friendships may overpower the strict need to enforce rules. Moreover, Officers may not want to punish small operators for a mere administrative error if they see they are already struggling to comply with rules in the context of the challenging structural conditions related to landlord-tenant contracts that were discussed in Section 5.1.

These are all particularly pertinent issues at present in Guyana, where long-established (but weakly-enforced) regularization measures are now being enforced with more strictness, threatening the viability of a large number of smaller operators who may no longer be able to remain in the sector (Kaieteur News 2017a). Indeed, as one official remarked, if the letter of the law was to be followed, probably “95% of operations would be closed down”³⁴. Cumulatively, however, such leniency has further contributed to environmental problems, with miners not taking regulations seriously. As a GGMC Mines Officer conceded:

³⁴ Interview, government official, 14th December 2016.

You need to send a message that we're serious about enforcement... by seizing operations, moving to the courts... minor offences are currently being overlooked because of bribery or sympathy, like... a lack of papers or an unregistered dredge not being punished... The mining system is regularized in Guyana, but there is poor enforcement... and rules only tend to exist on paper³⁵

5.3 Processing and selling the gold

Once the gold has been extracted from the sub-surface in Guyana it is supposed to be sold to either the GGB or a licensed private dealer, as outlined in Section 4. However, as with the other stages of mining in Guyana, there is evidence that, in many cases, this temporal stage is also characterized by relatively widespread informality. This takes the form of both under-declaration and smuggling, which may be intimately interrelated (Roopnarine 2006; Bulkan & Palmer 2016). Under-declaring is simply the practice whereby mining operations 'under-declare' what they have extracted, selling only a fraction of their gold output through the official channels, while selling the rest to illicit intermediaries who may pay a higher rate. Smuggling takes the form of transporting the gold out of Guyana illicitly, to be sold or traded elsewhere. Due to economies of scale, smuggling is believed to be carried out by larger-scale networks who smuggle gold in bulk, across land, sea, and air borders. According to discussions with miners during fieldwork, Brazilian miners may be significant 'mid-sized' players in smuggling activity, as it is relatively easy for them to exploit pre-existing connections and logistical networks across the border. Although this robs the Guyanese state of revenue, these activities nonetheless benefit Guyanese labourers, as Brazilians tend to pay higher wages as a result.

³⁵ Interview, government official, 11th December 2016.

As with other forms of corruption in Guyana, the scale of such illicit practices is difficult to estimate. In 2015, the United States Federal Bureau of Investigation (FBI) suggested that more than half of Guyana's gold (around 15,000 oz. per week) was being smuggled out through Brazil, Suriname, Europe, and Canada by a high-level smuggling network that had ties with top-ranking politicians and other illicit activities such as money laundering and human trafficking (INews Guyana 2016; Global Initiative 2016; Stabroek News 2018). This would have meant that Guyana was potentially losing around US\$40m per year in lost gold taxes and royalties on US\$500m worth of smuggled exports (Kaieteur News 2015).

One of the chief motivations for smuggling gold out of Guyana relates to the fact that the royalty rates for the selling of gold in other jurisdictions are lower: for example, the rate is 1.5% in Brazil and 2.5% in Suriname, compared with Guyana's rate of 5% (Reuters 2017; IISD 2017b). Due to the relatively significant wealth of many of those who have been found guilty of smuggling, it however seems inappropriate to invoke the 'legalist' definition of informality to attempt to explain these phenomena. On the contrary, these more recent instances appear to represent cases of more straightforward opportunistic (and profit-motivated) state-miner corruption (e.g. Robbins 2000; Kolstad & Søreide 2009; Crawford & Botchwey 2017). As such, these expressions of informality arguably contrast with smuggling that took place during cooperative socialism in the 1970s in Guyana that was caused by the uncompetitive gold-buying rates that the GGB was offering. It also appears distinct from the smuggling that was observed in the 1990s in Guyana by the World Bank (1993, p. 47), when it estimated that as much as three-quarters of Guyana's gold production was undeclared as producers "under-report their production to avoid paying royalties and taxes, and because of practical difficulties attached to selling gold legally in Georgetown."

Despite the persistent allegations of under-declarations, it should however be emphasized that Guyana enjoys relatively high gold declarations when contrasted with the minimal declarations

from earlier times. It also receives a steady contribution (around three-quarters) from smaller producers³⁶. Although it is also likely that higher declarations are a consequence of higher gold prices, higher declarations do somewhat support ‘legalist’ arguments that link an accessible institutional environment with adherence to the rules (Hilson & Maconachie 2017). It therefore seems likely that the more generous regulatory regime, a wider availability of gold sellers, and more effective state monitoring and surveillance are together ensuring that declarations are higher today than in the past.

