The multidimensionality of exclusion in the small-scale gold mining sector in Guyana: institutional reform, landlordism, and mineral uncertainty

Article (Published Version)

Hook, Andrew (2019) The multidimensionality of exclusion in the small-scale gold mining sector in Guyana: institutional reform, landlordism, and mineral uncertainty. *World Development*, 123. a104607 1-16. ISSN 0305-750X

This version is available from Sussex Research Online: <http://sro.sussex.ac.uk/id/eprint/85086/>

This document is made available in accordance with publisher policies and may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher's version. Please see the URL above for details on accessing the published version.

Copyright and reuse:

Sussex Research Online is a digital repository of the research output of the University.

Copyright and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable, the material made available in SRO has been checked for eligibility before being made available.

Copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

**The multidimensionality of exclusion in the small-scale gold mining sector in Guyana:
institutional reform, landlordism, and mineral uncertainty**

Andrew Hook

Science Policy Research Unit (SPRU), University of Sussex Business School, University of
Sussex

Jubilee Building, Room 366, Falmer, East Sussex, BN1 9SL

Phone: +44 7943 382093, Email: a.hook@sussex.ac.uk

Acknowledgements: Thanks to the Environmental Protection Agency (EPA) of Guyana for assistance with research permits. Also, thanks to the Guyana Geology and Mines Commission (GGMC) who assisted with logistics in the Potaro and Mazaruni Mining Districts and with access to the Guyana Mining School and Training Institute (GMSTI) and to geospatial data through the Guyana Geospatial Information Management (GIM) Unit. Thanks also to three anonymous reviewers for their very helpful comments on earlier versions of this manuscript. This research was conducted with the assistance of an Economic and Social Research Council (ESRC) Studentship.

Declarations of interest: none

Abstract:

Proponents of formalization argue that bringing artisanal and small-scale mining (ASM) into the legal sphere represents the best way of enabling social and economic development. Critics counter that formalization policies can be a source of exclusion for smaller producers, as new properties become difficult and expensive to access, and new regulatory standards prove beyond the technical and financial capacity of smaller operators. Guyana's long-formalized ASM gold-mining sector offers a useful lens through which to examine these arguments. This article finds that Guyana's relatively established and egalitarian ASM sector has become the site of various complex exclusionary dynamics. On the one hand, the impacts of increasingly restrictive state-led forms appear to support contentions about how formal mining environments tend towards the exclusion of smaller operators. On the other hand, evidence shows that it is not merely state policies that are responsible for exclusion, but further social and ecological factors, such as landlord-tenant relations and the depth and scarcity of mineral deposits. Overall, these findings offer new perspectives on ASM dynamics within formalized institutional environments. They suggest that understanding exclusion can be aided by adopting an analytical lens capable of capturing the complex interactions between a range of social and ecological phenomena.

Key words: Small-scale gold mining; formalization; political ecology; exclusion; South America; Guyana

1. Introduction

In August 2017, a large coalition of gold miners in Guyana announced that it would be boycotting the annual Mining Week events, the typically genial celebration of the sector that draws government and industry figures together (Stabroek News 2017a). The coalition whose actions contributed to the eventual cancellation of Mining Week events comprised those protesting various issues. Some were a mix of miners contesting the abrupt introduction of new tax and regularization measures. Others were smaller-scale miners angry at the slow progress being made on syndicates (the government's new flagship policy for dealing with land access issues). Others were registering their discontent more generally at the continued lack of support for the sector. As well as threatening socio-political stability, the break-down in relations also had environmental implications: miners' resentment at the lack of state engagement with their various grievances led many to begin wilfully evading rules and regulations (Demerara Waves 2017).

For proponents of policy agendas aimed at bringing economic activities such as artisanal and small-scale (ASM)¹ into the legal sphere – agendas known as 'formalization' – such tensions and frictions in Guyana may come as a surprise. After all, Guyana's gold mining sector has been widely praised for its relative accessibility, especially for smaller-scale operators (Bulkan & Palmer 2016; Hilson & Maconachie 2017). Moreover, the early and comprehensive formalization of the sector has contributed to several decades of stability and growth that has generated direct and indirect employment and other economic benefits (Lowe 2006; Thomas 2009). These benefits stand in contrast to many other ASM sectors globally, which have been

---

¹ Although the term 'artisanal and small-scale mining' (or, 'ASM') is used throughout this article, the term is somewhat inapplicable in Guyana's case as the majority of mining in Guyana is mechanized. Indeed, the term used locally in Guyana is 'small and medium scale mining'. See discussion of this issue of 'scale' in ASM in Ashman (2014)).

characterized by a range of negative social, political, economic, and environmental factors – and minimal benefits for poorer actors (Crawford et al. 2016; Brain 2017; Pokorny et al. 2019). A closer look at the patterns and dynamics of the sector in Guyana within this article, however, will help to explain the rising discontent (especially among smaller-scale operators) and growing instability. The illumination of these dynamics will in turn contribute insights to several important current debates in the critical mining literature on ASM, both in Guyana and beyond. These include debates on: (i) how green (and other) policy directives may squeeze smaller-scale operators out of the sector; (ii) how a *laissez-faire* attitude to property acquisition by the state may inadvertently facilitate elite control of the mineral property market; and (iii) how policy interventions aimed at supporting the inclusion of smaller-scale miners may be limited in the context of harder-to-access and diminishing gold deposits.

In terms of the first debate outlined above, Guyana offers an opportunity to examine how global environmental agendas interact with institutional ASM frameworks to shape conditions for poorer miners. This is because Guyana is an active participant in several major global environmental programmes (including Reducing Emissions from Deforestation and Forest Degradation (REDD+) and the Minamata Convention on Mercury). Bersaglio and Cleaver (2018, p. 275) have proposed that the tendency for environmentally-oriented policy agendas to disadvantage poorer miners could be considered as a “green squeeze” (e.g. Brockington & Ponte 2015). The notion that institutional mining reforms disadvantage miners also connects to a broader ASM literature that has explored the role of governance measures in contributing to poorer miners’ exclusion (e.g. Fisher 2007; Maconachie & Hilson 2011; Geenen 2012). However, thus far, ASM scholarship is yet to widely examine how specifically *environmentally-oriented* policy directives may disadvantage small-scale miners (cf. Hirons 2011). This present article thus offers an opportunity to bring together an analysis of environmental policy discourses, ASM practices, and social and economic justice.

Moving beyond purely ‘institutional’ explanations of exclusion, however, this article also builds on existing analyses of class relationships between landowners and tenant miners in gold mining sectors as an oppressive force for smaller-scale miners. While class formation and articulation within ASM sectors has been explicitly analysed elsewhere on regional or sub-national scales (e.g. Verbrugge 2015; Verbrugge & Besmanos 2016; Peluso 2017, 2018; Lahiri-Dutt 2018), Guyana’s small population and comprehensively-formalized mining system enables a view of how an elite has been able to exert a far more comprehensive level of class control. The extensive availability and accessibility of mining property and Geographical Information Systems (GIS) data moreover enables a dramatic presentation of the extent of this control. This builds on a body of work that has similarly employed GIS data to explore socio-political conflict in mining sectors (Spiegel et al. 2012; Bebbington et al. 2014; Mitchell 2016). Developing the analysis of socio-political exclusion further, the article also explores notions of *market-mediated* exclusion, as per Hall et al.’s (2011) concept of ‘everyday’ exclusion.

Although several other studies have examined debates around landlordism and mining reform in Guyana (Lowe 2006; Thomas 2009; Bulkan & Palmer 2016), they have not engaged in detailed ethnographic study of how patterns of land inequality and property concentration are shaping experiences and outcomes for poorer miners on the ground. They have also not explored the complex interactions between social and ecological factors (such as mineral location and scarcity) that shape smaller-scale miners’ land access and mining opportunities (e.g. Malpeli & Chirico 2013; Spiegel 2014; Salman 2016; Geenen 2018; Lanzano 2018). In aiming to build a comprehensive picture of exclusion within Guyana’s ASM sector, this article thus addresses these existing gaps in the literature.

The article begins in Section 2 by summarizing the theoretical rationales for ASM formalization policies and adumbrating three salient critiques of the agenda, from institutional,

socio-political, and socio-ecological perspectives. Section 3 outlines the conceptual and methodological approach taken in this article, stressing the strength of an analysis that recognizes complex interactions between social and ecological dimensions across scales and temporalities. Section 4 introduces the Guyanese small-scale gold mining context before the article then examines different types of exclusion within the ASM sector in Guyana. In turns, it focuses on institution-based exclusion (Section 5), socio-political exclusion (Section 6), and socio-ecological exclusion (Section 7). It concludes in Section 8 by summarizing the *multi-dimensional* nature of exclusion, and reflecting on how the types of exclusion identified interact with other social dimensions, such as ethnicity and gender.

2. Drivers of exclusion in the small-scale gold mining sector

Artisanal and small-scale mining (ASM) reforms for gold mining sectors in the Global South have invariably taken the form of formalization-centred agendas aimed at bringing illegal mining activity into the formal sector, while redefining the terms and parameters of legal mining activity (Siegel & Veiga 2009; Spiegel 2012; Siwale & Siwale 2017). The dominant rationalization for formalization is underwritten by a so-called ‘legalist’ epistemology that argues that “most social and environmental problems associated with the sector stem from the fact that ASM is predominantly unregulated and operates outside the legal sphere” (Maconachie & Hilson 2011, p. 293). According to this logic (which invokes de Soto’s (2000) thesis on informality and development), the lack of formal structures denies the miner the requisite tenure security to be able to invest in their business or access credit. For the regulator, it makes monitoring more difficult, denies the state tax revenue, and can be a source of conflict. Although improved environmental practice in ASM has sometimes been seen as a mere ancillary benefit of greater formalization, it has risen to prominence as a primary motivation for reform in recent years (Masson et al. 2013). Indeed, the text of the Minamata clause on a

mercury phase-out implies that formalization will be synonymous with better environmental management of mercury (Spiegel et al. 2015).

Institutional theories of exclusion and their limits

A growing body of work in critical mining studies has nevertheless argued that installing or enforcing a formal system can often disadvantage certain groups and individuals, while favouring others (Fisher 2007; Maconachie & Hilson 2011; Geenen 2012; Spiegel 2012). Certain groups or classes of miners may, for example, be unable to access property within a newly-established (or recently-reformed) formal system. High barriers to entry may exist for smaller-scale miners, with property application fees and technical requirements only within the reach of larger-scale miners (Siwale & Siwale 2017). In such cases, pre-existing inequality and exclusion may be effectively reinforced or legitimated by the state through the process of formalization (Hall et al. 2011; Geenen 2012).

