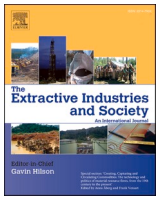
The Extractive Industries and Society 17 (2024) 101432

Contents lists available at ScienceDirect

The Extractive Industries and Society

journal homepage: www.elsevier.com/locate/exis



Review article

Ban mining, ban dining? *Re*(examining) the policy and practice of 'militarised conservationism' on ASM operations

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ARTICLE INFO

Keywords:
Artisanal and small-scale mining
Environmental governance
Militarisation
Livelihoods

ABSTRACT

The artisanal and small-scale mining (ASM) frontier continues to advance in most mineral-endowed countries due to rising unemployment and general economic decline particularly in rural communities. The sector, however, is often viewed in a negative light because it is highly environmentally destructive. In seeking to address the environmental challenges, many governments have, on occasion, actioned military strategies aimed at presenting facets of 'sanitisation' to a highly informal industry that has historically been tagged as an enemy of the environment. This study examines such 'mining vs. environment' discourses that have resulted in military crackdowns on ASM operations in parts of sub-Saharan Africa. Overall, the findings bust the 'myth' of the appropriateness of military interventions regarding ASM operations. Offering insights into the livelihood dimensions of ASM operations, we submit that our understanding of mining-ban failures can be assisted by an understanding of the broader geographical, socio-economic, technological, and institutional antecedents that combine to allow illegal mining operations to proliferate.

1. Introduction

The media and the citizenry take up the call to decry the environmental destruction issues related to the ever-advancing artisanal and small-scale mining (ASM) frontier in a resource-endowed country (see, Sojková, 2022). In the weeks that follow, the president of the country heeds the call and announces a ban on all ASM activities. The next day, a group of military personnel are seen driving to a mine site to enforce the president's directives; the miners, sensing danger and brutalities, quickly take to their heels (see, Bansah et al., 2022). Some unfortunate ones, however, are apprehended and beaten to a pulp (Bansah et al., 2022). Elsewhere in another mine site, a senior officer of the mining regulatory commission of the country leads a team of military-police personnel to set mining equipment, left behind by illegal miners, on fire (see Hilson, 2017). In a tinted glass office in a university setting, however, a professor is seen busily writing on the antecedents of the ASM-induced problems, the regulatory failure underpinning the problem, and explaining how the ban-cum-military crackdown is bound to induce hardships and, ultimately, fail to achieve its intended objectives (see, Hilson, 2017). Hereafter, months after the ban, some researchers, following up on the writings of the professor, are seen in a remote mineral-rich setting interviewing local residents on the effects of the mining ban on their livelihoods. Later, the copious writings of these researchers engage the attention of other researchers, who then review how the ban and its dynamics panned out (see for example, Zolnikov, 2020).

The scenarios in the above paragraph typify the precedents and conclusions encapsulating military-crackdown operations in some parts of sub Saharan Africa. Instances of presidential announcements incorporating socio-environmental narratives within efforts to halt ASM operations and address environmental degradation issues through military means have a long history. Images of military brutality often meted out to 'recalcitrant' ASM operators defying presidential decrees are not uncommon (Bansah et al., 2022; Hilson, 2017). Scholars have also not been silent on the problematic representations of ASM operations that engender military impositions, especially as a method of environmental governance, and the consequences that follow; see, for example, Hilson (2017) and McCoy and Traiano (2021). What these images have in common is that ASM, a Janus-faced sector, continues to gain more prominence as a source of livelihood on the one hand, while presenting

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https://doi.org/10.1016/j.exis.2024.101432
Received 10 August 2023; Received in revised form 11 February 2024; Accepted 11 February 2024
Available online 16 February 2024

intractable environmental challenges on the other (Adranyi et al., 2023; Ofosu et al., 2020; Arthur-Holmes et al., 2022b). These issues that continue to consume the attention of many governments, policy makers, and academics seeking to advance the benefits of ASM operations, while minimising the negative effects of same, is of relevance to the issues and discussions in this present study.

In recent times, a key characteristic of the changes in rural economic spaces especially in the Global South has been an exponential increase in ASM operations (IGF, 2017a; Hilson, 2016b). ASM operations involve the extraction and processing of metals and precious stones, such as gold and diamonds, from alluvial deposits situated at or near the land surface (Hilson, 2002). According to Hilson (2002), the alluvial mineral deposits, which are amenable to small-scale mining operations, usually have a wide geographical spread in remote and isolated locations especially in sub-Saharan African and Latin American countries. Generally, ASM operations are known to be conducted on an informal, low-tech, small-scale basis. In recent times, however, studies have noted that the operations are gradually becoming highly mechanised and capitalised, evolving into a highly intertwined group of formal sectors operating with substantial degrees of legal registrations (Martinez et al., 2021; Ofosu and Sarpong, 2022; Ofosu et al., 2022; Verbrugge, 2015). According to IGF (2017b), ASM is a complex and diversified sector that ranges from poor informal individual miners, seeking to eke out or supplement a subsistence livelihood, to small-scale formal commercial mining activities that can produce minerals in a responsible way, respecting local laws.