Nonetheless, there is clearly still a serious issue of lost revenue to address and the state’s approach to dealing with smuggling has shifted in recent years. Having spent twenty-three years in opposition criticizing the governance performance of the People’s Progressive Party/Civic (PPP/C), the new ‘A Partnership for National Unity (APNU)’-led coalition administration that took office in May 2015 put fighting corruption at the forefront of its policy agenda (Demerara Waves 2016). In the mining sector, since 2015, there have been a flurry of firings and arrests within the GGB, the replacement of Managers within the GGMC, and arrests of miners allegedly involved in smuggling and tax evasion (GINA 2017; Kaieteur News 2017b). According to the government’s own interpretations, these actions (which were carried out in cooperation with the United States government) had immediate success, with a record total of 700,000 oz. being sold to the GGB in 2016 (Guyana Chronicle 2016).

At the lower levels, the state has taken a contradictory approach that may yet prove to be counter-productive. Indeed, in order to raise revenues, in 2017 a new transaction tax on selling gold to the GGB was introduced (set at around US\$12 per oz. sold), and further proposed taxes on labourers and increases in the environmental bond have also been mooted (INews 2015; Demerara Waves 2017). The generous nature of the gold processing and selling regime is

³⁶ Analysis conducted by the author based on gold declaration data shared by the GGB revealed that, while the top 100 small and medium-scale gold producers (out of a total of 2,259 declarers for 2016) accounted for 141,341 oz. (or 28.3%) of the total 500,000 oz. declared, the remaining 2,159 producers still accounted for 358,869 oz. (or 71.7%) of total declarations.

therefore under threat, and it remains to be seen what impact these measures will have on long-term gold declarations.

6. Discussion and conclusion: Drivers, impacts, and policy approaches for dealing with informality

The relatively established and comprehensive nature of formalization in Guyana's ASM sector – as well as the availability of a wide range of spatial and quantitative data on the sector – have enabled a valuable appraisal of the dynamics of small-scale gold mining in this formalized context. The findings from the preceding analysis of actual gold mining practices across the different temporal stages of gold mining in Guyana have illustrated that, as with many other ASM contexts, there is a tendency for ASM activity to be 'fluid', continually testing and over-spilling the legal frameworks that have been designed to contain it (Van Bockstael 2014; Peluso 2018).

In Guyana, these expressions of informality take the form of: discretionary land access arrangements; transgressions of mining regulations; and gold smuggling. This final section will discuss the drivers and impacts of ASM informality in Guyana and will examine the policy approaches that Guyana has taken. In so doing, it aims to make contributions to both academic and policy debates on ASM and informality – while also linking these debates to emerging discussions on the importance of recognizing the concept of 'temporality' in ASM scholarship (e.g. D'Angelo & Pijpers (2018)). A summary of Section 6 is displayed in Figure 8, which illustrates the expressions, drivers, and impacts of informality – as well as their policy responses – that are specific to the various temporal stages of the mining process.

Figure 8: Summary of expressions, drivers, impacts, and approaches for dealing with informality across the three stages of mining in Guyana

Stage of mining	Accessing land	Gold production	Processing the gold
Object of analysis			
Expression of informality	<ul style="list-style-type: none"> • Emergence of discretionary land access arrangements 	<ul style="list-style-type: none"> • Transgressions of mining regulations 	<ul style="list-style-type: none"> • Gold smuggling • Under-declaration
Driver of informality	<ul style="list-style-type: none"> • Lack of flexibility in pre-existing formal framework • Lack of access to land through official route 	<ul style="list-style-type: none"> • Opportunism • Poverty 	<ul style="list-style-type: none"> • Opportunism
Impact of informality	<ul style="list-style-type: none"> • Conflict between miners, land owners, and the state • Exploitation of poorer miners 	<ul style="list-style-type: none"> • Environmental degradation • Undermining credibility of regulator 	<ul style="list-style-type: none"> • Loss in government revenue
Policy approach	<ul style="list-style-type: none"> • State formalization of informal practices • State provision of alternative land access route for excluded miners 	<ul style="list-style-type: none"> • Greater enforcement efforts • Stricter rules and regulations 	<ul style="list-style-type: none"> • Foreign-aided clamp-down on smuggling • New taxes

Source: Author

6.1 Drivers of informality

With respect to drivers of informality, the article showed that mining is forever veering into ‘informality’ or ‘illegality’ in Guyana – as defined by the rules and regulations – in spite of a comprehensive and progressive formal framework. However, while prohibitive formal frameworks have often been blamed for ‘creating informality’ by driving miners to transgress rules that are impossible to follow (e.g. Van Bockstael 2014), in Guyana’s case it does not appear that prohibitive institutional rules are *purely* responsible for ‘creating informality’ in this way (Hilson & Maconachie 2017). Indeed, it was rather observed that drifts to informality in Guyana have their origins in a more complex set of motivations and dynamics.

