

doi: 10.1111/imig.12518

# South-South Irregular Migration: The Impacts of China's Informal Gold Rush in Ghana

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## ABSTRACT

This article examines irregular South-South migration from China to Ghana, and the role it played in transforming livelihoods and broader developmental landscapes. It looks at the entry of approximately 50,000 Chinese migrants into the informal small-scale gold mining sector from 2008–2013. These migrants mainly hailed from Shanglin County in Guangxi Province. In Ghana, they formed mutually beneficial relationships with local miners, both legal and illegal, introducing machinery that substantially increased gold production. However, the legal status of Chinese miners was particularly problematic as, by law, small-scale mining is restricted to Ghanaian citizens. In mid-2013, President Mahama established a military task force against illegal mining, resulting in the deportation of many Chinese miners. The article examines the experiences of both Chinese migrants and Ghanaian miners. Findings are that irregular migration into an informal sector had long-lasting impacts and played a significant role in the transformation of economic, political, and physical landscapes in Ghana.

## INTRODUCTION

From the mid-2000–2013, approximately 50,000 irregular Chinese migrants entered Ghana to engage in small-scale gold mining. These migrants overwhelmingly hailed from Shanglin County, in Guangxi Zhuang Autonomous Region — an area with a tradition of alluvial gold mining, and also a nationally designated “poverty-stricken county” (*pinkun xian*) that is home to the Zhuang ethnic minority group. Upon arrival in Ghana, the Chinese miners introduced new machinery and technology that dramatically increased the production of gold, although at the cost of serious environmental degradation.

The arrival of the Chinese miners was controversial, not least for reasons related to their legal status. According to the *Minerals and Mining Act 2006* (Act 703, Section 83a), artisanal and small-scale mining (ASM) is reserved for Ghanaian citizens (Parliament of the Republic of Ghana, 2006). Thus, it is illegal for any foreign nationals to engage in small-scale mining operations. Until

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The copyright line for this article was changed on December 13, 2018 after original online publication.

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ISSN 0020-7985

Published by John Wiley & Sons Ltd.

recently, Ghanaian miners could apply for a 25-acre land concession and a license from the Minerals Commission allowing them to mine.<sup>1</sup> However, the large majority of small-scale mining undertaken by Ghanaians is unregistered, and therefore unlawful.<sup>2</sup>

Such illicit mining is known colloquially as *galamsey*. In Ghana, Chinese migrant miners found ways to integrate themselves into the widespread illicit gold mining sector (Teschner, 2012; Hilson et al., 2014; Crawford and Botchwey, 2017). Many of the Chinese miners formed mutually beneficial relationships with local people and their activities also stimulated local markets. However, their presence also caused conflict in places, notably where disputes occurred between local artisanal miners and Chinese miners over access to mining sites, at times turned over to Chinese miners by locals, with the connivance of chiefs and other public officials. In particular, the Chinese miners have been accused of displacing and outcompeting local alluvial gold miners, feeding into widespread corruption and stealing Ghanaian mineral resources through gold smuggling (Abid et al., 2013). For a number of years, it seemed as though the government was simply ignoring the phenomenon. However, in May 2013, media pressure eventually pushed former President Mahama into establishing a military-style task force against illegal mining. This resulted in the arrest of many foreign miners, with over 4500 Chinese nationals either deported or leaving “voluntarily” (*Modern Ghana* 12 July 2013; Kaiman and Hirsch, 2013).

In the wake of the 2013 military task force, the numbers of Chinese miners in the country reduced considerably, although some still remain, or come and go, as discussed below. However, the consequences of this intense (and ongoing) episode have been significant and transformative. The mechanization and intensification of Ghana’s small-scale alluvial mining sector — mainly due to the new technologies introduced by the Chinese miners and adopted by Ghanaian miners — has irreversibly changed the traditional way that alluvial mining was undertaken in the country, and in many instances it can no longer be described as artisanal. Intensified mining has also resulted in widespread environmental destruction of land and waterbodies. These significant changes, largely due to Chinese involvement, have led to the controversial ban by President Akufo-Addo’s government on all small-scale mining, both legal and illegal, with effect from early April 2017 to date, citing the problem of environmental degradation.<sup>3</sup> The ban has been enforced by a second military task force, Operation Vanguard, launched on 31 July 2017 with 400 military and police officers in the main areas of alluvial ASM in southern Ghana.<sup>4</sup>