Inevitably, academics and policymakers have considered the wide-ranging effects of the significant structural and socio-economic developments in ASM operations, and the implications for the physical environment have featured prominently. In this regard, studies note that the proliferation of the operations (both formal and informal) is underpinned by the relevance of the sector as an avenue of (in)direct employment (Arthur-Holmes et al., 2022; Fisher et al., 2019; IGF, 2017a; Arthur-Holmes et al., 2023). Hence an increase in ASM production has a strong potential for rural poverty alleviation if properly regulated and monitored. In many rural places especially in sub-Saharan Africa, the smallholder agricultural economy – the largest employer - has become unviable (Hilson and Garforth, 2013, 2012; Bansah et al., 2023), engendering a process of livelihood diversification wherein the extractive economy (specifically ASM) now has taken on an important role as an 'off farm' activity (Hilson and Banchirigah, 2009; Hilson, 2016a). The sector, in the midst of the agricultural poverty syndrome (Hilson and Garforth, 2012), is sometimes the only viable source of sustainable livelihood for many people especially in rural communities. Mostly employed in informal settings, over 40 million people were noted to be directly involved in ASM in 2017, with more than 150 million people directly dependant on the sector (IGF, 2017a). With particular reference to Africa, the figures indicate that there are about 9 million ASM operators with about 54 million livelihoods (in)directly dependant on the sector (IGF, 2017a). Despite its low productivity, the sector continues to be a valuable source of minerals and metals for the global market; 'it accounts for about 20% of the global gold supply, 80% of the global sapphire supply, and 20% of the global diamond supply' (IGF, 2017a).

Despite the socio-economic benefits, the ASM industry is often viewed in a negative light by state officials in mineral-rich communities due to its association with 'conflict' (Mkodzongi, 2020; Wagner, 2016; Malone et al., 2023), and especially environmental problems (Ofosu et al., 2020; Siaw et al., 2023; Arthur-Holmes and Abrefa Busia, 2022a). Informed by the negative socio-economic and environmental consequences, some governments, referencing discourses of formalisation, have often resorted to military strategies leading to crackdowns or a ban on ASM operations. These crackdowns are often accompanied by military brutalities, such as the use of 'gunfire' and the burning of mining equipment (Bansah et al., 2022; Hilson, 2017; Spiegel, 2014). Some researchers and policy analysts, however, claim that this approach seems problematic considering the importance of ASM especially to rural livelihoods in the midst of entrenched rural poverty (Hilson and Garforth, 2012, 2013; Eduful et al., 2020). Elsewhere, others have argued that the deployment of the military to combat illegal mining and environmental pollution problems is a façade to masque regulatory intentions to promote rent-seeking behaviour in the extractive domains (Hilson and Maconachie, 2020).

In light of the aforementioned issues, this study, bringing recent evidence from several parts of sub-Saharan Africa, aims to extend our understanding of the dynamics surrounding the choice of outright bans in ASM contexts by synthesising the existing literature (Wakefield, 2015) on the subject of state-authorised forms of military interventions in ASM operations. It does so by providing a narrative, culminating in the development of a conceptual model, of cases of mining bans in two specific countries, namely, Zimbabwe (Spiegel, 2014) and Ghana (Hilson, 2017; Bansah, 2019; Zolnikov, 2020) .[1] This task is important considering that some government programmes, aimed at formalising the ASM sector, are still driven by assumptions that military strategies on ASM operations can reduce the environmental quagmire and sanitise the industry, (see for example, McCoy and Traiano, 2021; Watts, 2023). Thus, synthesising the literature in order to present and highlight the enormous evidence busting the myth of the appropriateness of military interventions could help policymakers and mining governance regimes to 1) at least restructure and eventually abandon programmes that seek to allocate resources to military strategies, and 2) ultimately allocate the precious resources to more appropriate and sustainable ASM-related programmes including the equitable distribution of mineralised lands to ASM operators, training of ASM operators and easing of licensing procedures.

The rest of the paper proceeds as follows. After the introductory section, a contextualisation, and manifestation of the ban on mining in the two countries is explored in Section 2. After this, the livelihood dimension of the crackdowns is presented. The corruption mechanism and the resistance phenomenon are unpacked in Section 4, while the last section discusses and draws conclusions regarding the issues explored in the study.

2. The policy and practice of 'militarised conservationism'

Throughout its history, environmental protection, and biodiversity conservation has been underpinned by a diverse range of ethical, utilitarian, and economic concerns (Doak et al., 2014; Schroeder, 1999; Eden, 2001). Conservation's concern for the protection of the environment and biodiversity has always been encapsulated in discussions of concern for human well-being and ecosystem services (Adams, 2019; Doak et al., 2014; Kareiva and Marvier, 2012). Spearheaded by prominent advocates and international organisations, this viewpoint has been advanced in both scholarly and policy discussions. Conservationism, conventionally conceptualised as a movement that supports ways of protecting biodiversity and the natural environment, arises from the popular view that the environment needs to be saved, preserved, and protected from abuse by humans (Doak et al., 2014; Soulé, 1985). It chimes with the standpoint that most needs and wants of humans are dependant on the environment and biodiversity; therefore, being something we use and need, the environment has to be conserved, taken care of, for others to use in the future (Doak et al., 2014; Soulé, 1985; Kareiva and Marvier, 2012).