In the practices of accessing mining land on both State and Amerindian Lands, for example, it was seen that informal land access routes evolved organically, and that new relationships between land owners and tenant-miners and indigenous villages and miners were cooperatively formed. These expressions of informality arose because the pre-existing institutions were not sufficiently flexible for the needs of the sectors’ actors – who otherwise sought to re-shape

resource governance in their own interests. These experiences mirror those observed in other contexts, where informal tenure arrangements were seen to evolve in line with both pre-existing cultural norms and the political-economic interests of local elites (Van Bockstael 2014; Peluso 2018; Cortés-McPherson 2019).

Other expressions of informality in the land access process, however, appear less cooperative – instead rooted in more structural causes (e.g. Van Bockstael 2014; Verbrugge 2015). On State lands, for example, many miners have increasingly been driven to ‘raid’ on others’ properties due to land being ‘locked up’ by large land owners (Bulkan & Palmer 2016). This dynamic illustrates a form of ‘market-mediated’ exclusion, whereby informality has been ‘created’ – not necessarily by restrictive legal norms but through the engineering of artificial land scarcity by a class of land owners (e.g. Hall et al. 2011; Verbrugge 2015).

During the stage of mining itself, miners were meanwhile seen to routinely enter into informal (but illicit) arrangements with Mines Officers who were effectively legitimating their illegal practices. These activities appear to be rooted more in opportunism than poverty-driven necessity, as most ASM participants engage in mechanized (and moderately profitable) land dredging (Clifford 2011). It is worth pointing out however that lax enforcement over a number of years may have actually played an important role in enabling many poorer operators to remain in the sector even though they may have been technically unable to fulfil legal requirements (IHRC 2007; Clifford 2011; Bulkan & Palmer 2016). Petty corruption may have therefore masked the actual economic *untenability* of ASM in Guyana (as observed by Van Bockstael (2014) of ASM in Liberia).

At the gold processing stage, it was seen that informal trading networks have emerged, partly driven by differentials in royalty prices between jurisdictions, but also enabled by high-level miner-state complicity. As many of the actors engaging in these activities are wealthy, it again

seems appropriate to characterize these activities more as profit-driven “opportunism” rather than poverty-driven survivalism (as Crawford & Botchwey (2017, p. 458) observed of similar deal-making between Chinese miners and Ghanaian officials). Smaller-scale miners in Guyana may nevertheless be benefitting from the opportunity to sell their gold at a higher rate to an illicit intermediary.

6.2 *The impacts of informality*

Having recognized that the motivations and drivers of informality are diverse, how may we then ascertain which expressions of informality are qualitatively *worse* than others – and thus are more pressing policy concerns? Here, it may be useful to consider debates over both the temporality of ASM practices (D’Angelo & Pijpers 2018) and debates over institutional form and function (Ho 2018). For example, it could be argued that the examples of informality emerging during the stage of accessing land in Guyana are more benign than those emerging during gold production and processing. Indeed, during the land access stage, it was seen that, although actors’ attempts to acquire property outside the official channels were sometimes a source of conflict (e.g. in the case of ‘raiding’ by those miners who were unable to acquire or access formal properties), many of the new pathways of land access that emerged did not fundamentally undermine the *function* of the mining tenure institutions, which exist to ensure the distribution of land for mining.

These examples however contrast with the expressions of informality evident during the mining production stage, where miners’ regulatory transgressions (that were being enabled by unscrupulous Mines Officers) were increasingly blamed for worsening environmental conditions. This is because it is not only the *form* of the institution that is being distorted; its *function* – in managing the negative externalities of mining in such a way that does not impinge negatively on communities or the environment – is also being fundamentally undermined (Ho

2018). From this perspective, the bribes being paid to Mines Officers in return for overlooking illegality could be seen ultimately as a form of environmental rent that has underwritten degradation by enabling the continuation of mining activity that should not have been able to continue (Pearce 2003). The same could be said of the expressions of informality that emerged around the illicit selling and trading of gold. In this case, the fundamental *function* of the mining institutions in governing mineral resources in the public interest is being undermined, robbing the state and citizens of potential tax revenue and undermining the sovereignty of the state (Kinyondo & Huggins 2018).

6.3 '*Dealing with*' informality

Finally, what can we learn about 'dealing with' expressions of informality in ASM landscapes from the Guyanese state's approaches to managing the above-mentioned phenomena? With respect to responding to emerging informality around land access processes, we can observe that the state has played a generally progressive role in variously formalizing informal practices that appear to be efficient and popular, while also reforming informal practices that appear to be drivers of conflict or exploitation. On State Lands, for example, the state responded to evidence that the informal practice of 'tributing' had become exploitative amidst heightened competition by regularizing the activity, thus illustrating how a formal system is both mutable and dynamic (Côte & Korf 2018). In inadvertently entrenching a situation of extreme land inequality and giving rise to new exclusion-driven informality (as discussed in Bulkan and Palmer (2016)), the state again amended the formal framework by introducing a new avenue for excluded miners to gain formal land access: the syndicate policy. Although some disgruntlement and low-level conflict among still-excluded miners persists, the state has been largely successful in stemming land-related disquiet.