Those holding communal or customary land titles may meanwhile not be recognized by the state, denying them the right to participate in formal mining (Huggins et al. 2017). Alternatively, there could simply be a shortage of land, leaving no ‘space’ left for smaller-scale miners to practise ‘responsible’ mining. Spiegel (2016), for example, highlights how conflicting state aims in Cambodia led the government to pursue a mining strategy that saw the majority of mining lands given out to large-scale foreign prospectors and miners, making it difficult for small-scale miners to access lands. Access to land may also be obstructed by policy directives, such as emerging green rationalities. For example, Hirons (2011) has shown in his study on REDD+ in Ghana how efforts to ‘lock in’ carbon in line with REDD+ policy objectives are harming miners’ access to mining lands, threatening their livelihoods. Tschakert (2016, p. 123) has meanwhile shown how discourses of ‘vilification’ are often used to

rationalize the exclusion of ASM operators from the landscape, constructing miners as, for example, “environmental criminals enmeshed in spheres of illegality”.

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 amidst neoliberalism (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 formal schemes. While the existence of such procedures tends to exclude smaller-scale miners, it correspondingly favours the more powerful and educated miners who can satisfy complex technical environmental requirements (Spiegel et al. 2015; Spiegel 2017). Where rules and regulations are too burdensome to follow, it may drive miners to mine illegally, a logic termed by Hilson et al. (2017) as the ‘legalist’ explanation of informality.

But while these institution- centred critiques have focused on the processes through which installing and enforcing formal institutions effectively contributes to the exclusion of poorer miners from the sector, others have argued that it is also necessary to focus on the role of broader *structural* factors in shaping miners’ predicaments (Hirons 2011; Verbrugge 2015; Peluso 2017, 2018; Siwale & Siwale 2017; Geenen 2018). These critiques chime with Ribot and Peluso’s (2003, p. 165) argument that a realm of factors *beyond* the purely technical or institutional – 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. In attempting to understand these dynamics, it may be therefore fruitful to draw on socio-political theories of exclusion from agrarian political economy (e.g. Hall et al.

2011) and socio-ecological theories that engage with the geological dimensions of mining (e.g. Hinton et al. 2003; Seccatore & de Theije 2017).

Socio-political theories of exclusion

In this former vein, Verbrugge's (2015) and Peluso's (2018) work on Indonesia and Geenen and Claessens's (2016) work on the Democratic Republic of Congo are useful points of departure. Such work after all explores processes through which capital and property accumulation by *local* (as opposed to transnational) elites contributes to processes of social differentiation that create new sources of exclusion for poorer classes of miners. These studies variously examine how shadowy state-miner collusion and strong-armed processes of territorialisation leave some miners without land, while drawing others into highly burdensome relationships of dependency with landowners and other mining sector actors. Alternatively, where land access is contingent on political patronage, it inevitably discriminates against those who lack these connections (Verbrugge et al. 2015; Hilson et al. 2017).

It is important, however, to also examine how exclusion is mediated by more intimate or "everyday" processes of exclusion, such as those dictated by market logics, especially in contexts where mining largely takes place in 'formal' zones (Hall et al 2011, p. 145). In this regard, Clausen et al. (2011, p. 22), in speculating about potential (and novel) market-mediated processes of exclusion in the ASM sector, warn that failing to keep undesirable levels of mineral property concentration in check can inadvertently contribute to inequality and disempowerment for those who end up without property. They argue that minimizing social tensions stemming from land inequality depends on ensuring that "no entity should 'own' more mineral rights than it can develop" (ibid. p. 22). Such processes of market-mediated inequality have been observed from afar by Bulkan and Palmer (2016) in Guyana's own mineral property market, but have yet to be studied *in situ*.

Socio-ecological theories of exclusion

Moving beyond purely *social* analyses of exclusion, several scholars have acknowledged that the biophysical and geophysical location of deposits can also contribute to processes of exclusion (Malpeli & Chirico 2013; Spiegel 2014). This can occur when the depth of minerals is beyond the technical and financial means of small-scale miners to extract (Salman 2016). Such trends have been predicted in Guyana for some years, notably in Wotruba et al. (1998). In these instances, it could be argued that the social and the ecological interact, as the very inability of poorer miners to access deeper minerals is a function of their economic and political disadvantage within the sector. Where such phenomena have been empirically observed, some have suggested that groups of small-scale miners should pool resources so that they can exploit technologies capable of accessing the deeper minerals (Hentschel et al. 2002; Hinton et al. 2003). Others have, however, suggested that it may be more efficient to concentrate on attracting large-scale mining companies that can provide waged jobs for miners rather than expending scarce state resources on supporting the ASM sector (Hilson 2019).

3. Conceptual and methodological approach

While recognizing the valuable insights of the institution- focused critiques of formalization, this article proposes that a more comprehensive understanding of exclusion in ASM sectors in general (and Guyana's in particular) is required. This more holistic approach is based on the understanding that the social and the ecological are inextricably intertwined (Zimmerer & Bassett 2003). Such an approach, broadly aligned with a political ecology lens (e.g. Walker 2005; Rocheleau 2008; Robbins 2011; Blaikie 2012), will not only seek to identify the policy and institution- related factors that drive exclusion, but will also recognize the role of social and ecological factors in shaping small-scale miners' ability to enter and flourish in the sector.

This means recognizing the ways in which policy rationalities are responsible for determining social outcomes and opportunities for a range of actors in particular ways (Keeley & Scoones 2003; Forsyth 2004; Hiron 2011; Tschakert 2016). But it also means acknowledging the role of power, politics, and class in shaping access within a land and resource market (Heynen et al. 2007; Bernstein 2010); and in recognizing how the location or nature of a gold deposit can condition actors' ability to thrive in the sector (Bridge 2004; Bakker & Bridge 2006). This holistic conceptualization of exclusion is illustrated below in Figure 1.

Figure 1: A holistic conceptualization of exclusion in the ASM sector. Source: Author

In order to operationalize such a conceptual approach, a hybrid methodological strategy was taken that sought to examine the multiple dimensions of exclusion within the small-scale gold mining sector in Guyana. Data collection was carried out during a year of fieldwork in Guyana between May 2016 and June 2017. Various methods were employed, including textual and spatial analysis, semi-structured interviewing, and participation observation.

To first gain a contextual overview of the structure of the mining sector, the patterns of mineral expansion and property concentration, and the various relevant regulatory changes and reforms over time, multiple documents were collected from the Guyana Geology and Mines Commission's (GGMC) C. N. Barron library and from the University of Guyana and National

Libraries. Material was also collected from the Stabroek News, Kaieteur News, Demerara Waves, and Guyana Chronicle newspaper archives in order to examine national and local narratives on mining and reform.

To gain further national context, mineral property data on gold production and property expansions and ownership were gathered from GGMC Annual Reports. Where additional information was required to build a more disaggregated picture of property and dredge ownership, it was requested formally from the GGMC and Guyana Gold Board (GGB). Some secondary data was also drawn from InterAmerican Development Bank (IADB) reports². Quantitative mining data were edited and analysed in Microsoft programmes such as Excel and Word, where graphs were also generated. The Geographical Information Systems (GIS) data which are used in this article to examine relevant socio-political trends and patterns, such mineral property ownership distributions and concentrations, were downloaded from the government's Guyana Geospatial Information Management (GIM) Unit website. These were then filtered and edited by the author using QGIS software.

As political ecology often explores the interactions between power, politics, economics, and the biophysical environment at particular sites of micro-struggle (Zimmerer & Bassett 2003), a range of qualitative data was also collected. This data collection process aimed to gain insights on the exact processes through which miners were being excluded from the sector, as well as capturing how different types of miners were experiencing the various exclusionary dynamics. This process included: (i) conducting 143 semi-structured interviews with different types of miners (including both landlords and landless dredge owners), Amerindian villagers, GGMC officials, and policy professionals, as per Table 1; (ii) conducting field-based observation of mining practices in the Potaro and Mazaruni Mining Districts at more than 50

---

² Particularly from IADB (2015).

different gold mining operations; and (iii) interacting with miners and officials during Guyana Mining School and Training Institute (GMSTI) courses on environmental, safety, and prospection.

Interviewee type	Number of interviews
Government official	38
Non-Governmental Organization (NGO)	20
Civil society	5
Mining sector	46 (12 landlords, 34 miners)
Amerindian organization	11
Amerindian villager	23
Total	143

Table 1: Semi-structured interview break-down

Interviews were conducted over two phases. A first phase (comprising 36 interviews) aimed at contextualizing exclusion in the gold mining sector from a national and historical perspective. It followed a snowball sampling approach, whereby an initial list of key persons was generated based on prior knowledge of the country. Subsequent relevant persons were identified by both asking for recommendations from the interviewees or by discovering new interviewees through other channels (Tansey 2007). In this way, key political, commercial, and community actors were initially approached, including government and former government officials, environmental agencies (such as the Guyana Forestry Commission (GFC), the GGMC, and the Environmental Protection Agency (EPA)), donors (such as the World Bank and the IADB), Norwegian officials, Non-Governmental Organizations (NGO) (such as Conservation International), Amerindian organizations, and mining groups (particularly the Gold and Diamond Miners Association (GGDMA) and the Guyana Women Miners Organization (GWMO)).

Figure 2: Map of Mining Districts and research sites in Guyana. Source: GGMC

A second phase of interviews (comprising 107 interviews) focused on examining exclusionary dynamics as experienced on the ground. It sought the finer-grained accounts of ASM dynamics as experienced by a range of actors, including miners and Mines Officers. Sampling was based on a combination of purposive techniques (in interviewing key persons such as mining union representatives), as well as snowball and convenience sampling (Bryman 2004). Within each sample segment, a diversity of participant profiles and views were sought, and accounts were continuously triangulated and cross-substantiated, particularly those of landless dredge owners and landlords. These interviews took place at various landings³ and mining operations in the interior but centred around the mining town of Mahdia in the Potaro Mining District, Guyana's oldest mining region (Site 1 in Figure 2).

³ A landing is a commercial centre servicing a mining area. It can range from a single shop and a bar to a small township.