Following on from the above, in instances where, for example, education of the populace on the need for the sustainable management of resources (Rotshuizen and Smith, 2013) seems to have failed, militarised

[1] Although military operations have been conducted on ASM operations in other countries, for example, the DRC (Geenen, 2012), we analyse the cases of Zimbabwe and Ghana where these military operations related to the 'environment and conservation' have been conducted.

environmental conservation, with a 'shoot-on-sight' approach, has been deployed (Neumann, 2004). This approach refers to the establishment of military-style strategies and technologies and their application to the protection and conservation of natural resources – what is often characterised as 'green militarisation' and 'green violence' (Büscher and Fletcher, 2018; Duffy, 2014; Lunstrum, 2014; Eduful et al., 2020). The approach has sometimes been referred to as 'militarized conservation, a war, by conservation' (Duffy, 2016; Eduful et al., 2020). The support for militarised conservation, dovetailing with popular viewpoints on conservationism, stems from the urgent need to prevent the extinction and degradation of species and other natural resources that are at a relatively high risk (Marijnen and Verweijen, 2016; Eduful et al., 2020). In this regard, a critical branch of scholarly literature has highlighted the positive effects of the military-style approach to environmental protection to the effect that these interventions help protect natural resources, prevent the illegal exploitation of resources, and minimise the extinction of endangered species; see Büscher and Fletcher (2018).

Thus, in most parts of the world, especially in the Global South, some governments have adopted conservation of the environment through militarised means, engendering a higher degree of militarisation of natural resource protection strategies (Rotshuizen and Smith, 2013; Eduful et al., 2020). Critics, however, point out that the approach is coercive, repressive, and ultimately counterproductive (Duffy, 2014). Crucially, critical analysis of the 'military approach' and 'green militarisation' dynamic shows that its (in)direct results may well defeat the goals toward which it is deployed, namely, biodiversity conservation (Duffy et al., 2015; Büscher and Fletcher, 2018). Others also highlight the unfair socio-economic consequences of green militarisation manifested through state violence and the criminalisation and dispossession of local populations (Bocarejo and Ojeda, 2016).

Particularly with regard to the ASM sector, there is an abundance of evidence showing that this approach has been utilised in most mineral-rich zones (Hilson, 2017; Geenen, 2012; McCoy and Traiano, 2021; Osei et al., 2021). Nonetheless, critics of this approach argue: the military strategies, emphasising the protection of the environment, seem to disregard the mechanisms that underpin the proliferation of the activities (Hilson, 2017). Further, others highlight: military approaches may even masque governments' real intentions of seeking to promote their long-cherished 'large scale mining bias' tendencies to the detriment of ASM operations (Hilson and Maconachie, 2020; Sauerwein, 2020). This blatant disregard results in regular harm to disadvantaged peoples, and impediments to ASM-induced business and development mechanisms especially in poor regions (Hilson, 2017).

The argument further goes that military approaches rest on the myth of the integrity of the military and state institutions and their core purpose to conserve and restore the environment, a purpose that, in fact, may never have existed (McCoy and Traiano, 2021; Geenen, 2012). The approach wrongly considers ASM operators as fragile and vulnerable, the dregs of society who would fold in the face of 'Rambo style' military interventions. However, the operators are resilient and can recover rapidly from even the most powerful military disturbances (Eduful et al., 2020). Hence, the approach has failed to protect the environment, and although many of these approaches have been created, environmental degradation continues (Hilson, 2017; Eduful et al., 2020). Protecting the environment and biodiversity for its own sake has failed. Conservation through militarisation is also failing socially, with dwindling support from the populace (Bansah et al., 2022). The approach is losing the battle to protect the environment because of the failure to connect with the hearts, realities, and dynamics existent in the ASM sector. Given these problems, others argue that instead of pursuing the protection of the environment for its own sake, a new conservation mechanism should seek to redress the artificially created impediments that prevent especially ASM operators from formalising or registering their operations (Hilson, 2017).

2.1. A military ban on ASM: the case of Zimbabwe

The ASM industry in Zimbabwe has a long history (Veasey, 1997; Huffman, 1974). It also has a livelihood dimension, acting as an engine of employment for several million people across the country (Mkodzongi and Spiegel, 2019; Mawowa, 2013). Notwithstanding the economic benefits of the sector, however, in 2006, the government's longstanding requirement that all minerals mined be sold to the Reserve Bank fuelled smuggling to higher levels, as the prices for gold offered by state officials were less than could be obtained by selling it through other avenues (Spiegel, 2014, 2009). The deleterious environmental problems of ASM in Zimbabwe have also been a constant feature in scholarly discourse (Zwane et al., 2006). Mambondiyani (2017), for example, reports that illegal mining operations, carving paths of environmental destruction, had alarmed the inhabitants of mining communities. Most notably, illegal mining activities had led to the destruction of about 600 hectares of forest cover in the Tarka Forest (Mambondiyani, 2017).