On Amerindian Lands, the strictly illegal practice of ‘tributing’ (according to which both indigenous and non-indigenous miners pay indigenous villages in exchange for permission to mine on their lands) was shown to be a popular norm that emerged partly from a misunderstanding of the laws. Recognizing its popularity, in practice, the state has generally allowed these arrangements to persist, provided mining actors adhere approximately to the regulations. Although formalizing such practices would be an effective way of minimizing future conflicts, it would be politically difficult due to the contentiousness that surrounds mining in Amerindian villages (Hilson & Laing 2017b).

Overall, these examples again illustrate how novel and locally-responsive forms of governance are constantly emerging within ASM landscapes (Peluso 2018). They also support Hilson et al.’s (2017, p. 83) contention: that “‘mining titling’ for ASM must be a flexible and empowering process, responding to the heterogeneity” of local contexts. While clearly not suggesting that formal institutions are irrelevant, these examples nonetheless challenge the assumptions that institutions are fixed and static and that ‘illegal’ or ‘informal’ mining activity is *necessarily* ‘bad’, ‘disorganized’, and requiring criminalization (Jønsson & Fold 2011; Côte & Korf 2018). On the contrary, these examples underline how shared normative understandings (and *perceptions* of legitimacy) among different actors (in this case, between villagers, miners, and Mines Officers) may be as important an element in resource management strategies as techno-legal institutions (e.g. Schlager & Ostrom 1992; Ostrom et al 1999).

Finally, these examples also reinforce Cleaver’s (2017, p. 95) argument: that natural resource governance should be seen more as institutional ‘DIY’ than ‘engineering’ or ‘design’, and institutions themselves should not be seen as static, fixed entities but rather as a *process* entailing both a “constant renegotiation of norms” and a “reinvention of tradition.” In this regard, the state in Guyana – to its credit – has played its role in the co-production and ongoing re-negotiation of these norms and institutions. It should however be recognized that Guyana is

able to deal with these cases more swiftly and efficiently than others due to the relatively comprehensive and centralized control that the modern state exerts over the tenure and mineral frameworks (Lowe 2003). Such a case contrasts strongly with a country such as Ghana, for example, where as much as 80% of the territory is held under multiple customary tenure authorities, meaning that negotiating mineral rights is a far more complex, contentious, and laborious process (Nyame & Blocher 2010).

There are evidently limitations to trusting the state to adjudicate and act on informality in the ASM world, however – especially where it is evident that the state itself is complicit in overlooking activities that are contributing to various social and environmental ‘bads’. On the one hand, the new government *has* been able to pursue a more pro-active stance since 2015 in breaking up gold smuggling rings and bolstering the GGMC’s monitoring capacity, not least because the patronage networks connected to the former PPP/C regime that were resistant to such measures lost some of their influence (Bulkan & Palmer 2016). On the other hand, the ‘worst’ impacts of informality in Guyana are arguably problems that the state is relatively poorly-placed to deal with. For example, transgressions in environmental practices are still being enabled by the state’s own Mines Officers and high-level corruption is allegedly still being facilitated (or overlooked) by state actors or agencies. It may be no coincidence that, from a temporal perspective, these most egregious problems are mainly concentrated on the gold mining and processing stages, where the production and monetization of gold generates immediate (and tangible) new temptations for a range of actors (Geenen 2018). In such instances, the political and economic interests of the powerful overwhelm ecological or social concerns, making policy remediation through technocratic approaches a challenge.

Going forward in Guyana, these latter issues are pressing as, with mining regulations set to become even stricter with Guyana’s formal adoption of the Minamata Convention on Mercury by 2025, it appears that miners will imminently be put under even more pressure to meet rising

standards (Kaieteur News 2017b). This will in turn inevitably place further pressure on Mines Officers (via the state) to enforce new rules, while also putting further pressure on Mines Officers (via miners) to continue allowing miners to transgress rules. This tension suggests that civil society groups and researchers may have an important role to play in building a better picture of: a) how mining actually takes place; and, more importantly, b) in highlighting when (and why) divergences from institutional form become problematic.