Although a specific gender focus was not part of this article's research aims, every effort was made to capture a balance of gender perspectives across both phases and all categories of interviewees. In this context, 36 out of 143 (or 25% of) interviewees were women. All interviews were conducted in English (the official language of Guyana) and were recorded and transcribed. In transcription, a conscious effort was made to retain the idiomatic forms of language used by interviewees. Interview data were analysed and coded for theme and content using NVIVO.

Participant observation meanwhile took place in the natural context of miners' daily activities, at around 50 different ASM mining workgrounds in Potaro Mining District (Sites 1 and 2 in Figure 2) and Mazaruni Mining District (Site 3 in Figure 2). This research activity aimed to build an understanding of the socio-technical practices and socio-economic challenges constituting ASM gold mining in Guyana. Receiving special permission to do so, GMSTI sessions with miners on environmental and safety measures and prospection were also attended in Mahdia. This provided an ideal opportunity to observe how the state was communicating reform priorities to miners and to capture miners' interpretations and experiences of reform impacts and other livelihoods concerns.

4. The gold mining context in Guyana: From pork knocking to dredging

Over the past 50 years the small-scale gold mining sector in Guyana has evolved from hundreds of bands of independent 'pork knockers'⁴ roaming the dense, dangerous, and sparsely-populated jungles of Guyana, to thousands of organized, structured, mechanized production units (Lowe 2006). Today, hydraulic dredges – essentially, mechanized mining set-ups comprising plastic piping, diesel-powered engines, wooden sluice boxes, high-pressurized

---

⁴ 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.

water hoses, and water-pumps – dominate the sector, comprising approximately 90% of all gold-producing equipment (IADB 2015).

This current socio-technical context, illustrated in Figure 3, is considered the result of several developments. Firstly, the arrival of larger companies in the 1990s, which stimulated a local interest in new mechanized technologies (Bulkan 1998). Secondly, the arrival of Brazilian *garimpeiros*⁵ who brought innovations such as *dragas*⁶ (Clifford 2011). Thirdly, the local development of new technologies (such as the gravel pump) (Lowe 2006). Fourthly, the increasing accessibility of cheaper machinery (such as Chinese engines) in the 2000s (Hilson & Laing 2017). Although almost all gold mining in Guyana is mechanized, there are different scales and intensities of production within the ‘small and medium scale’ definition. As a rule, ‘small-scale’ mining tends to involve a single 4-or 6-inch⁷ dredge and takes place on a small-scale claim (up to 27 acres). ‘Medium-scale’ mining tends to involve multiple 6- or 8-inch dredges on a medium-scale property. Medium-scale properties (which can be between 150 acres and 1,200 acres) are large enough to accommodate multiple small- or medium-scale type operations, which is a common occurrence.

---

⁵ *Garimpeiro* is the Brazilian term for a small-scale miner. Thousands of *garimpeiros* entered Guyana illegally in the 1990s, following a crackdown by the Brazilian government in response to ecological degradation in the Amazon (IADB 2015). The Guyanese government initially regularized many of these miners, but later drove many of them out in the 2000s as their practices became too destructive (Guyana Chronicle 2012).

⁶ A large, Brazilian-made river dredge.

⁷ Dredge power is measured primarily by the ‘inch’ measurement, which 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.

Figure 3: A typical ASM operation in Guyana. Source: Author

Except for leakage that is difficult to prevent in the context of remote geographies and institutional frailties (Clifford 2011), this dredging activity is thoroughly formalized, with only around 12% of mining operations believed to be⁸ operating outside formal small, medium, or large properties. This relatively thorough formalization⁹ is a result of the fact that mining has been formalized in Guyana, i.e. recognized by the state and governed by legal institutions, since the late 19th century when the British first began to establish rules and regulations (Lowe 2003). Since 1886, when the first law outlined a process for licensed mining, a slew of Mining Ordinances and Acts followed, including the Principle Mining Ordinances of 1903, 1922, and 1931, and the Mining Acts of 1972 and 1989 (Lowe 2003). The inheritance of this institutional structure and its accompanying culture has given Guyana arguably the most comprehensively formalized (and documented) ASM sector in the world (Hilson & Maconachie 2017).

As well as taking place within formal properties, mining activity is bound by a comprehensive set of rules and regulations, specifying everything from the inspection requirements for tailings

⁸ 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.

⁹ Especially considering commonly cited figures suggesting that around 80% of ASM activity globally is informal (IISD 2017).

dams¹⁰, the types of safety equipment required when handling mercury¹¹, the minimum distance mining is allowed to take place from the low water mark of a river bank¹², and the percentage of gold required to be paid to Amerindian village councils if mining is taking place on their land¹³. These regulations are enshrined in specific mining laws and related laws, such as the Amerindian Act and the Protected Areas Act. As a result of weak institutional capacity (the GGMC only has around 30 Mines Officers tasked with field-based monitoring), many miners are nonetheless thought to avoid complying with rules, contributing to environmental degradation and socio-political conflict in the interior (Clifford 2011).

The scale of the mechanized, (largely) regularized mining activity expanded gradually since the mid-1990s, and rapidly since the mid-2000s, as illustrated in Figure 4. Indeed, while the number of licensed dredges increased by 924% between 1987 and 2015 (from 327 to 3,349), the number of small-scale claims increased during the same period by 4,312%, from 426 to 23,759 (a number that included 16,100 land and 7,470 river claims). The number of medium-scale mining permits (MPs) meanwhile increased by 1,768% between 1992 and 2015 (from 202 to 3,773), and the number of medium-scale prospecting permits (PPMSs) increased by 528% between 1994 and 2015 (from 1,600 to 10,049).

---

¹⁰ Mining (Amendment) Regulations No 3 of 2005 r245.

¹¹ Mining (Amendment) Regulations No 3 of 2005 r127.

¹² Mining (Amendment) Regulations No 3 of 2005 r251

¹³ Amerindian Act 2006 Cap 29:01 s51 (1).

Figure 4: Number of licensed dredges/mineral properties over time¹⁴. Source: Adapted by author from GGMC data

The magnitude of expansion in land demand is intelligible in the context of rapid world gold price increases from 2008 onwards, which saw thousands of new entrants flocking from the coast (and from agricultural employment) into the mining sector (Hilson & Laing 2017). However, growing land demand has also been linked to speculation, with many wealthy miners and businesspeople traditionally unconnected to the mining sector acquiring land in the hope that it will become coveted by domestic and foreign investors (Thomas 2009).

The cumulative effect of these trends on production is illustrated in Figure 5. A record 690,000 oz. was produced in 2016 (an increase of 237% over 2006), worth around US\$860 million (Guyana Bureau of Statistics 2017). Three-quarters of this total was attributed to the small and medium-scale sector (Guyana Chronicle 2016a). This amount surpassed even the annual declarations that Guyana saw during the 1990s and 2000s when Omai (a large-scale Canadian firm) was operating. The expansion meant that by 2017, gold accounted for almost 60% of

¹⁴ Gaps denote missing data.

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

Figure 5: Gold production vs world gold price. Source: Adapted by author from GGMC and kitco.com

5. Institutional exclusion: shifting formalization and green policy directions

Unlike in many other countries, Guyana's miners have not traditionally been excluded from accessing mining properties because of their unaffordability or due to the privileging of large (foreign) mining interests by the state (Hilson & Maconachie 2017). On the contrary, accessing mining properties in Guyana, particularly at the small-scale, has been relatively cheap and accessible, with the annual rental fee for a small-scale claim still standing at only US\$5 (Bulkan & Palmer 2016). This accessibility is in large-part due to the influence of the patriotic mining union (the GGDMA) who lobbied the government to ensure that the 1989 Mining Act (the preeminent legal framework for mining in Guyana) facilitated access to the sector for Guyanese citizens and protected it from foreign domination (Bulkan 1998; Bridge 2002). The historical accessibility of the mining sector for poorer actors is believed to have contributed to stability, high declarations, and a significant source of tax revenue and royalties. The erstwhile success of this institutional framework appears to support the conventional arguments made in favour of formalization (e.g. Hilson et al. 2017).

Others, however, have suggested that the apparent historical accessibility of Guyana's ASM environment has been somewhat deceptive, with significant evidence that many smaller-scale miners have been allowed to remain in the sector even though they have not been able (or willing) to satisfy all legal and technical requirements (IHRC 2007; Bulkan & Palmer 2016). The suggestion that mining regulations have not been followed by miners or enforced by Mines Officers is supported by widespread evidence of vast environmental degradation in recent years (Clifford 2011; Hennessy 2015; Bulkan & Palmer 2016). Indeed, despite the introduction of strict new environmental regulations in 2005¹⁵ on safety and environmental management, river pollution and land degradation have expanded dramatically, as documented by the Guyana Human Rights Association (GHRA)¹⁶ and the Amerindian People's Association (APA)¹⁷. Against a backdrop of growing participation in international environmental obligations and agreements since the late 2000s, such as REDD+ and the Minamata Convention on Mercury, the state has been under increasing pressure to address these concerns. Since 2015, it has therefore taken a more pro-active role.

On the one hand, the connection between global environmental discourses and national policy changes in Guyana appears to mirror patterns of exclusion in natural resource sectors observed elsewhere that have been similarly animated by so-called 'green' rationalities (Hirons 2011; Fairhead et al. 2012; Brockington & Ponte 2015; Bersaglio & Cleaver 2018). Indeed, in Guyana, the drafting of the 2005 regulations was animated explicitly by the Omai cyanide spill, with the Canadian government providing funding through its Guyana Environmental Capacity Development Mining Project (GENCAP) programme (Lowe 2006). The regulations introduced new guidelines for mercury use, mine reclamation, mine effluents, contingency and response plans, mine waste management and disposal, and tailings management. Moreover,

---

¹⁵ See Mining (Amendment) Regulations No. 3 of 2005.

¹⁶ See GHRA (2017).

¹⁷ See Dooley and Griffiths (2014).

the increased strictness in enforcement of these and other rules post- 2009 was undoubtedly influenced¹⁸ by Guyana's participation in a national REDD+ programme with Norway (Lowe 2014). However, this is only part of the picture, and it is more accurate to say that mining reforms since 2015 have been connected to the broader formalization agenda of the new government. In this regard, the agenda appears more akin to the situation in Zimbabwe observed by Spiegel (2012), where a progressive approach to ASM in the 1990s gave way to the brutal crack-downs of the 2000s.