Invoking the above cited concerns as a reason, the Zimbabwean state actioned a military crackdown on mining operations - *Operation Chikorokoza Chapera* ('No More Illegal Mining') between 2006 and 2009 (Spiegel, 2014). Both legal and illegal ASM operators were forcefully closed down in 2007 by the state authorities with the exercise led principally by the police (Spiegel, 2014). The aim was to minimise/eradicate illegal mining, prevent smuggling, and halt the degradation of the physical environment. The police launched attacks on miners and arrested about 25,000 of them amidst police brutalities (Spiegel, 2009, 2014).

2.2. Ghana: imposing a ban: the environmental justification

Ghana, like many mineral-rich countries in sub-Saharan Africa, has a large ASM sector (locally known as *galamsey*). The sector offers livelihood opportunities to a large number of people, with estimates showing over 1 million people directly dependant on the sector (Hilson, 2017). Estimates further show that about 30% of Ghana's total gold production comes from the sector (Hilson, 2017; World Bank, 2019). Despite these socio-economic benefits, however, strong evidence suggests that the sector contributes to pervasive environmental problems (Boadi et al., 2016; Ofosu et al., 2020; Bansah et al., 2016). Notably, ASM operations have caused a considerable amount of damage to some areas in the Western Region (Mensah et al., 2015). Several landscapes in the Eastern, Ashanti and other regions have also been destroyed by ASM operators leaving in their wake abandoned and devastated zones (Boateng et al., 2014; Owusu and Dwomoh, 2012). Recently, the ASM industry attracted thousands of Chinese miners, the majority of whom dispersed and most of whom resided in rural communities engaged in illegal ASM (Antwi-Boateng and Akudugu, 2020; Crawford and Botchwey, 2017). These miners introduced advanced dredging machines and excavators leading to the destruction of vast swathes of land in many parts of the country (Antwi-Boateng and Akudugu, 2020). In addition, water pollution has increasingly become a major health issue in many mining areas with officials of Ghana Water Company Limited predicting a national crisis over supplies of fresh river water (Bansah et al., 2018; Darko et al., 2023).

With the environmental degradation discourse serving as the backdrop, various political regimes in Ghana have sought to secure and safeguard the future of the natural resources and forest life (Bansah et al., 2016; Hilson, 2017). Several legislations have been promulgated to rid the sector of illegalities and its associated environmental quagmire. However, the failure of these laws to sanitise the sector has often resulted in the use of military force (Hilson, 2017). For example, in 2006, the government of Ghana initiated the 'Stop Illegal Mining' or 'Operation Flush-Out' - a military-crackdown effort to halt ASM operations across the country. The operations, which were led and supervised by the Ministry of National Security, resulted in the confiscation of mining equipment. Similarly, in 2013, former president John Mahama

formed the Inter-Ministerial Task Force on Illegal Small-Scale Mining with the aim of forcefully 'flushing out' illegal ASM operators working in the country (Osei et al., 2021; Hilson et al., 2014).

Fast forwarding to 2017, increasing public outcry against the menace of environmental degradation engendered by the activities of ASM operators resulted in the launch of #StopGalamsey, a campaign initiated, primarily, by the Ghanaian media (Armah-Attoh, 2017). The environmental quagmire discourse dominated the media for months and elicited national calls for action against *galamsey*. The discourse was accompanied by a rise in violent rhetoric, usually calling for extreme forms of punishment for ASM operators for committing 'environmental crimes' (Bansah et al., 2022; Sojková, 2022). Drawing on these environmental discourses, the government enacted a total ban on all ASM activities nationwide. A ban was also placed on the issuance of new mining licences (Hilson, 2017). The ban was meant to create the political space to address the dynamics of illegal mining and environmental degradation in mining communities. An Inter-Ministerial Committee on Illegal Mining (IMCIM) was established to oversee the implementation of the mining ban. To further give practical meaning to the ban, the government empowered and dispatched the military. 'Operation Vanguard' – a coalition of personnel from the Ghana Armed Forces and the Police Force and tasked with eradicating all illegal ASM activities - was launched (Hilson, 2017). To support the 'Operation Vanguard' team, the government later set up 'Galamstop' – another coalition of security personnel (Ayamga, 2019). The operations of both taskforces included, amongst others, the physical protection of the environment, the arrest of illegal miners, and the seizure of mining equipment (Eduful et al., 2020; Hilson, 2017). In December 2018, the government lifted the ban to allow registered ASM operators to function. In general terms, the operations succeeded only in suppressing mining rather than eradicating the activities, as shown by the evidence provided below.