References

- D'Angelo, L. and Pijpers, R.J., 2018. Mining temporalities: an overview. *The Extractive Industries and Society*, 5(2), pp.215-222.
- Ashman, I., 2014. How “Small” Is Small-Scale Gold Mining? *International Pollution Issues*. Available at: <https://intlpollution.commons.gc.cuny.edu/how-small-is-small-scale-gold-mining/> [Accessed January 11, 2018].
- Banchirigah, S.M., 2008. Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots. *Resources Policy*, 33(1), pp.29–38.
- Boekhout van Solinge, T., 2014. Researching illegal logging and deforestation. *Journal of Crime, Criminal Law and Criminal Justice*, 3(2), pp.35-48.
- Bridge, G., 2002. Grounding Globalization: The Prospects and Perils of Linking Economic Processes of Globalization to Environmental Outcomes. *Economic Geography*, 78(3), p.361.
- Bulkan, J., 1998. Impact of the Gold Industry on the Indigenous Peoples of Guyana. In D. Canterbury, ed. *Transitions (Special Issue 27-28)*. Institute of Development Studies, Faculty of Social Sciences, Guyana, pp. 71–96.
- Bulkan, J. & Palmer, J., 2016. Rentier nation: Landlordism, patronage and power in Guyana’s gold mining sector. *Extractive Industries and Society*, 3(3), pp.676–689.
- Canterbury, D.C., 2016. Natural resources extraction and politics in Guyana. *Extractive Industries and Society*, 3(3), pp.690–702.
- Childs, J., 2014. A new means of governing artisanal and small-scale mining? Fairtrade gold and development in Tanzania. *Resources Policy*, 41(1), pp.128–136.
- CI-Guyana., 2013. Guyana’s Extractive Industry Sector (EIS). Georgetown: Conservation International Guyana. Available at: http://awsassets.panda.org/downloads/extractive_industries_sector_final_report_1.pdf

[Accessed July 4, 2017]

- Clausen, F., Barreto, M. & Attaran, A., 2011. Property Rights Theory and the Reform of Artisanal and Small-Scale Mining in Developing Countries. *Journal of Politics and Law*, 4(1), pp.15–26.
- Cleaver, F., 2017. *Development through bricolage: rethinking institutions for natural resource management*. London: Routledge.
- Clifford, M.J., 2011. Pork knocking in the land of many waters: Artisanal and small-scale mining (ASM) in Guyana. *Resources Policy*, 36(4), pp.354–362.
- Colchester, M., 1997. *Guyana fragile frontier: loggers, miners and forest peoples*, Latin America Bureau.
- Cortés-McPherson, D., 2019. Expansion of small-scale gold mining in Madre de Dios: ‘capital interests’ and the emergence of a new elite of entrepreneurs in the Peruvian Amazon. *The Extractive Industries and Society*.
- Côte, M. & Korf, B., 2018. Making concessions: Extractive enclaves, entangled capitalism and regulative pluralism at the gold mining frontier in Burkina Faso. *World Development*, 101, pp.466–476.
- Crawford, G. & Botchwey, G., 2017. Conflict, collusion and corruption in small-scale gold mining: Chinese miners and the state in Ghana. *Commonwealth & Comparative Politics*, 55(4), pp.444–470.
- Demerara Waves, 2016. “Corruption in Guyana is most widespread outside of government”- Pres. Granger. *Demerara Waves*. Available at: <http://demerarawaves.com/2016/05/29/corruption-in-guyana-is-most-widespread-outside-of-government-pres-granger/> [Accessed January 18, 2018].
- Demerara Waves, 2017. Transaction fee for gold sold directly to Guyana Gold Board. *Demerara Waves*. Available at: <http://demerarawaves.com/2017/07/19/transaction-fee->

- for-gold-sold-directly-to-guyana-gold-board/ Accessed: January 18, 2018]
- Ferguson, J., 2007. Formalities of Poverty: Thinking about Social Assistance in Neoliberal South Africa. *African Studies Review*, 50(02), pp.71–86.
- Geenen, S., 2012. A dangerous bet: The challenges of formalizing artisanal mining in the Democratic Republic of Congo. *Resources Policy*, 37(3), pp.322–330.
- Geenen, S., 2018. Underground dreams. Uncertainty, risk and anticipation in the gold production network. *Geoforum*, 91, pp.30-38.
- GGMC, 2015. *Inception Report: Management and Systems Review*. Georgetown: Guyana Geology and Mines Commission.
- GHRA, 2017. *Guyana's rivers remain a battleground between present and future*. Press release. Georgetown: Guyana Human Rights Association.
- GINA, 2017. Employees fired as investigation launched into Guyana Gold Board scam – DPI. *GINA*. Available at: <http://gina.gov.gy/employees-fired-as-investigation-launched-into-guyana-gold-board-scam/> [Accessed January 17, 2018].
- Global Initiative, 2016. *Organized Crime and Illegal Gold Mining in Latin America*. Available at: https://arcominero.infoamazonia.org/GIATOC-OC_Illegally-Mined-Gold-in-Latin-America-3c3f978eef80083bdd8780d7c5a21f1e.pdf [Accessed January 28 2019]
- Guyana Bureau of Statistics, 2017. *Guyana National Accounts Data 2017*. Georgetown: Guyana Bureau of Statistics.
- Guyana Chronicle, 2016. Gold tops 700,000 ozs. *Guyana Chronicle*. Available at: <http://guyanachronicle.com/2016/12/31/gold-tops-700000-ozs> [Accessed January 9, 2018].
- Guyana Chronicle, 2017. Babies at Micobie born with deformities. *Guyana Chronicle*. Available at: <http://guyanachronicle.com/2017/09/18/babies-micobie-born-deformities> [Accessed June 20, 2018].