Irregular South-South migration into informal labour sectors has received relatively little systematic research attention. This article examines the phenomenon of irregular migration by Chinese miners into Ghana’s informal alluvial mining sector. It addresses the following question:

What impact does mass migration of this kind have on the livelihoods of informal miners (both Chinese and Ghanaian), as well as on wider economic, environmental and political landscapes in Ghana?

The article is divided into five sections. The next section provides a brief review of key literature on Chinese migration to Africa. The third section focuses on this recent example of irregular migration of Chinese miners to Ghana to undertake small-scale gold mining. The fourth section explores the outcomes of this migration event for both Chinese and Ghanaian miners, as well as the wider consequences in Ghana. Finally, the conclusion argues that the impact and effects of this irregular migration have been significant and long lasting — not only for the actors involved, but also for the ASM sector, the physical landscape in mining areas, as well as Ghanaian society and polity more broadly. Policy implications are outlined, including the recognition and regulation of foreign involvement in small-scale mining and an update of Ghana’s immigration policy to reflect the new situation.

The paper is based on fieldwork undertaken in both Ghana and China. In Ghana, a total of 39 semi-structured interviews were conducted from April 2014 to January 2015 in Accra and around

Dunkwa-on-Offin, the municipal capital of the Upper Denkyira East Municipality in the Central Region of Ghana, where there was a sizable number of Chinese miners before the 2013 task force. At the national level in Accra, representatives from relevant government agencies were interviewed, including the Minister and Chief Director of the Ministry of Lands and Mineral Resources; the deputy director of the Environmental Protection Agency; the chairman of the Parliamentary Select Committee on Mines and Energy; senior officials in the Minerals Commission, the Ghana Immigration Service, and the Precious Minerals Marketing Company; and the national administrator of the Association of Small-Scale Miners. In addition, representatives from the Chinese business community were interviewed, including some with direct links to small-scale mining. In Upper Denkyira East Municipality, interviews were held with government officials, local politicians and chiefs, as well as with local journalists and Ghanaian small-scale miners. Focus group discussions were held in two mining communities. In addition, visits were undertaken to mining sites, both legal and illegal, to observe mining processes at first hand, including the degree of environmental degradation. In China, fieldwork was undertaken in mid-2017 and mid-2018 in the Shanglin County seat area, including in the two townships from which the vast majority of the miners originate.

In total, 43 semi-structured and unstructured interviews were conducted with returned miners and their families, non-returned miner households, non-mining households, local officials at the village, township and county levels, mining-related businesses, staff in the county hospital and a local journalist who has reported extensively on the Chinese miners in Ghana. Fieldwork in China was based on the Systematic and Reflexive Interviewing and Reporting (SRIR) method, with interviews being conducted by small teams of two to three researchers, all of whom asked questions and took notes. Interviewing was directly followed by collaborative report writing and reflexive dialogue in order to facilitate preliminary in situ analysis, uncover emerging themes and identify future interviewees (Loubere, 2017).

Additionally, documentary data, systematic participant observation and visual data in the form of photos were also collected. After the completion of fieldwork, all the data collected and produced were analysed in the qualitative data analysis programme Dedoose.

### South-South migration from China to Africa

Chinese migration to Africa has become a significant economic and political issue (Broadman, 2007; Brautigam, 2009; Mohan and Tan-Mullins, 2009; Cardenal and Araujo, 2014). However, detailed and systematic research on the extent and nature of this mass migration — or on its developmental impact — is limited. As Chee-Beng Tan (2013: 6) notes in the *Routledge Handbook of the Chinese Diaspora*: “There have been rather few academic studies on the Chinese in Africa”. Indeed, the data on the number of Chinese migrants in Africa remain speculative and estimates vary considerably. While there is consensus that the Chinese population in Africa has “increased rapidly in recent years” (Li, 2013: 62–64), there is still significant “paucity” of data on Chinese migrant flows to Africa, particularly with regard to the types and numbers of migrants (Mohan and Tan-Mullins, 2009: 591).