3. Insights from the empirical literature

In reporting the conclusions derived from discussions with some female interviewees from Akwatia, Zolnikov (2020) found that the ban indeed suppressed ASM activities in the area. Most miners, including women, were unable to visit mine sites to undertake activities, meaning these women had to revert to other jobs with low earnings. Elsewhere, Osei et al. (2021) drew on a qualitative research study undertaken in the Western North Region and the Eastern Region of Ghana to seek the views of male and female mining operators on the impact of the ban. The study reports that the ban suppressed mining with the consequences being the curtailment of youth's imagined futures. Most people had to rely on the social network safety net in order to attain some level of decent livelihoods. In-depth interviews with some ASM operators in the Tarkwa-Nsuaem Municipality offer similar evidence in support of the findings already highlighted above (Bansah, 2019).

However, the evidence also suggests some miners defied the ban and continued to work especially during the night (Bansah, 2019). Findings from a sample of about 70 women selected for a survey in the Prestea-Huni-Valley District also confirmed a suppression of mining operations in the area (Orleans-Boham et al., 2020), while Eduful et al. (2020) provided similar qualitative findings from parts of the Eastern region to indicate the suppression of mining with consequential negative effects on livelihoods, see also Dery Tuokuu et al. (2020)'s study, which contains a discussion we touch on below.

3.1. Ban mining, ban dining – towards a conceptual model

As indicated earlier, ASM is an important economic activity in most rural livelihood strategies. The sector provides employment opportunities in both the countries examined above. Therefore, the cumulative impact of the bans was considerable, especially for poorer households and women miners (Zolnikov, 2020; Ofosu et al., 2024). The ban on mining affected not only the livelihoods directly dependant on the ASM sector but also the livelihoods dependant on the ancillaries of the sector with petty traders, transport operators, etc. feeling the brunt of the mining bans (Osei et al., 2021; Zolnikov, 2020; Spiegel, 2014). Zolnikov's (2020) findings from the eastern part of Ghana indicate that most women reported their inability to even pay electricity bills, and pay for basic necessities, such as water and food. Elsewhere, Osei et al. (2021) provided evidence to show how the ban restructured the landscape of opportunities for young people; in effect, most young people lost the opportunity to, for example, accumulate assets. However mobility and social networks enabled young people to survive (Osei et al., 2021).

In Zimbabwe, the mining ban meant that livelihoods for most people in mining communities were extinguished and possibilities for earning incomes were constrained; most stalls closed for business in the majority of mining-dependant communities (Spiegel, 2014). Another livelihood-related issue is the high incidence of theft because of the general decline in the economy and rising levels of unemployment in most mining areas in Zimbabwe and Ghana (Spiegel, 2014; Osei et al., 2021).

On the macro level, the crackdowns left the national budgets poorer. Officially, gold production in Zimbabwe drastically declined (Spiegel, 2014). It is worth noting that the crackdown also had the effect of shifting the geography of mining rather than completely stopping mining; for example, the crackdown resulted in the migration of some miners to the Chimanimani mountains on the Zimbabwe-Mozambique border (Spiegel, 2014). Some Ghanaian miners also migrated to countries including Liberia and Ivory Coast to undertake mining due to the ban in Ghana (Bansah, 2019).

In effect, whereas a ban on mining usually fails to achieve its intended 'sanitation' purposes, it significantly affects livelihoods (in) directly dependant on the industry and its ancillaries. In the DRC, for example, Geenen (2012) found similar evidence in support of what has been discussed so far in this study. Geenen (2012) highlighted that the impact of a ban on mining, due to conflict-related reasons in the DRC, was reflected in a high number of school drop-outs. Women and children became the worst sufferers with some mining sites experiencing malnourishment and frequent occurrence of disease (Geenen, 2012). This corroborates the findings of Parker et al. (2016), which estimated the impact of the Dodd-Frank Act (another ASM reform policy in the DRC) on the mortality of children and found that the probability of infant deaths in villages near the policy-targeted mines increased exponentially. The study further found evidence that the legislation-induced ASM boycott increased infant mortality by reducing mothers' consumption of infant health care goods and services.

In this vein, we conceptualise 'a ban on mining as a ban on dining'. Placing a ban on ASM activities is akin to denying operators, and those whose livelihoods depend on the operations, the ability to gather resources to be able to afford basic necessities such as food, water, clothing etc. (which is conceptualised as 'dining'). This conceptualisation is reflected in our model in Fig. 1.

3.2. Busting the myth of the appropriateness of militarised interventions on ASM operations

As indicated earlier, in both countries, the ASM ban failed to achieve the purpose of ridding the sector of all illegal mining operations. The failure can be attributed, first, to institutionalised corruption on the part of official government actors mandated to 'flush' out illegal mining operators. These actors, seeking to benefit from the very resource they are supposed to protect, negotiate deals with miners for financial gain (Ofori et al., 2021; Crawford and Botchwey, 2017; Hausermann and Ferring, 2018). Second, because ASM operations are mainly poverty-driven, serving in most cases as the only viable source of livelihood sustenance, miners continue to operate even in the face of threats of arrests and prosecution. This is what can be referred to as poverty-induced resistance (Eduful et al., 2020; Osei et al., 2021).