- Hall, D., P. Hirsch, and T. Li. 2011. *Powers of exclusion: Land dilemmas in Southeast Asia*. Honolulu: University of Hawai'i Press.
- Hennessy, L.A., 2015. Where there is no company: indigenous peoples, sustainability, and the challenges of mid-stream mining reforms in Guyana's small-scale gold sector. *New Political Economy*, 20(1), pp.126–153.
- Hentschel, T., Hruschka, F. & Priester, M., 2002. *Global Report on Artisanal & Small-Scale Mining*, International Institute for Environment and Development (IIED).
- Herbert, S. & Bolton, L. 2018. *Donor activity in the extractives sector*. K4D Helpdesk Reports, Brighton, UK: Institute of Development Studies. Available at https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/13589/Donor_activity_in_the_extractives_sector.pdf?sequence=1&isAllowed=y [Accessed April 4, 2018].
- Hilson, G., 2002. An overview of land use conflicts in mining communities. *Land Use Policy*, 19(1), pp.65–73.
- Hilson, G., 2007. What is wrong with the Global Support Facility for small-scale mining? *Progress in Development Studies*, 7(3), pp.235–249.
- Hilson, G., 2008. “Fair trade gold”: Antecedents, prospects and challenges. *Geoforum*, 39(1), pp.386–400.
- Hilson, G., 2009. Small-scale mining, poverty and economic development in sub-Saharan Africa: An overview. *Resources Policy*, 34(1–2), pp.1–5.
- Hilson, G. & Laing, T., 2017a. Guyana Gold: A Unique Resource Curse? *Journal of Development Studies*, 53(2), pp.229–248.
- Hilson, G. & Laing, T., 2017b. Gold mining, indigenous land claims and conflict in Guyana's hinterland. *Journal of Rural Studies*, 50, pp.172–187.
- Hilson, G. & Maconachie, R., 2017. Formalising artisanal and small-scale mining: insights, contestations and clarifications. *Area*, 49(4), pp.443–451.

- Hilson, G. & McQuilken, J., 2014. Four decades of support for artisanal and small-scale mining in sub-Saharan Africa: A critical review. *Extractive Industries and Society*, 1(1), pp.104–118.
- Hilson, G., Hilson, A., Maconachie, R., McQuilken, J. & Goumandakoye, H., 2017. Artisanal and small-scale mining (ASM) in sub-Saharan Africa: Re-conceptualizing formalization and ‘illegal’ activity. *Geoforum*, 83, pp.80–90.
- Hinton, J.J., Veiga, M.M. & Veiga, A.T.C., 2003. Clean artisanal gold mining: A utopian approach? *Journal of Cleaner Production*, 11(2), pp.99–115.
- Hirons, M., 2011. Managing artisanal and small-scale mining in forest areas: Perspectives from a poststructural political ecology. *Geographical Journal*, 177(4), pp.347–356.
- Ho, P., 2018. Institutional function versus form: The evolutionary credibility of land, housing and natural resources. *Land Use Policy*, 75, pp.642–650.
- Huggins, C., Buss, D. & Rutherford, B., 2017. A “cartography of concern”: Place-making practices and gender in the artisanal mining sector in Africa. *Geoforum*, 83, pp.142–152.
- Hund, K., Schure, J. & van der Goes, A., 2017. Extractive industries in forest landscapes: options for synergy with REDD+ and development of standards in the Democratic Republic of Congo. *Resources Policy*, 54(April), pp.97–108.
- IADB, 2015. *Analysis of the Small and Medium Scale Mining Industry in Guyana: Challenges and Needs*. Washington DC: Inter-American Development Bank.
- IADB, 2017. *Toward the Greening of the Gold Mining Sector in Guyana: Transition Issues and Challenges*. Washington DC: Inter-American Development Bank.
- IHRC, 2007. *All that glitters: Gold mining in Guyana. The failure of government oversight and the human rights of Amerindian communities*. Cambridge: Harvard Law School.
- Available at: http://hrp.law.harvard.edu/wp-content/uploads/2013/02/959_file_AllThatGlitters_FINAL_.pdf [Accessed May 7,

2017].