In Guyana, 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). With respect to economic sectors, the new administration's overall agenda was purportedly to eliminate the informal and discretionary practices and networks that had proliferated over the previous two decades (Stabroek News 2016). The approach to the mining sector was no different, where the priority appeared to be to clamp down on illegal activity that was perceived to be robbing the state of revenue, disadvantaging law-abiding businesses, endangering human health, and – tangentially – causing ecological degradation (Guyana Chronicle 2016b). In concert with the regularization drive, the government also prioritized the issue of safety, and vowed to launch a Commission of Enquiry into every mining death (Demerara Waves 2015). In support of this emphasis on safety, it continued to fund the GMSTI's nationwide courses.

The governance drive saw firings and arrests within the GGB, the replacement of Managers within the GGMC, arrests of miners allegedly involved in smuggling and tax evasion, and

---

¹⁸ Indeed, the original Low Carbon Development Strategy (LCDS) document explaining how Guyana would spend its REDD+ funds discussed how mining would be subject to the “more stringent monitoring and enforcement” of existing regulations (Government of Guyana 2009, p. 4).

militarized clamp-downs on illegal operations, especially those operating in national parks (GINA 2017; Kaieteur News 2017; Stabroek News 2017b). These clamp-downs were carried out by a specially-appointed Compliance and Enforcement Unit. Existing measures, such as the 2005 regulations, were also supposedly being more strictly enforced, and new measures were proposed, such as an increase in the so-called ‘tributor’s tax’ (payable by all labourers) from 10% to 20% (Demerara Waves 2017); the inclusion of miners in income tax responsibilities (Kaieteur News 2017); a new gold selling transaction fee of US\$10 per ounce (INews Guyana 2017); and an increase in the cost of miners’ payable environmental bond (INews Guyana 2015).

Overall, the reality of carrying out ASM in Guyana to the letter of the law was thus becomingly an increasingly expensive undertaking. In order to clear the land and open out the mining pit safely, carry out benching requirements, and prepare tailings dams and ponds, earth-moving equipment (such as bulldozers and excavators) are required. These are only realistically within the grasp of much larger-scale miners, as excavators cost around GY\$30m (US\$150,000) to buy or GY\$1m (US\$5,000) to acquire through hire-purchase schemes (IADB 2015). Poorer miners can rent such machinery for a few days at a time, but the rental fees are high: as much as US\$350 per hour (plus fuel). In order to recover the gold according to clean methods, further expensive technology, such as Knelson Concentrators, Shaking Tables, Gold Flotation, and Gold Katchas, are required (IADB 2015). As a technical note entitled ‘Toward the Greening of the Gold Mining Sector in Guyana: Transition Issues and Challenges’ cited, concentrators cost as much as US\$100,000 each (IADB 2017). For smaller operations only producing a few ounces of gold per month, these investments are unrealistic. One miner interviewed summarized the financial challenges for smaller miners associated with adhering to the mining regulations in full:

For a small miner, sticking to the regulations... you have to get a machine... Without a machine you cannot do certain things... One of the things with 4-inch¹⁹ is that you can't build tailings ponds²⁰... If you go to a new area... for you to prepare your tailings pond, prepare a couple of pits, then you jump out... Then you use that old pit now as the tailings pond, where the tailing going to throw inside... You gotta dig it first... Then afterwards you gotta backfill, burning more drums of diesel... It's like mining twice²¹

The squeeze placed on miners by the regularization drive drew significant ire from the mining lobby (Demerara Waves 2017). Particular offence was taken at the claim that miners had hitherto been functioning in a “free for all” manner, a claim that led the GGDMA to withhold an IADB report into the sector that it admitted would have been helpful to policy makers (Guyana Chronicle 2016c). In response to the boycotting of the annual Mining Week events in 2017, the government reneged on its proposal to increase the tributor's tax, meaning the mining lobby had (for the moment) successfully driven back a reform measure (Guyana Chronicle 2017). Despite this victory, the rapid expansion in new rules and fees since 2015 combined with stronger enforcement of existing rules suggests that the country is backsliding on its erstwhile inclusive approach to its small-scale sector (Bulkan & Palmer 2016; Hilson & Maconachie 2017; Hilson & Laing 2017). While dredge owners have been the most vocal opponents of these new regulations, it is the poorer labourers on mining operations, often young Amerindian men and women²², who tend to experience the greatest relative squeeze in their earnings. As one young labourer interviewed claimed of the new taxes:

---

¹⁹ In general, the 4-inch dredge, which is the smallest size used in Guyana, is used by poorer miners to mine shallower deposits.

²⁰ Tailings are the slushy waste material of the dredging process.

²¹ Interview, miner, 24th November 2016.

²² Amerindian men tend to be favoured within the racial hierarchy of gold mining in Guyana as labourers due to the perception that they are more hard-working than other ethnic groups. Historically, their preeminent role as labourers was connected to their suitability as ‘divers’ on river dredges due to their smaller stature and endurance. Amerindian women are often hired on mining operations to cook or perform other domestic work (Colchester 1997).

Those workers got to pay 20% tax even when you're not making gold... Most of the times you're working on a machine you're paid less, cos the machine is doing the work... Cos they got some people working Mazaruni side, with machines, and them men paying 1,000 dollar or 2,000 per ounce or them kind of thing... If you're making 5%... Then the 20% gotta come out from you, you're left with nothing!²³

6. Socio-political exclusion: Landlordism, land access, and tenure insecurity

The introduction of new obligations and strengthened enforcement cannot, however, be considered as *purely* to blame for small-scale miners' growing difficulties but must be seen in the context of broader *structural* challenges of social reproduction. To understand these challenges, it is essential to do what relatively few prior studies have done on Guyana and to disentangle “the variety of stakeholders lumped under the generic term ‘miner’” (Bulkan & Palmer 2016. p. 3). This section therefore examines in some depth the social relations of gold mining in Guyana. It asks, essentially, who is doing the mining and under what conditions? In probing these questions, the analysis identifies how distinct classes of landless dredge owners and landlords have formed over the past 10 years. It also examines how the rise of a class of landowners has caused changes in land access and operating conditions for smaller-scale miners, largely exacerbating the already-existing challenges of regulatory compliance.

Classes of miners

Of the 17,000-18,000 persons estimated to be working directly in the mining sector in Guyana (IADB 2017), there are distinct classes of miners, with each having a different role and possessing a different level of influence and power in the sector. These groups are defined largely by their ownership (or not) of a dredge (the means of production) or mining land. Table

---

²³ Interview, miner, 16th May 2017.

2 outlines the social structure of the mining sector in Guyana, echoing Verbrugge and Besmanos's (2016) analysis of the ASM sector in Indonesia.

Specific group of miners	Approximate size of group ²⁴
Large landowners who also mine (mainly GGDMA members)	50-100
Dredge owners who also own a small number of mining properties	500
Landless dredge owners	2,400
Labourers ('jet man', 'marrack man', 'pit man', 'watchman', cook)	14,000

Degree of influence in sector

↑

HIGH

LOW

Table 2: Social structure of ASM gold sector in Guyana. Source: Author.

As Table 2 shows, the most numerous (but the least influential) group of miners in Guyana are the labourers, who comprise around four-fifths of the total (Thomas 2009; IADB 2015). These labourers, typically Amerindian or poorer Afro-Guyanese men, perform a range of tasks that include manning the water jet (done by a 'jet man'), sucking the gravel from the 'marrack hole'²⁵ to the sluice box (done by the 'marrack man'), clearing unwanted debris such as branches and rocks from the pit (done by a 'pit man'), and watching over the whole operation for safety and security issues (the 'watchman').

Around a fifth of the 17,000-18,000 miners in the sector (as of 2015 data) own a dredge (the means of production). However, as was shown in a seminal (but unpublished) IADB (2015)

²⁴ Estimates based on a combination of author estimations drawn from GGMC data and figures cited in Lowe (2006), Thomas (2009) IADB (2015, 2017).

²⁵ The hole in the mining pit from which the gold-bearing gravel is sucked.

study, dredge ownership is segmented into several different categories. As illustrated in Figure 6, the vast majority of the estimated 2,292 dredge owners verified in the IADB's (2015) sample (1,598, or 70% of the total) own only *one* dredge. These one-dredge owners invariably do *not* own a mineral property themselves, with only a small percentage of them *also* being property owners. Among the sample of miners interviewed for this article, around 75% of dredge owners were landless, chiming with estimates of previous studies (e.g. Lowe 2006; Thomas 2009).

Figure 6: Breakdown of dredge ownership (as of 2015). Source: IADB (2015)

Despite mostly lacking their own land, this group of landless dredge owners is however economically significant, responsible for the majority of gold declarations in Guyana, not least because they lack the political connections or access to economic resources to engage in gold smuggling. Indeed, analysis of GGB data for 2016 shared with the author confirms that while the top 100 small and medium-scale gold producers (out of a total of 2,259 declarers) 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.

If most gold-producing dredge owners are landless, who owns the mining land on which they are seeking to operate? It appears that the majority of mining land in Guyana is held by a class of influential landowners who also own large amounts of powerful gold-producing

equipment²⁶. They also make significant further income from renting out their (hundreds of) properties to landless dredge owners. The social composition of this landlord class of miners overlaps significantly with what the IADB (2015) identified as the ‘magnates’ of the mining industry, a group comprised largely of GGDMA executive members. Analysis of these landowners on GGMC databases reveals distinct racial characteristics, with the majority being of Portuguese and Indo-Guyanese descent. The control that this landlord class holds over mining land in Guyana is extreme, with official GGMC sources even privately admitting that it is “scandalous” (GGMC 2015, p. 7). Of the 18,000 small-scale land claims verified in 2015, internal GGMC (2015) analysis showed that just 50 people controlled 12,279 claims, more than half of all claims, with some owners controlling hundreds each. Indeed, the top claim holder has 1,500 claims. This level of inequitable distribution represents a Gini coefficient of approximately 0.7, a very high degree of inequality²⁷.

Within medium-scale property ownership, there is a similar level of concentration. Of the 3,773 medium-scale mining permits, the top 50 individuals control 1,719 permits, representing almost 60% of the total land area held in medium-scale mining permits; the bottom 90% of individuals control only 35% of land. This level of inequitable distribution represents a Gini coefficient of 0.74. Of the 10,049 medium-scale prospecting permits, the top 50 people control 4,410 of the permits, representing 56% of the total land area held in medium-scale prospecting permits. The bottom 90% of individuals control only 33% of land. This level of inequitable distribution represents a Gini coefficient of 0.76.