Thus, although the bans did significantly suppress ASM activities,

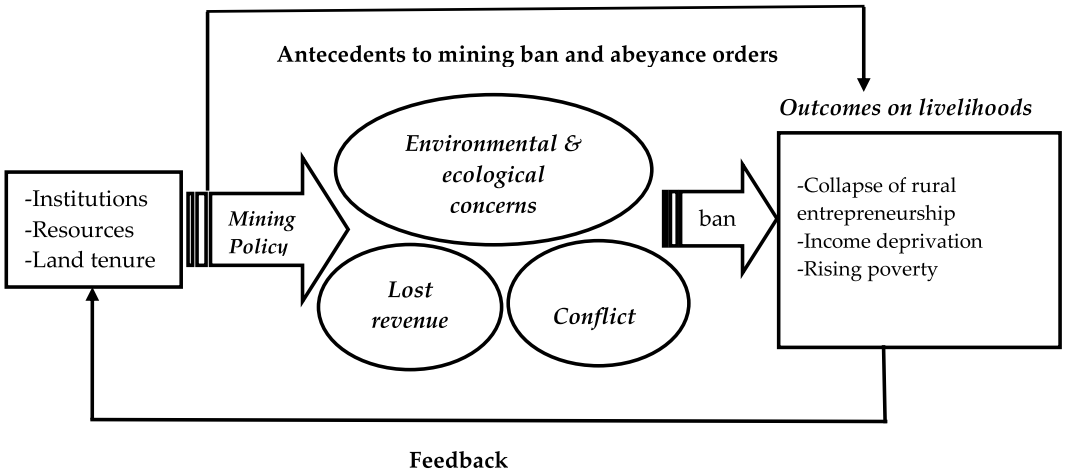

Fig. 1. Implications of 'ban mining' on livelihoods.

they did not lead to the cessation of all mining activities. Evidence abounds of miners quickly adapting to working around policing restrictions (Bansah, 2019). In Ghana, ASM became a nocturnal activity in most mining areas (Bansah, 2019). Some evidence also shows that the security forces were engaged in corruption and extortion activities (Bansah, 2019), with *big men* acting as *frontmen (*see, for example, Hausermann and Ferring, 2018) to mediate illegal transactions between mining operators and personnel in official governmental circles. In some cases, miners were tipped off by these big men about military plans, thus allowing them to flee before regrouping once the military forces had left the area. A miner indicated the following:

> We are often pursued by government security forces. We run and leave our equipment behind. They destroy the equipment and sometimes get to arrest our colleagues who could not escape. They sometimes demand money from the people they arrest. If you can't pay, they take you to the police station and to the law court. A month ago, we had to contribute money to get one of our guys released by the security forces. One 'big man' later advised us to 'find' money for the security forces so that they stop disturbing us. We started contributing money for them through one other 'big man'. Now, they hint us when they are coming for operations so that we don't go to the site on that particular day. Sometimes, too, they give us stickers to tag our equipment, and they don't do anything to those equipment. That's how we have managed our activities so far. (Bansah, 2019, p.6)

Recently, there have been burgeoning reports alleging the disappearance of mining equipment seized from ASM operators. Mining equipment, such as bulldozers, retrieved from numerous ASM sites across Ghana has been reported to be missing from official custody; some government officials have been accused of appropriating such equipment (Ayelazuno and Aziabah, 2023). This appears to defeat the aim of tackling informal mining, with some reports summarising the supposed 'fight' against *galamsey* as a failure (Hilson, 2017; Ayelazuno and Aziabah, 2023).

In Zimbabwe, reports and studies indicate that mining continued in a semi-clandestine way. Some of the mining operators resorted to using very labour-intensive equipment at night so as to evade the police; in some areas, the phenomenon of rushed mining activities left water bodies more prone to degradation and pollution than previously (Spiegel, 2014). On issues of corruption, Spiegel (2014) highlighted reports of some key government officials taking over mine sites in order to continue mining. In addition, extortion and corruption increased (Spiegel, 2014). In the early phases of the crackdown, it was reported that some prominent politicians were benefitting from the mineral-rush. A wider range of political elites, including members of parliament, were noted as profiting heavily (Spiegel, 2014). Similar to the Ghanaian case, mining equipment was stolen by people in officialdom including the police (Spiegel, 2014).

To summarise, we emphasise the following: first, the cases above show how a mining ban paves the way for the power balance to be reorientated in favour of the political and military authorities. This draws attention to the fact that when government officials take control of the informal sector, especially ASM, powerful actors are likely to become the beneficiaries through the process of accumulation by dispossession (Spiegel, 2014), thus undermining the general interest of local mining communities. Second, the poverty-driven nature of ASM means that operations take place even in the face of military intervention. These discussions illustrate many of the challenges characterising efforts of the military to halt environmental destruction activities. In essence, the execution of a military style approach has become highly complicated alongside the phenomenon it attempts to redress. We summarise the mediating factors as follows:

Geographical: Alluvial minerals, which are those most amenable to ASM operations, are mainly spread over wide areas. The diffuse nature of alluvial minerals (gold and diamonds), coupled with the reality that the majority of the workers are located in remote areas where law enforcement is virtually non-existent (see for example, Jonkman, 2022), derails the success of a ban on the operations.