IISD, 2017a. Global Trends in Artisanal and Small-Scale Mining (ASM): A review of key numbers and issues. Winnipeg: IISD. Available at: <https://www.iisd.org/sites/default/files/publications/igf-asm-global-trends.pdf> [Accessed July 18, 2018]

IISD, 2017b. IGF Mining Policy Framework Assessment: Suriname. Ottawa: International Institute for Sustainable Development. Available at: <https://www.iisd.org/sites/default/files/publications/suriname-mining-policy-framework-assessment-en.pdf> [Accessed January 18, 2018]

INews Guyana, 2015. Miners to face increased environmental bond. *INews Guyana*. Available at: <http://www.inewsguyana.com/miners-to-face-increased-environmental-bond/> [Accessed January 18, 2018].

INews Guyana, 2016. Close to 60% of Guyana's gold smuggled overseas – Trotman. *INews Guyana*. Available at: <http://www.inewsguyana.com/close-to-60-of-guyanas-gold-smuggled-overseas-trotman/> [Accessed January 8, 2018].

International Labour Organization (ILO), 1999. *Small-scale gold mining: Examples from Bolivia, Philippines & Zimbabwe*. Geneva: International Labour Organization.

Jønsson, J.B. and Fold, N., 2011. Mining 'from below': Taking Africa's artisanal miners seriously. *Geography Compass*, 5(7), pp.479-493.

Kaieteur News, 2015. Gold royalties will be reduced. *Kaieteur News Online*. Available at: <https://www.kaieteurnews.com/2015/09/16/corruption-in-the-mining-sectorroyalties-and-taxes-will-be-reformed-pres-granger/> [Accessed January 18, 2018]

Kaieteur News, 2016. Raiding, finding mercury alternatives stymieing mining operations – GGDMA. *Kaieteur News Online*. Available at: <https://www.kaieteurnews.com/2016/09/25/raiding-finding-mercury-alternatives->

stymieing-mining-operations-ggdma/ [Accessed January 17, 2018].

Kaieteur News, 2017a. Miners demand meeting with Govt. on pending tax measures – Kaieteur News. *Kaieteur News Online*. Available at: <https://www.kaieteurnews.com/2017/01/09/miners-demand-meeting-with-govt-on-pending-tax-measures/> [Accessed January 18, 2018].

Kaieteur News, 2017b. The meaning of Minamata for Guyana. *Kaieteur News Online*. Available at: <https://www.kaieteurnews.com/2017/10/08/the-meaning-of-minamata-for-guyana/> [Accessed January 18, 2018]

Kinyondo, A. and Huggins, C., 2018. Resource nationalism in Tanzania: Implications for artisanal and small-scale mining. *The Extractive Industries and Society*, 6(1), pp. 181-189.

Kolstad, I. and Søreide, T., 2009. Corruption in natural resource management: Implications for policy makers. *Resources Policy*, 34(4), pp.214-226.

Lanzano, C., 2018. Gold digging and the politics of time: Changing timescapes of artisanal mining in West Africa. *The Extractive Industries and Society*, 5(2), pp.253-259.

Lowe, S., 2003. *Historical Analysis of Mining Policy, Law, and Administration in Guyana: 1831-2002*, Pavnik Press.

Lowe, S., 2006. *Situation Analysis of the Small-Scale Gold Mining Sector*. Georgetown: WWF-Guianas.

Maconachie, R. & Hilson, G., 2011. Safeguarding livelihoods or exacerbating poverty? Artisanal mining and formalization in West Africa. *Natural Resources Forum*, 35(4), pp.293–303.

Mosse, 1999. The Making and Marketing of Participatory. In A. K. Giri & P. Q. van Ufford, eds. *The Participation Reader*. Routledge London, pp. 1–41.

Nyame, F.K. & Blocher, J., 2010. Influence of land tenure practices on artisanal mining activity in Ghana. *Resources Policy*, 35(1), pp.47–53.