As part and parcel of the wider globalization phenomenon, China’s sudden “scramble for Africa” does not follow a neat coherent narrative that lends itself to generalisations or “summing up” (Alden et al., 2008), although the quest for natural resources is clearly a key driver of China’s increased engagement with Africa (Alden and Alves, 2015: 248). While there exists a powerful global narrative framing the Chinese push into Africa as a concerted one, in reality there is often little coordination or connection between Chinese migrant populations in different African nations and there are a wide variety of local responses to Chinese migration across the continent (Esteban, 2010; Lu, 2017). Indeed, the few existing detailed investigations into Chinese migration to Africa point to the diversity that exists within and between Chinese migrant communities in African

countries (French, 2014). Researchers illustrate that “new immigrants” comprise “all kinds of people” (Mohan and Tan-Mullins, 2009: 591). Chinese communities in Africa include official migrants connected to Chinese state-related projects, e.g. in large-scale construction that is often related to “infrastructure-for-resources loans” whereby soft loans are provided to African governments for infrastructural projects, invariably carried out by Chinese construction companies, in return for access to natural resources (Alden and Alves, 2015: 250). However, there are also increasingly large numbers of independent and largely unregulated migrants, which has resulted in a “cleavage between official channels and more informal ones” (Mohan and Tan-Mullins, 2009: 589).

While it is widely acknowledged that this type of irregular migration from China to Africa has increased substantially in recent years, it has not been well documented and remains an under-researched field of study (Kaplinsky and Morris, 2009: 558). Nevertheless, the fact that the increasing presence of Chinese migrants in informal sectors in African countries has, in some cases, created employment for low-skilled African workers, research has shown that the growing number of Chinese nationals in Africa has, in some instances, led to growing resentment and opposition (Ajakaiye and Kaplinsky, 2009; Abid et al., 2013; Wang and Elliot, 2014; Tschakert, 2016).

In the specific case of Chinese migration to Ghana, historical records from the late 19<sup>th</sup> century indicate that the British colonial government brought indentured Chinese labourers to the former Gold Coast (now Ghana), including a small group of 16 Chinese miners and technicians brought to work in the gold mines in 1897 (Li, 2012: 74–75). After independence in 1957, a relatively small Chinese business community established itself in Ghana, mainly investing and working in the catering and casino industries, as well as in small-scale agriculture (Cook et al., 2016). In the twenty-first century, the number of Chinese non-resident migrant workers in Ghana has increased, particularly in association with large-scale government-to-government infrastructure projects, such as construction of arterial roads, the Bui dam and facilities related to the oil and gas industry, with the latter in particular financed through an “infrastructure-for-resources loan”.<sup>5</sup>

This type of regular migration – tied to official construction projects – is usually short-term, and the number of Chinese citizens entering Ghana through this route has remained relatively small. Sautman and Yan (2007) estimated that there were approximately 6,000 Chinese migrants in Ghana in 2004, yet numbers have increased substantially since then, primarily due to the large number of irregular migrants. According to the Ghanaian Immigration Service, there were about 18,300 arrivals of Chinese citizens in 2012 and 20,300 in 2013. It is believed that many of these entrants were related to the small-scale mining boom discussed in this paper. Additionally, such official figures do not include those miners who entered Ghana illegally through porous borders, especially from Togo where Chinese nationals have visa-on-arrival access.<sup>6</sup> While Chinese mining companies have no involvement in large-scale gold mining in Ghana, this paper examines the role and impact of Chinese small-scale miners as irregular migrants in informal small-scale gold mining in Ghana.