Socio-economic: As has been noted extensively, ASM activities are poverty-driven. The miners, therefore, even in the face of threats of arrest and prosecution, continue to engage in the activity to safeguard their means of obtaining a sustainable livelihood. Military crackdowns on operations do not deter operators. Instead, the poverty-driven nature of the activities influences a poverty-driven resistance.

Technological: The ASM activity is low-tech and labour intensive. Thus, miners do not need much capital to engage in the activity. The shovel and pickaxe nature of operations induces a 'hit and miss' operational character, which is difficult for security officials to track. Those who have the capital to purchase and operate heavy equipment that is easily traceable are, however, safeguarded by corrupt mining-regulatory officials.

Institutional: Mining governance regimes are corrupt and weak and therefore tend to provide support to those engaged in illegal mining activities. Officials who ought to be in control of the 'fight' against illicit mining and environmental crime, paradoxically, become active perpetrators.

4. Discussion and conclusion

Although ASM can be economically productive, the environmental quagmire associated with the sector continues to gain traction in

environmental and conservation concerns within the global socio-environmental discussions (Clifford, 2022; Bartrem et al., 2022). With technological equipment making more mineral fields accessible, thus further escalating the environmental degradation problems, ASM continues to come under increased scrutiny (Clifford, 2022). Nonetheless, the sector continues to grow significantly due to the increasing poverty further pushing the ASM frontier. Thus, in many resource-rich countries across the globe, and especially in sub-Saharan Africa, Latin America, and Asia, one of the most significant mineral-policy challenges centres around the question of how best to decrease the environmental problems of the ASM sector while increasing the contribution of the sector to socio-economic development.

It is worth noting that efforts to minimise the environmental degradation problems associated with the expansion of the ASM sector have led many governments to look for ways to better regulate the operations of the sector through formalisation (Martinez et al., 2021; Bansah, 2023). The reality, however, is that most operators continue to operate illegally across many resource-rich countries especially in sub-Saharan Africa and the Amazon regions, and the illegality has spawned serious environmental burdens (Clifford, 2022). These revelations have sometimes contributed substantially to a growing sense of war to protect the environment and the idea that military forms of intervention may be required to save it. In other words, military crackdowns seem to have emerged as a response to perceived environmental injustices fuelled by ASM operations. The use of the military is conceptualised and applied as an environmental enforcement mechanism and a deterrence strategy; thus, the state sometimes responds through increased environmental regulation implemented through violence. This approach, however, continues to divide public opinion (Bansah et al., 2022). Generally, the approach is known to be short-lived and unsustainable, as it employs temporary responses to exceptional and long-standing challenges. The approach has failed significantly to achieve its intended purpose of bringing sanity to the ASM landscape. The evidence is reliable, as many countries that have used the approach continue to witness increases in the very operations the crackdowns sought to halt.

In this regard, this study sought to examine and synthesise the literature on the ramifications of military-crackdown approaches in countries such as Zimbabwe and Ghana. Similarities with regard to the imposition of the military-enforced ban on ASM can be seen in how the governments of these countries saw the ban to be important as a way of creating the necessary platform for the transformation of ASM. In this sense, the bans were considered as efforts to help in the formalisation of ASM and could be justified on grounds of environmental development (Spiegel, 2014; Hilson, 2017). However, the military crackdowns on ASM operations in these countries failed in their promise regarding how formalisation would rid the sector of the environmental menace associated with illegal mining operations. Similar operations in other mineral-rich settings have been noted to have failed or to have achieved only limited success (McCoy and Traiano, 2021). Today, illegal mining operations continue to proliferate in many parts of these countries with the rate of environmental devastation maintaining its grim rise. Governments are thus seeking 'new' ways to transition the ASM sector from the informal to the formal domain in order to curb the environmental problems of illegal mining. In Ghana, for example, a new project, dubbed the Community Mining Scheme, has been initiated to enrol illegal miners into semi-formalised platforms to help curb the environmental excesses of illicit mining (Arthur-Holmes et al., 2021; Hilson et al., 2022). The ramifications of these military crackdowns on mining, and the failure of the bans to achieve their intended purpose of ridding the sector of illegal mining operations and their consequential environmental degradation challenges, provide the context to examine other thematic issues in ASM.