- Ostrom, E., Burger, J., Field, C.B., Norgaard, R.B. and Policansky, D., 1999. Revisiting the commons: local lessons, global challenges. *Science*, 284(5412), pp.278-282.
- Pearce, D., 2003. Environmentally harmful subsidies: barriers to sustainable development. *Environmentally Harmful Subsidies: Policy Issues and Challenges*. Paris: OECD, pp.9–32.
- Peluso, N.L., 2018. Entangled Territories in Small-Scale Gold Mining Frontiers: Labor Practices, Property, and Secrets in Indonesian Gold Country. *World Development*, 101, pp.400–416.
- Putzel, L. et al., 2015. Formalization as Development in Land and Natural Resource Policy. *Society & Natural Resources*, 28(5), pp.453–472.
- Reuters, 2017. Brazil's Congress approves higher mining royalties. *Reuters*. Available at: <https://www.reuters.com/article/brazil-mining-regulation/update-3-brazils-congress-approves-higher-mining-royalties-idUSL1N1NS0KJ> [Accessed January 18, 2018]
- Ribot, J.C. and Peluso, N.L., 2003. A theory of access. *Rural sociology*, 68(2), pp.153-181.
- Robbins, P., 2000. The rotten institution: corruption in natural resource management. *Political Geography*, 19(4), pp.423-443.
- Roopnarine, L., 2000. Politics, economics and environmental policy in Guyana, 1966-1999. *The Journal of Caribbean History*, 34(1&2), pp.178–217.
- Roopnarine, L., 2002. Wounding Guyana: Gold Mining and Environmental Degradation. *European Review of Latin American and Caribbean Studies*, 73(73), pp.83–91.
- Roopnarine, L., 2006. Small-scale gold mining and environmental policy challenges in Guyana: protection or pollution. *Canadian Journal of Latin American and Caribbean Studies*, 31(61), pp.115-143.
- Schlager, E. & Ostrom, E., 1992. Property-rights regimes and natural resources: a conceptual analysis property-rights regimes and natural resources. *Land Economics*, 68(3), pp.249–

262.

- Seccatore, J., Marin, T., De Tomi, G. & Veiga, M., 2014. A practical approach for the management of resources and reserves in Small-Scale Mining. *Journal of Cleaner Production*, 84, pp.803-808.
- Siegel, S. & Veiga, M.M., 2009. Artisanal and small-scale mining as an extralegal economy: De Soto and the redefinition of “formalization.” *Resources Policy*, 34(1–2), pp.51–56.
- Siwale, A. & Siwale, T., 2017. Has the promise of formalizing artisanal and small-scale mining (ASM) failed? The case of Zambia. *Extractive Industries and Society*, 4(1), pp.191–201.
- Soto, de. H. 2000. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. New York: Basic.
- Spiegel, S.J., 2009. Resource policies and small-scale gold mining in Zimbabwe. *Resources Policy*, 34(1–2), pp.39–44.
- Spiegel, S.J., 2012a. *Formalisation policies, informal resource sectors and the de-/re-centralisation of power Geographies of inequality in Africa and Asia*. CIFOR.
- Spiegel, S.J., 2012b. Governance Institutions, Resource Rights Regimes, and the Informal Mining Sector: Regulatory Complexities in Indonesia. *World Development*, 40(1), pp.189–205.
- Spiegel, S.J., 2017. EIAs, power and political ecology: Situating resource struggles and the techno-politics of small-scale mining. *Geoforum*, 87(November), pp.95–107.
- Spiegel, S.J., Keane, S., Metcalf, S. & Veiga, M.M., 2015. Implications of the Minamata Convention on Mercury for informal gold mining in Sub-Saharan Africa: from global policy debates to grassroots implementation? *Environment, development and sustainability*, 17(4), pp.765-785.
- Stabroek News, 2017. Gold mining syndicates. Available at: <https://www.stabroeknews.com/2017/business/business-editorials/09/22/gold-mining->

syndicates/ [Accessed January 11, 2018].

Stabroek News, 2018. Illegal gold mining in hemisphere more profitable than drugs – report.

Stabroek News. Available at:
<https://www.stabroeknews.com/2018/business/07/27/illegal-gold-mining-in-hemisphere-more-profitable-than-drugs-report/> [Accessed January 28 2019]

Thomas, C.Y., 2009. *Too Big to Fail: A Scoping Study of The Small and Medium Scale Gold and Diamond Mining Industry in Guyana*, Institute of Development Studies, Faculty of Social Sciences, Guyana.

Trotz, D.A. & Roopnaraine, T., 2009. Angles of vision from the coast and hinterland. In: N.L. Whitehead, N.L. and S.W. Alem, eds., *Anthropologies of Guayana: cultural spaces in northeastern Amazonia*. Tuscon: University of Arizona Press, pp.235-254.

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

Veiga, M.M., Angeloci-Santos, G. & Meech, J.A., 2014. Review of barriers to reduce mercury use in artisanal gold mining. *The Extractive Industries and Society*, 1(2), pp.351–361.

Verbrugge, B., 2015. The Economic Logic of Persistent Informality: Artisanal and Small-Scale Mining in the Southern Philippines. *Development and Change*, 46(5), pp.1023–1046.

World Bank, 1993. *Guyana: Private Sector Development*. Report No. 11 705-GUA. Available at: <http://documents.worldbank.org/curated/en/586731468255877403/pdf/multi-page.pdf> [Accessed October 22, 2018].