The sheer scale of the control of medium-scale properties (both MPs and PPMSSs) by a tiny elite is dramatically illustrated below. Figure 7 displays in grey the GIS data for *all* medium-

---

²⁶ Such as 8-inch dredges and earth-moving equipment. Most smaller scale miners use the 4- or 6-inch dredge.

²⁷ The Gini Coefficient measures the degree of income equality in a population. The Gini Coefficient can vary from 0 (perfect equality) to 1 (perfect inequality). A Gini Coefficient of zero means that everyone has the same income, while a Coefficient of 1 represents a single individual receiving all the income.

scale properties in existence in 2016, and Figure 8 highlights *both* total medium-scale properties in grey and the top 25 owners' properties in red.

Figure 7: Mineral property coverage in Guyana (as of 2016)

Figure 8: Medium-scale properties in Guyana filtered by the top 25 owners (as of 2016)

Source: GIS layers adapted by author using QGIS from data downloaded from Guyana GIM Unit portal. Available at <http://data.gim.gov.gy/> Accessed August 11, 2017.

Land concentration and political patronage

So, how did this class of landowners come to dominate the mineral property market in Guyana? Larger miners associated with the GGDMA interviewed for this article predictably defended their acquisitions, contending that they had accumulated their properties legitimately – over time, through a process of luck and hard work – with the aim of investing in their families' futures. They also reasonably stressed that there is a rational economic logic to this accumulation. As these landowners argued:

You have a family, mining's your family business... The mining... this land get worked out²⁸ over a certain period of time... you must have reserves... Right?²⁹

²⁸ To become exhausted of gold deposits.

²⁹ Interview, miner, 7th June 2016.

The larger area you got the greater is your chances of being able to work... It's greater your chances, so you take the risk... It's like buying a penny stock and holding on to it... And as you hold on to it, you're hoping it will take off some day³⁰

However, Bulkan and Palmer (2016) claim that there are also political dimensions to recent property accumulations, explicitly linking them to political patronage. They cite Lemel (2001, p. 3) who observes that “a more general reality needs to be recognized, namely that in Guyana, politics, economics, ethnicity and access to land are all entangled to form a complex and often volatile mix.” Bulkan and Palmer (2016) thus attribute the distribution of mineral properties during the latter years of the PPP/C government to the fact that the PPP/C “did not succeed in exerting total control over the majority African, Portuguese and Mixed members of the GGDMA” and thus had to circumvent the power of the GGDMA to some degree “by allocating mining concessions to [their] supporters and supporting new associations” (Bulkan and Palmer 2016, p. 7).

This thesis is somewhat supported by Figure 9, which shows that there was a clear spike in property applications in late 2014, with 1,100 PPMSs being given out in September 2014, shortly before Parliament was prorogued, and just when it became clear that an election was likely in 2015 (Stabroek News 2014). At this time, the gold price had conversely dipped, new dredge applications were down, and total licensed dredge numbers were also falling. Several interviewees suggested that the rush for properties at this time was therefore an attempt by businesspeople close to the ruling party to ‘lock up’ land in anticipation of losing the patronage networks at the 2015 election that had been secured through connections to the outgoing PPP/C government.

---

³⁰ Interview, miner, 19th May 2017.

Figure 9: Medium-scale Prospecting Permit applications, monthly. Source: Adapted by author from spreadsheet data containing list of all Medium-scale Prospecting Permits in existence as of March 2016 and their dates of application. Original file downloaded from <http://data.gim.gov.gy/> on August 11, 2017

The consequences of land scarcity and landlordism for landless miners

The locking up of land by a small landlord class has had serious consequences for the class of landless dredge owners in Guyana. Essentially, it has meant that accessing lands to work on through the GGMC is no longer an option, with a lack of available properties. As Bulkan and Palmer (2016, p. 6) note, “the unsatisfied demand is demonstrated by the fact that the Land Management Division ‘receives 200 to 250 new applications for medium-scale properties on a monthly basis’”. The inability of landless dredge owners to access mining land (either small or medium-scale properties) through the official GGMC route has meant that they have been left with no choice but to ‘get a position’ (or, enter into an informal contract) with a landlord. This phenomenon, also known as ‘tributing’, is not necessarily a new practice, and is believed to have long been the preferred method of accessing land as it was convenient for both the renter and the landowner. Although strictly illegal, it was tolerated by the regulator, the GGMC, until the late 2000s, by which stage it was apparent that it had become a source of exploitation and conflict in the interior. In response to this, the GGMC regularized the process of ‘getting a position’ in 2012³¹. According to the new process, the landowner, dredge owner, and

³¹ The Mining (Amendment) Regulation 2012 sought to regulate the relationship between claim holder and renter.

Commissioner of the GGMC are all supposed to sign an official contract outlining the terms of contract and other official information such as property, dredge, and worker registration numbers.

While providing tenant miners with some legal protection, this move nonetheless effectively entrenched elite control over the land access process. Indeed, for Bulkan and Palmer (2016, p. 7), it represented the “de facto privatization of public lands”. The *normalization* of the tributor route of land access as the sole available method of accessing land was meanwhile having two main consequences for poorer, landless miners: higher mining costs and greater tenure insecurity. The financial costs of accessing land through the landlord-tributor system vary wildly, but as a rule, they appear costlier than accessing land through the state. The contract terms today depend on the whim of the landlord and can be anywhere from 10% to 30% of gold produced. Some landowners alternatively ask for a flat-rate monthly fee, typically of around GY\$400,000 (US\$2,000). Such flat-rate fees can be more burdensome for the dredge owner as they demand a regular monthly payment, whether the mine is producing gold or not. In addition to these monthly fees, some landlords also ask for a lump sum ‘entry fee’ to the property, and additional lump sum payments for bringing earth-moving equipment onto the property. These can be as high as GY\$2m (US\$1,000) per piece of equipment.

Other landlords reportedly demand that tenants buy supplies or diesel exclusively from them – typically at inflated rates – so that, if the miner is not extracting gold, the landowner is still making money. Typically, then, as can be seen in Table 3, servicing even the most basic tributor contract on a small-scale claim would be equivalent to around a minimum of 17% of gold production, compared with around 7% via the GGMC route. This is even before extra fees for earth-moving equipment or supplies are added.

	GGMC route	Tributor route
Rental	GY\$1,000 (US\$5) per year	• 10% of gold production to landlord • GY\$1m (US\$5,000) land entry fee • Rental fees per piece of machinery (GY\$1m +)
Royalty	• 2% tax • 5% royalty	• 2% tax • 5% royalty
Total	7% of gold production plus rental fees	17%+ of gold production plus extra discretionary charges

Table 3: A comparison of mining costs between GGMC and tributor routes on small-scale claims. Source:

As well as the variability and onerousness of the costs of accessing land through the tributor route, miners who have accessed land this way frequently face tenure insecurity. The most common claim made by miners is that they are often prematurely thrown off from the land they have paid to work on when they bore gold, at which point they are swiftly informed that they are in the landowner's "bedroom" and need to vacate. One miner explains this predicament:

Almost all over the country's taken up... by the bigger people, right? So, to mine, you have to get permission... some of them don't give permission, some give... And then... if you find, like, a nice deposit of gold, they tell you to move off and they work it themselves³²

For many miners interviewed, this effectively consigns them to the role of a 'cheap prospector' whose purpose is to help landowners find gold on their land. For this reason, landlords allegedly prefer tenants *without* excavators because those with them could extract the gold too quickly, leaving nothing for the landowner should they later move onto the land themselves. One landowner even endorsed this characterization and defended it by suggesting that small-

³² Interview, miner, 8th November 2016.

scale miners' technical methods – and their economic desperation – made them suitable for the role of prospection:

They're prospectors! But the prospecting is done, not as a purpose, it is done out of necessity... It is done out of the size of equipment they have... gives them the ability to move... it might be a strategic thing to have people... without excavators... because... they're... Because with having a bare dredge³³, you're more desperate to find minerals... How would that be wrong as commercialism?³⁴

Furthermore, despite the regularization of the tributing route of land access in 2012, many miners reported during fieldwork in 2017 that landlords often still refuse 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 raiding³⁵ if anything goes wrong³⁶

The notion that expulsions are routine or unjustified was nonetheless dismissed by many landowners who blamed some small-scale miners for either leaving themselves vulnerable by failing to fulfil their necessary regulatory responsibilities or by being deserving of expulsion as a result of cheating the landowner out of gold. As one landlord explained:

The culture of the industry is to know how much gold you're making... So, if you say, 'Man, I boring, making a couple of pennyweight...' So, he say, 'Alright, go on...' But then [he] find out you're making 50 ounce of gold a week...! Tell me why we don't have

---

³³ A small, mechanized mining operation (typically a 4-inch operation) that has no earth-moving equipment.

³⁴ Interview, miner, 19th May 2017.

³⁵ Raiding is the practice of moving illegally onto someone else's property and commencing mining.

³⁶ Interview, government official, 11th November 2016.

the right to get that 50 ounce of gold that you bore on his land in representation to the scale of his investment?!³⁷

What was stressed by many landless miners, however, was the fact that it is often the very anxiety that they will be expelled at any time if the landowner hears they have discovered gold on their claim (particularly during the prospecting stage) that leads them to deceive the landowner about how much gold they are recovering *in the first place*. One miner explained this paradox as follows:

I guess people go for the fast money and... I guess some people as well... Maybe this guy before you there... I mean, maybe that guy's had a lot of bad experience with claim holders, and so he just thinks, let me... Before this guy cheats me, let me cheat him³⁸

7. Socio-ecological exclusion: the limits of land access and the illusiveness of gold

Small miners' persistent complaints about land inequality and landlordism led the new government to establish a 'syndicate' policy in 2016 that aimed to facilitate land access for organized groups of smaller-scale (and preferably landless) miners (Stabroek News 2017c). Rather than claw back any of the 'unproductive' lands being held by large landowners, however, the government freed up land (reportedly around 280 square miles) from its Closed Areas reserve, allowing groups of fifteen or more miners who were all compliant with taxes and regulations to access blocks of land (Stabroek News 2017c).