### From Shanglin County to Ghana and back again

The hike in gold prices in 2008 prompted a rush of foreign miners into Ghana, predominantly from China. By 2013, at the height of this gold rush, Chinese news outlets estimated that around 50,000 miners had come to Ghana from China (Kane, 2013; Lu, 2017) – a figure that has been substantiated in interviews with returned miners and local officials in Shanglin County.<sup>7</sup> The Chinese miners hail almost entirely from two townships in Shanglin County, and came to be known in Ghana as the “Shanglin Gang”. Shanglin, whose population is primarily ethnically Zhuang (a minority group), has a long tradition of gold mining. Throughout the 1980s, residents of Shanglin engaged in gold mining locally and developed their own specialist alluvial mining machinery, such as trommels (i.e. wash plants), crushing machines (*changfa*), as well as water platforms, pumps and suction equipment for river dredging for gold. In the 1990s, they migrated domestically to engage in

small-scale mining in the northern border areas of Xinjiang and Heilongjiang, bringing their large machines with them by train. This resulted in conflicts with locals in the mining areas, prompting a governmental response that made it more difficult for the miners to operate in other parts of China. With this tightening of regulations, the Shanglin miners looked outward and began searching for mining opportunities in other countries.<sup>8</sup>

From the mid-2000s, stories of people “striking it rich” in Ghana resulted in a steady –and then rapid – exodus of Shanglin miners to the country, where they reportedly established over 2,000 mining operations (He, 2013).

Although there are parallels with previous historical episodes of long-distance migration from China to North America and Australia during gold rushes from the 1850s to 1870s (Ngai, 2015), this contemporary episode was facilitated by features of globalization, such as relatively cheap air travel, the ability to ship large machinery around the world, and rapid, cheap telecommunications by which information about opportunities to make money can be quickly spread by “word of mouth” (Reilly, 2016). In this sense, the Chinese gold rush in Ghana is one manifestation of the ongoing unprecedented migration of Chinese people from all walks of life to the African continent pushed by broader forces of globalization to seek their fortunes in the global capitalist system (Cardenal and Araujo, 2014). Although the increased regulation of internal migration by the Chinese government was a factor in the Shanglin miners looking outward, our research has found no evidence of any formal linkage with the Chinese government or its push for resources in Africa. On the contrary, the migration of the Shanglin miners to Ghana and elsewhere has been a spontaneous movement of people from a small geographical area, essentially two townships, based on their expertise in gold mining.

Miners from Shanglin County can now be found in dozens of countries around the world, including Russia, a number of Latin American nations, countries across Southeast Asia, as well as other African countries. According to interviews with returned miners and their families in August 2017 and June 2018, Ghana remains the most lucrative and is still the primary destination for the Chinese miners, but due to the recent moratorium large numbers have also started operations in other African countries, particularly Sierra Leone and the Democratic Republic of the Congo (DRC). Information obtained from Shanglin County during fieldwork in June 2018 indicated that miners tend to come and go to Ghana depending on the political climate, and currently many miners have returned to Shanglin. Nevertheless, significant numbers still remain in Ghana despite the ongoing government moratorium on all small-scale mining.

The contemporary China-Ghana gold rush has also been distinct from historical Chinese gold rushes in Australia and the Americas due to the socio-economic status of the Chinese miners themselves. While historically Chinese miners have been in relatively subordinate positions *vis-à-vis* the dominant white colonial settlers, contemporaneously in Ghana they have found themselves in a better socio-economic situation than many of the locals, meaning that they have been able to assert themselves in different ways and gain access to land and resources more easily than their historical counterparts. On arrival in Ghana, the majority of the Shanglin miners started mining in the rural areas surrounding Kumasi, Obuasi and Takoradi, compensating land owners – including traditional chiefs – with usage fees. Clearly, the Chinese did not act alone in locating gold or gaining access to land in Ghana. Indeed, a participant in a focus group discussion in one mining community indicated this when commenting on Chinese involvement in the illegal mining activities:

the townfolk themselves sell the land to them [Chinese miners]. They search for the gold and when they find some, then they look for the Chinese to buy. . . The locals themselves register everything in their names and give it to the Chinese at a percentage.<sup>9</sup>

Additionally, mining was facilitated by local government officials and other government agencies demanding payments to “turn a blind eye” to Chinese mining activities or, in the case of

immigration officials, for the provision of (false) work permits (Song, 2013; Crawford and Botchwey, 2017).<sup>10</sup>