Clearly, any new efforts aimed at eradicating illegal mining through military-enforced approaches would depend, in part, on an understanding of why past exercises to address the problem have been ineffective. Thus, examining the literature on these crackdowns, the analysis suggests that, in part, the failure is attributable to institutionalised corruption associated with state actors mandated to halt illegal/informal mining operations; see, for example, Abdulai (2017). These actors, seeking to benefit from the very resource they are mandated to protect, negotiate deals with the miners for financial gain. Second, because ASM operations are mainly poverty-driven, serving in most cases as the only viable source of a sustainable livelihood, miners find it extremely difficult to halt their operations even when threatened with arrests and prosecution. This is what can be termed poverty-induced resistance - the willpower and the determination to guard and protect a means of livelihood triumphing over established forces aimed at eradicating those means (Eduful et al., 2020; Osei et al., 2021).

Finally, we examine the livelihood implications of these bans. Here, the analysis indicates that mining bans and clampdowns invariably fail to solve the associated problems of ASM. However, they ignite a cascade of complex (often negative) socio-economic consequences. Placing a ban on ASM activities is akin to denying operators, and the livelihoods dependant on the operations, the ability to gather resources to be able to afford basic necessities such as food (which is conceptualised as 'dining') .[2] The topic of this study is thus encapsulated in this phenomenon, i.e., ban mining, ban dining (ban mining, ban people's ability to buy food). Specifically, the problems a ban on mining engenders are manifested through income deprivation, malnourishment in children, and a general decline in economic activities especially in the rural economic space (Geenen, 2012; Zolnikov, 2020).

Hence, some argue that mining-related crackdowns are bound to fail in any country with mineral riches, making it amenable to small-scale mining, but with high levels of poverty (Eduful et al., 2020; Hilson, 2017). Illustrating the argument through a comparison of the ban on ASM in the aforementioned countries, the explanation underpinning the conjoined dynamics goes as follows: *geographically,* the minerals, mostly alluvial, are 'everywhere', i.e., spread over wide, mostly rural, areas. These remote, transient, and migratory ASM frontiers usually lack any effective presence of state security (see Siwale and Siwale, 2017; Wagner, 2016; Jonkman, 2022). *Socio-economic*-wise, meanwhile, the people who usually live in close proximity to these mineral deposits are poor (ASM activities are poverty-driven); *technologically,* the mode of extraction requires little investment, as the minerals can easily be extracted (low-tech); and *institutionally*, officials and mining-regulatory institutions mandated to safeguard operations are weak and corrupt (they get compromised eventually). Hence, a ban on mining would inevitably fail. Therefore, policy should rather seek to address the drivers of ASM informality – for example, the high registration fees, delays on permit-related decisions, the shortage of available mineralised-land (Hilson, 2017; Siwale and Siwale, 2017). Added to this, mining regulatory institutions should comprehensively incorporate land reclamation/remediation exercises into extractive policies; see, for example, Ofosu and Sarpong (2023).

These issues strengthen the case for the formalisation of ASM. As has been extensively debated elsewhere, many ASM operators are unable to register their operations because, generally, the costs of formalisation are astronomically high (Hilson, 2017; Siwale and Siwale, 2017). Most miners are also confronted with bureaucratic inefficiencies including large amounts of paperwork, high costs for obtaining official documents and bribes, and concerns about the ensuing high investment costs in a formal exploitation project (Geenen, 2012; Hilson, 2017; Siwale and Siwale, 2017). As such, most miners have few incentives to join a formalised sector. In this regard, we agree with scholars such as Geenen (2012), Hilson et al. (2018) and Pijpers (2014) that mining authorities would need to make formalisation processes more flexible in order to stem the tide of illegal mining with its consequential environmentally

[2] 'Ban dining' is also used to refer to all the negative livelihood impacts that a ban on mining engenders

destructive habits. In addition, a political will to punish mining-related corruption offences is non-negotiable.

Further, as we highlight, a blanket ban on ASM operations is problematic. It suggests that all ASM operations are 'bad', thus feeding into the popular ASM-is-an-enemy-of-the-environment narrative. Research and policy documents indicate, at least in the case of Ghana, that not all operations are informal or illegal (Botchwey et al., 2022; Ofosu and Sarpong, 2023; Arthur-Holmes et al., 2022). In addition, research is beginning to demonstrate the possibility of very good and sustainable ASM practices (Ofosu and Sarpong, 2023; Zavala, 2017). Thus, before the ban on mining in the country settings examined here, formal operators could have been identified and monitored regarding their efforts to undertake sustainable mining and environmental management practices. This would have at least mitigated the negative livelihood dimensions of a total ban on ASM. Even if ASM practices were environmentally-polluting, the operators could have been tasked with remediating the environmental problems. Shutting down ASM operations completely becomes counterproductive when seeking to address the very problems the miners might have caused. Finally, we give the penultimate words to Suely Araújo, a former director of Brazil's environmental protection agency: "The military hasn't solved — and will not solve — the problem" (McCoy and Traiano, 2021). What is therefore required is a comprehensive policy that seeks to address the problems of ASM informality and of unemployment in mineral-endowed countries especially in the Global south.

CRediT authorship contribution statement

George Ofosu: Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Daniel Siaw:** Validation, Conceptualization. **David Sarpong:** Writing – review & editing, Supervision, Conceptualization. **Stephen Danquah:** Writing – review & editing, Conceptualization.

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