Lack of prospecting information

The story doesn't end there though. While smaller-scale miners have increasingly come to see many of the challenges they face as related to land availability, other observers are more sanguine about the broader prospects for small-scale gold mining in Guyana. This is because they believe that a range of socio-ecological factors may hinder smaller-scale miners'

---

³⁷ Interview, miner, 19th May 2017.

³⁸ Interview, miner, 13th May 2017.

endeavours, even if they manage to acquire land. For some, improved prospecting information rather than land access is at the heart of improving economic conditions for smaller-scale miners. As one GGMC official argued:

Land access is always given by miners as a major problem... However, prospecting is just as important, because what are you going to do when you get the land? Some people think enhanced recovery is more important than prospecting, but this overlooks the importance of prospecting, which would inevitably contribute to better recovery³⁹

And yet, as the IADB (2015, p. 85) states, although “the issue of renting barren lands to miners has been on the Government’s agenda since the 1990s, it has not been addressed.” Many miners interviewed during fieldwork echoed these sentiments and despaired of the vagueness of current information and the costs they incur in the process of searching for minerals. And while larger mining companies have the means to invest in technologies such as satellite imagery and deep drilling, these methods are beyond most small and medium-scale miners’ financial capacity. The state is investing in trying to equip miners with the technology and skills such as Global Positioning System (GPS) and map-reading through the GMSTI. However, these courses are only attended by a fraction of miners due to the infrequency of courses, poor advertising, and the large time commitment. Moreover, even equipped with the theoretical skills, miners still require significant resources to set themselves up with the technology and capital to carry out prospection, and once on the land, there is still no guarantee minerals will be found, or, if they are, that they will ‘pay’. Where a pit does not pay, the area will be left abandoned and degraded.

---

³⁹ Interview, miner, 10th October 2016.

Increasing remoteness – and depth – of minerals

For others, these social, socio-technical, and financial issues therefore need to be seen within a broader socio-ecology of mining. According to this understanding, the easily-accessible alluvial gold deposits (that are both shallow enough to be extractable through lower-grade technology and close enough to landings to keep the costs of operation down) are becoming scarcer. This is largely because the land close to landings has been locked up, but it is also because the past decade of rampant alluvial extraction has exhausted shallow deposits. As a result, miners are having to dig down to depths of up to 80 feet in order to extract minerals, requiring them to move significant amounts of overburden⁴⁰. As a small miner explained:

In these areas, the land, the majority of the land is very deep, and you have to have machinery... You have to have machinery to move the land... like excavator, bulldozer, and such, right... Now, me being a small miner, I don't have access to these machines, so I have to pay someone who have an excavator to come and dig for me, shelf the land, bench⁴¹ the land, and it's very costly, because I have to pay by the hour⁴²

Because of these technological and spatial constraints, most smaller-scale miners recognize therefore that they will have to travel further afield to 'maiden'⁴³ areas in future in order to find their own land, where the associated costs and risks of extraction (e.g. transportation, fuel and supplies, security, and difficulties in finding workers) may be prohibitive. Early experiences among syndicates in Mahdia illustrate these dynamics. The nine blocks that one syndicate was given, for example, were 'maiden' lands, near the Amaila River, and, as a syndicate member reported drily, they were only accessible by helicopter⁴⁴. Moreover, the land had no geological

---

⁴⁰ This term refers to the unwanted material that is extracted to make the mining pit.

⁴¹ The safety measure of building staggered steps out from a mining pit in order to reduce the height of the pit wall and the amount of overburden on the pit edge.

⁴² Interview, 8th November 2016.

⁴³ As-yet unmined land.

⁴⁴ Interview, miner, 12th May 2017.

or prospecting information, and beyond being given the land itself, the miners were not given any concessionary access to finance or other inputs such as fuel or equipment.

Declining deposits?

While facing such financial challenges in accessing and extracting these deeper and more remote minerals, there are wider doubts about the overall sustainability of alluvial gold mining in Guyana. Several senior figures within the current government stated that they believed the majority of the alluvial gold-bearing mining lands in Guyana had already been ‘worked out’, leaving only hard-rock mining opportunities which require the utilization of expensive earth-moving equipment, and, in some cases, crushing equipment, in order to separate the gold from quartz-bearing veins. Smaller-scale miners equipped with dredges, pumps, and several hundred thousand Guyanese dollars would be naturally excluded from this activity. This proposition – that alluvial deposits are dwindling – was regularly offered by the larger miners as a way of explaining smaller-scale miners’ grievances, perhaps because this interpretation seemed to partly exonerate them from responsibility for small-scale miners’ marginalization, i.e. it is not *their* exploitation that is making life difficult for smaller-scale miners, but rather the natural ecological location of deposits. As a larger miner stressed:

The industry has moved ahead now to a level where... and it’s even worse now with all these new measures that come in... It is going to destroy the whole small man... They don’t have the capital... So, while they are crying out to GGMC, give us land that has mineral in it... They won’t have the capacity to extract it... the gold!⁴⁵

8. Summary and further reflections

This article has examined the multi-dimensional character of exclusion within Guyana’s relatively formalized small-scale gold mining sector. It has found that a broad political ecology

---

⁴⁵ Interview, miner, 19th May 2017.

lens has been able to shed light on the inter-twined institutional, socio-political, and socio-ecological factors that have shaped exclusion over time for smaller-scale operators. The findings build on, and challenge, prevailing theories about formalization in several ways. Indeed, as well as highlighting how exclusion can be the consequence of a range of *extra-institutional* factors, the findings also illustrate how states of inclusion and exclusion are far from stable. The different examples of exclusion that were identified in Guyana are summarized in Table 4 and each type of exclusion is then evaluated in more detail below, before some reflections on the intersectionality of exclusion are offered.

Type of exclusion	Specific example in Guyana
<i>Institutional</i>	Formalization policies have shifted in the context of: (i) Guyana's growing participation in global environmental agreements, (ii) a change of government signalling a greater commitment to regularization, and (iii) national activism among Amerindians and environmental NGOs. Changes have generally disadvantaged smaller-scale miners.
<i>Socio-political</i>	The solidification of class relationships between landlords and tenants is disadvantaging landless dredge owners, increasing their mining costs and heightening their tenure insecurity.
<i>Socio-ecological</i>	The increasing depth and scarcity of gold deposits are making mineral resources unobtainable for smaller scale miners who lack the necessary financing and technology.

Table 4: Summary of forms exclusion in Guyana's ASM sector. Source: Author

Institutional exclusion

With respect to institutional and reform- related exclusion, the article found that, while the accessibility of the sector for poorer miners has been historically facilitated by affordable rental fees and a permissive regulatory environment, the introduction of new tax measures and an increase in the strictness of enforcement since 2015 has been putting growing pressure on the

sector's smaller operators. This highlights that it is not so much the *existence* of restrictive rules that excludes smaller operators, but rather the ability (or willingness) of the state to enforce these rules (Crawford & Botchwey 2017).

As the rationale for this increased strictness appears largely animated by environmental discourses and objectives, it could be argued that the exclusion of small-scale operators is an example of a kind of “green squeeze”, to use Bersaglio & Cleaver's (2018, p. 275) term. This echoes Hirons' (2011a) analysis of Ghana, where REDD+ policies were allegedly ‘locking’ miners out of the landscape. The fact that an increasing strictness in the application of mining regulations is contributing to the exclusion of smaller-scale miners also supports the thesis predicted by legalist critiques of ASM formalization (e.g. Fisher 2007; Maconachie & Hilson 2011; Geenen 2012; Spiegel 2012; Siwale & Siwale 2017). These insights underline that progressive approaches to ASM formalization *can* enable the inclusion of smaller-scale operators (Hilson & Maconachie 2017). However, they also show how shifting political events (such as a change in government or the accession to an international environmental agreement) can precipitate reforms to the institutional framework which end up causing difficulties for smaller-scale miners (Spiegel 2017).

Socio-political exclusion

The article also found compelling evidence of further (and, as-yet, perhaps under-examined) exclusionary dynamics that exacerbate the challenges that poorer miners were already facing in terms of the institutional measures discussed in the previous section. Processes of social differentiation that have solidified in Guyana over the past ten years have created distinct classes of miners and a situation where many poorer miners are now effectively excluded from becoming landowners themselves. Such a form of *market-mediated* exclusion confirms Clausen et al.'s (2011) warnings about the potential consequences of unrestricted property

accumulation in ASM markets. The institutionalization of the ‘percentage’ system in Guyana by the state in 2012, through a series of regulations, has moreover entrenched the maldistribution of land and an accompanying system of exploitation that disadvantages landless miners and benefits landlords. The fact that this exclusion is effectively now taking place within the (amended) formal framework provides an illustration of Hall et al.’s (2011) “everyday” processes of exclusion. These actions moreover provide a graphic illustration of how class interests are perpetually trying to re-shape authority and governance systems in their own interests within ASM sectors (Côte & Korf 2018; Peluso 2018). They also illustrate how ‘formal’ systems are never fixed but are rather processes of negotiation, subject to change (Cleaver 2017). Indeed, inclusive formal ASM frameworks are not permanent or universal but can be lost as elites hijack the process.

The ensuing arrangements between landlords and tenants have allegedly tended towards heightened insecurity for smaller-scale miners, appearing as clear expressions of local elite dominance (Verbrugge 2015; Geenen & Claessens 2016). However, it is important to appreciate the extent to which the inertia behind the arrangement – and thus small-scale miners’ vulnerability – is also deeply intertwined with the uncertainty that surrounds gold’s location (e.g. Geenen 2018; Lanzano 2018). Indeed, in the absence of knowledge about deposits, it is in landlords’ economic interest for there to be a large army of landless miners who they can continue to exploit as cheap, desperate, prospectors. Landlords’ resistance to the syndicate policy can therefore be seen in the context of resistance to any measure that potentially threatens to reduce the size of this group of landless miners (e.g. Bernstein 2010; Hall et al. 2011). The recent rise in activism among smaller-scale miners in fighting for a syndicate policy does, however, illustrate that socio-political losses are not permanent, and that gains can be clawed back through organized action (Peet et al. 2010).