Mining activities have generally been financed by individuals or small groups of Chinese nationals. Investors then employ workers from China who are promised a fixed monthly wage, plus a small percentage of the gold income, as well as local Ghanaians who are paid at a much lower daily rate than the Chinese workers. At the height of the gold rush, huge sums of money were being sent from Ghana to China from sales of gold – with estimates indicating that the amount outstripped the Ghanaian governmental revenue (He, 2013; Song, 2013). However, despite the huge amounts of money involved, the Chinese miners have certainly not uniformly benefited from the gold rush. Many of the early arrivals were able to find gold and quickly scale up, whereas many late arrivals did not have sufficient capital to start their own mining operations and instead worked as paid labourers. In the words of the elderly parents of a miner who has been a contracted worker in Ghana for the past three years:

We have no capital at all so he could not invest in a machine even if he cooperated with others. . . It's difficult to get the loan because we are too poor and there is nothing to mortgage. . . He has been employed since he went to Ghana, however, because his boss has been unsuccessful, my son does not earn enough to send money home so we cannot fix the house [there was a large crack in the wall].<sup>11</sup>

Some miners were also caught up in the government crackdowns before being able to accumulate enough money to send home to cover debts related to travel expenses and the purchase of mining machinery, putting them and their families in precarious situations.<sup>12</sup>

Before the arrival of the Chinese miners, many artisanal gold miners in Ghana continued to rely on very rudimentary methods – pick, shovel and bowl – while others had shown “ingenuity and creativity” in adapting and developing small-scale machinery at existing mine sites, for example the “ingeniously fabricated contraptions” that combined diamond and gold processing technologies, as observed by Nyame and Grant (2012: 170). Although Ghanaian artisanal miners had displayed the ability to improvise and innovate in such ways, the Shanglin miners introduced technology and mining machinery that was altogether more sophisticated and on a larger-scale (Crawford et al., 2015: 12). This equipment had largely been developed in Shanglin County, and there are currently three companies producing the mining machinery locally for sale worldwide, with the primary customer base being Shanglin miners in other countries.<sup>13</sup> The machines are a substantial investment, usually costing approximately one million yuan (US\$150,000) and an additional 20,000 yuan (US \$3,000) for shipment to Ghana. Miners who are able to invest in machines have the potential to strike it rich, as they set up their own operations. However, if they purchase a machine and are unsuccessful – or if their machine is expropriated/destroyed in a crackdown – they will often find themselves in considerable debt.

Chinese miners also brought large amounts of capital to pay for living expenses, rent and bribes to officials and local elites. Most of this money is pooled by investor groups consisting of close family and friends. It comprises both savings and money borrowed from financial institutions and/or loan sharks in Shanglin County, which puts considerable pressure on the miners to successfully find gold.<sup>14</sup>

Across much of China rural credit cooperatives provide individual loans of around US \$25,000 without need for collateral. Thus, a group of eight Chinese miners, the number required to undertake a mechanised operation, can usually pull together US \$200,000 to invest in mining equipment and other expenses (Crawford et al., 2015: 13). This combination of new technology, capital, and pressure to access gold resulted in a huge intensification of production – both in collaboration with Ghanaian licensed, small-scale concession-holders, and on unlicensed land obtained from chiefs and other landowners.

While collaboration between Chinese and Ghanaian miners resulted in mutual benefits and boosted local economies (as discussed below), the involvement of the Shanglin miners was also controversial for several reasons. First, and most fundamentally, alluvial mining undertaken by Chinese miners in Ghana is illegal. As noted above, small-scale mining is restricted to Ghanaian citizens by law. Thus, *all* foreign miners as well as unregistered Ghanaian artisanal miners – the so-called *galamsey* – have been operating illicitly. Second, the scale of environmental degradation of both land and waterbodies intensified due to the mining practices, as discussed below. Third, while sales of gold from small-scale mining to the Precious Minerals Marketing Company (PMMC) – the official government gold buying and exporting agency – increased substantially at this time, there have been accusations of gold being smuggled out of the country by Chinese miners (Crawford and Botchwey, 2017: 455). However, interviews with returned miners in Shanglin have not directly supported this allegation. Rather, miners state that they sold gold to informal middlemen in Ghana, many of whom are also Chinese citizens – mainly from Zhejiang and Fujian Provinces – who then provided cash and/or transferred funds directly to bank accounts in China.<sup>15</sup>

However, it is not known how these middlemen then sold on the gold, whether legitimately or otherwise. Fourth, while this phenomenon of migrant Chinese miners was mostly characterized by collaboration with locals, there were also instances of conflict resulting in injuries and even death. Chinese miners were sometimes the victims of robberies, and responded by arming themselves with firearms, such as shotguns (Hirsch, 2013). Returned miners in Shanglin acknowledged that all mining groups had multiple guns – often up to five guns per group of ten miners – which were used primarily as deterrence and for hunting. Rather shockingly, they also stated that these weapons were often purchased directly from the police, and for an extra fee even come with an “official” registration certificate, giving the transaction the illusion of legality.<sup>16</sup>

Initially the Ghanaian government was slow to act in the face of various aspects of illegality associated with an intensification of small-scale mining from 2010 onwards. However, increasingly adverse coverage by the Ghanaian media, with a particular focus on local conflicts and environmental destruction, ultimately pushed the Government of Ghana into action (Abid et al., 2013). In May 2013, former President Mahama established an Inter-Ministerial task force aimed at combating illegal small-scale mining. The President was careful to include all illegal mining activities in the task force’s remit; however, the subtext was clear – this was a measure aimed at foreign miners, especially Chinese nationals. As indicated above, the task force entailed a military-style operation and resulted in the deportation or “voluntary” departure of 4,592 Chinese nationals, as well as smaller numbers of citizens from Niger, Togo and Russia (*Modern Ghana*, 12 July 2013; He, 2013)

The number of Chinese miners in Ghana has reduced since this first crackdown, but Chinese involvement in small-scale mining has not ceased. Instead, it has become more concealed. An interview with a community leader revealed that the task force did not pursue all foreign miners. He commented as follows: “None of the government’s task force ever came here. They went to other places and arrested some Chinese, but not in this area. Some of the Chinese are still mining in this area”.<sup>17</sup>

Some miners have moved into more remote areas where they are less likely to be discovered (Quartey, 2013), while others put their machines in storage, waiting for the political climate to cool before returning to mining in collaboration with their Ghanaian partners.<sup>18</sup>

Some other Chinese nationals made the transition from direct mining to involvement in mining-related businesses, for instance the hire of machinery or hidden ownership in small-scale concessions fronted by Ghanaians. At the time of writing, in June 2018, the issue of illicit Chinese involvement in small-scale mining has remained in the media following the government’s moratorium from early April 2017 on all ASM operations (Jamasmie, 2017). Although only 12 Chinese nationals have reportedly been arrested for illegal mining out of approximately 1000 in total under Operation Vanguard, the arrest of Asia (known as Aisha) Huang, the so-called “Galamsey Queen”,

and four compatriots, has attracted media headlines concerning her alleged role in facilitating illegal mining by Chinese miners and her alleged contacts with high-profile politicians.<sup>19</sup>

Strained diplomatic exchanges have also occurred between the Ghanaian Minister of Information, Mustapha Hamid and the Chinese Ambassador to Ghana.<sup>20</sup>

As with the crackdown in 2013, Chinese miners in Ghana are currently maintaining a low profile and waiting for the political winds to change direction again.<sup>21</sup> It is clear, therefore, that although the intense period of China-Ghana irregular migration associated with small-scale mining has reduced, it remains ongoing and continues to have significant impact on the lives of people in both Ghana and China.

### Impacts of the Chinese gold rush on livelihoods and landscapes

The implications of the relatively short but intense episode of irregular migration from 2008 to 2013 are numerous and wide-ranging. In this section, we examine the impact that this gold rush has had on the practice of ASM in Ghana; on the physical landscape through environmental degradation; on the economy at both macro level and micro level for Chinese and Ghanaian miners and their families; and finally, on governance in Ghana, including the impact on the legitimacy and authority of the state.