Socio-ecological exclusion

Finally, while small-scale miners' claims of being squeezed out of the sector by both burdensome regulations and landlordism are pervasive, other industry observers regard smaller-scale miners' reproduction challenges as having as much to do with the increasing non-viability of their socio-technical systems and levels of capitalization for recovering deeper minerals (as per the findings of Malpeli and Chirico (2013), Spiegel (2014), and Salman (2016)). Thus, many see the marginalization and exclusion of small-scale producers as an inevitable outcome of secular geological trends, rather than being the result of *purely* political-economic ones. Such observations have been made previously in the technical literature on ASM in Guyana (Wotruba et al. 1998; IADB 2015, 2017). However, they are yet to have been thoroughly examined in the academic literature on Guyana as has been done in this article (as per Bakia's (2014) discussion of the dynamic in Cameroon or Hilson's (2010) discussion of the dynamic among diamond miners in Ghana). The idea that social and ecological factors interact in complex ways to contribute to small-scale miners' exclusion is a dynamic that a political ecology lens is particularly well-placed to capture (Bridge 2004). For policy makers, this suggests that some forms of exclusion (that are caused by inaccessible or declining deposits) may be inevitable or else difficult and expensive for poorer states to avoid altogether – regardless of whether the institutional framework is formalized or not. Indeed, many states with large ASM sectors are simply unable to support small-scale miners' exploration and production costs in order to make their operations sustainable. Others meanwhile see ASM as an undesirable sector that is not worth the investment anyway (Hilson et al. 2018).

The intersectionality of exclusion

Overall, the findings of this article underline how exclusion in Guyana's ASM sector is a multi-dimensional phenomenon, with institutional, socio-political, and socio-ecological factors

interacting to shape the challenges for poorer miners. The analysis has moreover emphasized that, in Guyana, the more vulnerable miners are invariably those who lack land, whether dredge owners or labourers. But to what extent does this multi-dimensional exclusion intersect with *other* forms of social marginalization, such as those based on ethnic or gendered exclusion?

As was stated in Section 6, landlord-tenant-labourer relations are today drawn along relatively distinct racial lines in Guyana, with large landowners *tending to be* Portuguese or Indo-Guyanese, landless dredge owners *tending to be* Afro-Guyanese, and labourers *tending to be* Amerindians. The historical reasons for this ethnic class segmentation are too complex to examine in detail within this article but relate broadly to the interplay of political-economic and socio-cultural forces within Guyana throughout the colonial and post-colonial period (Hennessy 2013, 2015; Garner 2016). Because of this racial hierarchy, though, Afro-Guyanese (who tend to be landless dredge owners) and Amerindians (who tend to be labourers) exert less power and influence within the mining sector. So, when miners ‘above’ them (invariably landlords or wealthier dredge owners) face a burden of more stringent regulations or higher prospecting costs, this burden invariably get passed onto Afro-Guyanese or Amerindian citizens in the form of higher rental payments or lower wages.

In terms of the interplay of gender dynamics and exclusion, research conducted for this article found that poorer male and female miners’ experiences of exclusion vis-à-vis the three dimensions examined share similar characteristics. Indeed, landless female dredge owners interviewed confirmed that the challenges they face are closely related to the increased costs of production caused by new regulations, their ‘position’ in the hierarchy of power and influence in the sector (as per Table 2), and the declining nature of deposits. These similarities should not, however, detract from the fact of women’s broader under-representation in Guyana’s gold mining sector (e.g. Fisher 2007; Huggins et al. 2017), with men still comprising

87% of all dredge owners (IADB 2015). Furthermore, women in the mining sector in Guyana (particularly women from Amerindian villages in mining areas) are still much more likely to work as cooks on mining operations or as commercial sex workers in landings than they are to be land or dredge owners themselves (Colchester et al. 2002; Trotz & Roopnaraine 2009; Hennessy 2015). These patterns are, in turn, connected to women's marginalized status within patriarchal Caribbean societies such as Guyana, in which a lucrative (and physically demanding) activity such as mining is considered as 'men's work' (e.g. Hart 1996; Barriteau 2001). However, perhaps enabled by the increasingly mechanized nature of modern mining activity and shifting gender dynamics, the proportion of female landowners and dredge owners in today's sector *is* reportedly growing in Guyana. There is also an increasingly active women-specific mining union, the GWMO, which formed in 2012. These developments chime with research from other contexts that has highlighted the under-acknowledged (but significant) participation of women in ASM globally (e.g. Bashwira et al. 2014; Lahiri-Dutt 2019).

For policy makers, these complex and dynamic patterns of exclusion suggest that any approach to making the ASM sector more inclusive must be holistic and must move beyond purely technological or institutional solutions. Indeed, in Guyana's already-formalized sector, greater inclusivity is difficult to conceive unless the power imbalances between landlords and tenants are *also* confronted. Likewise, it is difficult to imagine a pro-poor ASM system emerging without also seeing the introduction of more robust protections for labourers and the redistribution of financial resources towards poorer miners. Similarly, without a concerted effort to disrupt embedded gender and ethnic norms within Guyanese society more broadly, women and indigenous peoples may continue to be excluded from the more influential positions within the gold mining sector. Whether states such as Guyana will be willing (or able) to catalyse or support the kinds of politically contentious actions necessary for breaking down such long-standing social hierarchies remains to be seen.

References

- 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].
- Bakia, M., 2014. East Cameroon's artisanal and small-scale mining bonanza: How long will it last? *Futures*, 62, pp.40-50.
- Bakker, K. & Bridge, G., 2006. Material worlds? Resource geographies and the “matter of nature.” *Progress in Human Geography*, 30(1), pp.5–27.
- Barriteau, V., 2001. *The political economy of gender in the twentieth-century Caribbean*. Springer.
- Bashwira, M.R., Cuvelier, J., Hilhorst, D. and van der Haar, G., 2014. Not only a man's world: women's involvement in artisanal mining in eastern DRC. *Resources Policy*, 40, pp.109-116.
- Bebbington, A.J., Cuba, N. and Rogan, J., 2014. Visualizing competing claims on resources: Approaches from extractive industries research. *Applied Geography*, 52(5), pp.1-4.
- Bernstein, H., 2010. *Class dynamics of agrarian change*. Sterling: Kumarian Press.
- Bersaglio, B. and Cleaver, F., 2018. Artisanal mining in Southern Tanzania: Preliminary reflections on a ‘Green squeeze’. *The Extractive Industries and Society*.
- Blaikie, P., 2012. Should some political ecology be useful? The inaugural lecture for the Cultural and Political Ecology Specialty Group, Annual Meeting of the Association of American Geographers, April 2010. *Geoforum*, 43(2), pp.231–239.
- Brain, K.A., 2017. The impacts of mining on livelihoods in the Andes: a critical overview. *The Extractive Industries and Society*, 4(2), pp.410-418.
- Bridge, G., 2002. Grounding Globalization: The Prospects and Perils of Linking Economic Processes of Globalization to Environmental Outcomes. *Economic Geography*, 78(3),

p.361.

- Bridge, G., 2004. Contested terrain: mining and the environment. *Annual Review of Environment and Resources*, 29(1), pp.205–259.
- Brockington, D. & Ponte, S., 2015. The Green Economy in the global South: experiences, redistributions and resistance. *Third World Quarterly*, 36(12), pp.2197–2206.
- Bryman, A. 2004. *Social research methods*. Oxford: Oxford University Press.
- 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.
- 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*. London: Latin America Bureau.
- Colchester, M., La Rose, J. & James, K., 2002. *Mining and Amerindians in Guyana*. Georgetown: Amerindian Peoples Association.
- 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.
- Crawford, G., Botchwey, G., Pichler, M., Staritz, C., Küblböck, K., Plank, C., Raza, W. and Peyré, F.R., 2016. Foreign involvement in small-scale gold mining in Ghana and its impact on resource fairness. *Fairness and Justice in Natural Resource Politics*, pp.193-211.
- Demerara Waves, 2015. President orders probe into deadly mining pit cave-ins. *Demerara Waves*. Available at: <http://demerarawaves.com/2015/06/23/president-orders-probe-into-deadly-mining-pit-cave-ins/> [Accessed January 19, 2018].
- 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-presgranger/> [Accessed January 18, 2018]
- Demerara Waves, 2017. Gold miners threaten to protest, reduce declarations in response to new tax measures. *Demerara Waves*. Available at: <http://demerarawaves.com/2017/01/28/gold-miners-threaten-to-protest-reduce-declarations-in-response-to-new-tax-measures/> [Accessed January 8, 2018].
- Dooley, K. & Griffiths, T., 2014. *Indigenous Peoples' rights, forests and climate policies in Guyana: A special report*. Moreton-in-Marsh, UK: Forest Peoples Programme. Available at: <http://www.forestpeoples.org/sites/default/files/private/publication/2014/06/guyana-special-report-fpp-2014.pdf> [Accessed January 7, 2017].
- Fairhead, J., Leach, M. & Scoones, I., 2012. Green Grabbing: A new appropriation of nature? *Journal of Peasant Studies*, 39(2), pp.237-261.
- Fisher, E., 2007. Occupying the margins: Labour integration and social exclusion in artisanal

- mining in Tanzania. *Development and Change*, 38(4), pp.735–760.
- Forsyth, T., 2004. *Critical political ecology: the politics of environmental science*. London: Routledge.
- Garner, S., 2016. Politics and ethnicity in the Guianas. In *Post-Colonial Trajectories in the Caribbean* (pp. 79-91). Routledge.
- 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.
- Geenen, S. and Claessens, K., 2016. Different faces of access control in a Congolese gold mine. *Third World Thematics: A TWQ Journal*, 1(2), pp.249-266.
- 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].
- Government of Guyana, 2009. *Transforming Guyana's Economy While Combating Climate Change: Frequently Asked Questions*. Georgetown: Government of Guyana.
- Guyana Bureau of Statistics, 2017. *Guyana National Accounts Data 2017*. Georgetown: Guyana Bureau of Statistics.
- Guyana Chronicle, 2012. 'Operation El Dorado' to expand to target illegal mining. *Guyana Chronicle*. Available at: <http://guyanachronicle.com/2012/05/27/operation-el-dorado-to-expand-to-target-illegal-mining> [Accessed May 18, 2018]

Guyana Chronicle, 2016a. 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, 2016b. Trotman plans to bury corruption - says 2016 is year to “straighten out” mining sector. *Guyana Chronicle*. Available at: <http://guyanachronicle.com/2016/01/03/trotman-plans-to-bury-corruption-says-2016-is-year-to-straighten-out-mining-sector> [Accessed January 18, 2018].

Guyana Chronicle, 2016c. “Free for all” days over. *Guyana Chronicle*. Available at: <https://guyanachronicle.com/2016/05/21/free-for-all-days-over> [Accessed January 17, 2018].

Guyana Chronicle, 2017. Miners hail slash in tributors tax. *Guyana Chronicle*. Available at: <https://guyanachronicle.com/2017/11/28/miners-hail-slash-in-tributors-tax> [Accessed January 18, 2018].

Hall, D., P. Hirsch, and T. Li. 2011. *Powers of exclusion: Land dilemmas in Southeast Asia*. Honolulu: University of Hawai'i Press.

Hart, K. ed., 1996. *Women and the Sexual Division of Labour in the Caribbean*. Canoe Press.

Hennessy, L.A., 2013. Re-Placing indigenous territory: villagization and the transformation of Amerindian environments under “cooperative socialism” in Guyana. *Annals of the Association of American Geographers*, 103(5), pp.1242-1265.

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. and Priester, M., 2002. Global report on artisanal and small-scale mining. *Report commissioned by the Mining, Minerals and Sustainable Development of the International Institute for Environment and Development*. Download from <http://www.>

- ied. org/mmsd/mmsd_pdfs/asm_global_report_draft_jan02. pdf on*, 20(08), p.2008.
- Heynen, N., McCarthy, J., Prudham, S. & Robbins, P. eds., 2007. *Neoliberal environments: false promises and unnatural consequences*. London: Routledge.
- Hilson, G., 2010. “Once a miner, always a miner”: Poverty and livelihood diversification in Akwatia, Ghana. *Journal of Rural Studies*, 26(3), pp.296–307.
- Hilson, G., 2019. Why is there a large-scale mining ‘bias’ in sub-Saharan Africa?. *Land use policy*, 81, pp.852-861.
- Hilson, G. & Laing, T., 2017. Guyana Gold: A Unique Resource Curse? *Journal of Development Studies*, 53(2), pp.229–248.
- Hilson, G. & Maconachie, R., 2017. Formalising artisanal and small-scale mining: insights, contestations and clarifications. *Area*, 49(4), pp.443–451.
- 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.
- Hilson, G., Hilson, A. and Maconachie, R., 2018. Opportunity or necessity? Conceptualizing entrepreneurship at African small-scale mines. *Technological Forecasting and Social Change*, 131, pp.286-302.
- Hinton, J.J., Veiga, M.M. and Veiga, A.T.C., 2003. Clean artisanal gold mining: a utopian approach?. *Journal of Cleaner production*, 11(2), pp.99-115.
- Hirons, M., 2011. Locking-in carbon, locking-out livelihoods? Artisanal mining and REDD in sub-Saharan Africa. *Journal of International Development*, 23(8), pp.1140–1150.
- 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.
- IADB, 2015. *Analysis of the Small and Medium Scale Mining Industry in Guyana: Challenges and Needs*. Washington: Inter-American Development Bank.

- IADB, 2017. *Toward the Greening of the Gold Mining Sector in Guyana: Transition Issues and Challenges*. Washington: Inter-American Development Bank. Available at: <https://publications.iadb.org/bitstream/handle/11319/8432/Toward-the-Greening-of-the-Gold-Mining-Sector-of-Guyana-Transition-Issues-and-Challenges.PDF?sequence=1&isAllowed=y> [Accessed February 3 2018].
- 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/wpcontent/uploads/2013/02/959_file_AllThatGlitters_FINAL_.pdf [Accessed May 7, 2017]
- IISD, 2017. 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]
- 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, 2017. New processing fee arrangement in place for gold miners. *INews Guyana*. Available at: <https://www.inewsguyana.com/new-processing-fee-arrangement-in-place-for-gold-miners/> [Accessed January 11, 2018].
- Jenkins, K., 2014. Women, mining and development: An emerging research agenda. *The Extractive Industries and Society*, 1(2), pp.329-339.
- Kaieteur News, 2017. Miners demand meeting with Govt. on pending tax measures – Kaieteur News. *Kaieteur News*. Available at: <https://www.kaieteurnews.com/2017/01/09/miners-demand-meeting-with-govt->

on-pending-tax-measures/ [Accessed January 18, 2018].

Keeley, J. & Scoones, I., 2003. *Understanding Environmental Policy Processes: Cases from Africa*. London: Earthscan.

Lahiri-Dutt, K., 2018. Extractive peasants: reframing informal artisanal and small-scale mining debates. *Third World Quarterly*, 39(8), pp.1561-1582.

Lahiri-Dutt, K., 2019. Do Women Have a Right to Mine?. *Canadian Journal of Women and the Law*, 31(1), pp.1-23.

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.

Lemel, H. (2001). *Patterns of tenure insecurity in Guyana*. Land Tenure Centre Working Paper No. 1807-2016-142615).

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

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

Lowe, S., 2014. Can mining be part of a low-carbon, low-deforestation development strategy? The Case of Guyana. *Environment: Science and Policy for Sustainable Development*, 56(3), pp.4–11.

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.

Malpeli, K.C. & Chirico, P.G., 2013. The influence of geomorphology on the role of women at artisanal and small-scale mine sites. In *Natural Resources Forum* (Vol. 37, No. 1, pp.43-54).

Masson, M., Walter, M. & Priester, M., 2013. *Incentivizing Clean Technology in the Mining*

- Sector in Latin America and the Caribbean: The Role of Public Mining Institutions*. New York: Inter-American Development Bank.
- Mitchell, J., 2016. Pulling the rug out from under: The land tenure dynamics of mining concessions in sub-Saharan Africa. *The Extractive Industries and Society*, 3(4), pp.1117-1129.
- Peet, R. Robbins, P. & Watts, M. 2010. *Global Political Ecology*. London: Routledge.
- Peluso, N.L., 2017. Plantations and mines: resource frontiers and the politics of the smallholder slot. *Journal of Peasant Studies*, 44(4), pp.954–989.
- 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.
- Pokorny, B., von Lübke, C., Dayamba, S.D. and Dickow, H., 2019. All the gold for nothing? Impacts of mining on rural livelihoods in Northern Burkina Faso. *World Development*, 119, pp.23-39.
- Putzel, L., Kelly, A.B., Cerutti, P.O. & Artati, Y., 2015. Formalization as development in land and natural resource policy. *Society & Natural Resources*, 28(5), pp.453–472.
- Ribot, J.C. and Peluso, N.L., 2003. A theory of access. *Rural sociology*, 68(2), pp.153-181.
- Robbins, P., 2011. *Political ecology: A critical introduction*. London: Blackwell.
- Rocheleau, D.E., 2008. Political ecology in the key of policy: From chains of explanation to webs of relation. *Geoforum*, 39(2), pp.716-727.
- Salman, T., 2016. The Intricacies of “Being Able to Work Undisturbed”: The Organization of Alluvial Gold Mining in Bolivia. *Society & natural resources*, 29(9), pp.1124-1138.
- Seccatore, J. & de Theije, M., 2017. Socio-technical study of small-scale gold mining in Suriname. *Journal of Cleaner Production*, 144, pp.107–119.
- 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., 2012. *Formalisation policies, informal resource sectors and the de-/re-centralisation of power Geographies of inequality in Africa and Asia*, CIFOR.
- Spiegel, S.J., 2014. Rural place-making, globalization and the extractive sector: Insights from gold mining areas in Kratie and Ratanakiri, Cambodia. *Journal of Rural Studies*, 36, pp.300–310.
- Spiegel, S.J., 2016. Land and “space” for regulating artisanal mining in Cambodia: Visualizing an environmental governance conundrum in contested territory. *Land Use Policy*, 54, pp.559–573.
- 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.
- Spiegel, S.J., Ribeiro, C.A., Sousa, R. & Veiga, M.M., 2012. Mapping spaces of environmental dispute: GIS, mining, and surveillance in the Amazon. *Annals of the Association of American Geographers*, 102(2), pp.320–349.
- Stabroek News, 2014. President issues proclamation to prorogue Parliament – Speaker. *Stabroek News*. Available at: <https://www.stabroeknews.com/2014/news/stories/11/10/president-issues-notice-prorogue-parliament/> [Accessed April 3, 2018].

Stabroek News 2016. Over half of economy was controlled by illegal activity - Jordan.

Available at: <https://www.stabroeknews.com/2016/news/stories/05/28/half-economy-controlled-illegal-activity-jordan/> [Accessed January 17, 2018].

Stabroek News, 2017a. Miners association, syndicates boycott mining week. Available at:

<https://www.stabroeknews.com/2017/news/stories/08/26/miners-association-syndicates-boycott-mining-week/> [Accessed January 11, 2018].

Stabroek News, 2017b. Raid against Kaieteur mining nabs 21. *Stabroek News*. Available at:

<https://www.stabroeknews.com/2017/news/stories/05/29/raid-kaieteur-mining-nabs-21/> [Accessed January 9, 2018].

Stabroek News, 2017c. Mining syndicates to get 180,000 acres of land – Trotman. Available

at: <https://www.stabroeknews.com/2017/news/stories/08/22/mining-syndicates-to-get-180000-acres-of-land-trotman/> [Accessed January 11, 2018].

Tansey, O., 2007. Process tracing and elite interviewing: a case for non-probability sampling.

Political Science and Politics, 40(4), pp.765–772.

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.

Tschakert, P., 2016. Shifting discourses of vilification and the taming of unruly mining

landscapes in Ghana. *World Development*, 86, pp.123-132.

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.

- Verbrugge, B. & Besmanos, B., 2016. Formalizing artisanal and small-scale mining: Whither the workforce? *Resources Policy*, 47, pp.134–141.
- Verbrugge, B., Cuvelier, J. & Van Bockstael, S., 2015. Min(d)ing the land: The relationship between artisanal and small-scale mining and surface land arrangements in the southern Philippines, eastern DRC and Liberia. *Journal of Rural Studies*, 37, pp.50–60.
- Walker, P.A., 2005. Political ecology: Where is the ecology? *Progress in Human Geography*, 29(1), pp.73–82.
- Wotruba, H., Hentschel, T., Livan, K., Hruschka, F. & Priester, M., 1998. *Environmental Management in Small-Scale Mining*. La Paz: MEDMIN.
- Zimmerer, K.S. & Bassett, T.J., 2003. *Approaching Political Ecology*. New York: Guilford Press.