#### Environmental degradation

Environmental degradation has long been associated with small-scale alluvial mining. This is particularly the case with *galamsey* activities, given their illicit nature which makes it difficult to affix accountability for damage caused (Armah et al., 2013; Tschakert, 2016). There have been particular concerns arising around the destruction of farmlands, the diversion of streams and rivers for mining purposes, as well as surface and ground water pollution through the usage of hazardous chemicals – particularly cyanide and mercury for processing gold (CSIR–Water Research Institute 2013), although more nuanced views have been offered by some academic researchers (for instance, Hilson et al., 2007; Tschakert and Singha, 2007; Nyame and Grant, 2014: 82).<sup>22</sup> Mechanization has intensified the degradation of both land and water in areas of alluvial mining. Farmland in particular has been extensively destroyed during the scramble to acquire land for small-scale mining from 2008 onwards, affecting both food crop production and cash crops (such as cocoa), and resulting in adverse effects for both food security and foreign currency earnings (Crawford and Botchwey, 2017: 12). One woman stated in a focus group discussion that:

Most of us are farmers and our farms are across the river, but the mining activities have expanded the river making it impossible for us to cross to our farms.<sup>23</sup>

On registered concessions, local licensed miners have the responsibility for land reclamation and clean up, yet respondents in both Ghana and China suggested that license holders would take money from Chinese partners for reclamation purposes, but did not follow through on their legal obligations after mining was complete.<sup>24</sup> While the destruction of farmland has undoubtedly caused serious problems, the destruction of river systems has emerged as a new and potentially catastrophic form of environmental degradation. Ghana's waterbodies have been ravaged by "dredging mining" in rivers by means of equipment and techniques introduced by Chinese miners, despite the fact that river mining is illegal. Post-task force, Ghanaian miners have continued this practice using Chinese machinery to dredge the riverbed and process the excavated material for gold, often with mercury. In interviews, Chinese miners suggested that little mercury is actually used and that the disruption to water resources can be remedied after mining is complete – thus claiming that their practices are less polluting than large mining companies.<sup>25</sup>

However, these individual perspectives probably fail to consider the combined impact of tens of thousands of miners across the country. Indeed, plenty evidence is available to demonstrate that the gold rush has resulted in severe river pollution – notably the Pra river and its tributaries such as the Offin, which have high levels of water turbidity, causing harm to aquatic ecosystems and loss of aquatic life and contaminated drinking water (CSIR - Water Research Institute 2013). Treatment to make water drinkable again becomes more difficult and costly. In 2013, Daniel Mishio – the chairman of Ghana’s national security commission for lands and natural resources – was quoted as saying that “In certain areas, people don’t even get clean drinking water, and in some areas you can see that most of the forest cover has been destroyed. This poses a very big danger to our future” (Hirsch, 2013). In the years following the first crackdown, illegal mining has continued to intensify the pollution of Ghanaian rivers, and in March 2017 the Ghana Water Company warned that the country would soon have to begin importing water for consumption if illegal mining activities were not curbed (cited in Abdulai, 2017, 1). This was a key reason for the Government’s moratorium on all small-scale mining from April 2017.

### **Livelihood Impact: Small-scale mining becomes big business**

One consequence of the mechanization and intensification of small-scale gold production is that the economic rewards are now much greater for those involved – i.e. licensed Ghanaian miners, Chinese miners, and *galamsey* operators – and livelihoods for many have been considerably enhanced. One common type of mining operation that continued after the initial crackdown involves licensed miners sub-leasing their concession of land to Chinese miners and splitting the value of the gold production – usually 15 per cent to the concession holder(s) and 85 per cent to the Chinese miners who effectively do all the mining.<sup>26</sup>

Licensed miners reported that a 15-per cent stake can often amount to an income of 15,000–25,000 Ghana cedis per week (approximately US\$4,000–US\$6,500).<sup>27</sup> These findings indicate that the Chinese miners and their local partners have managed to find a grey zone allowing them to circumvent the law restricting small-scale mining to Ghanaian citizens, although such “sub-letting” remains illegal.

Despite their illicit nature, it is evident that some Chinese mining operations have been extremely profitable. In a 2014 interview, one Chinese national in Ghana, with Chinese miners as business clients, stated that “in four to 5 years, a lot of Chinese millionaires, even billionaires” were created, adding that they “had worked very hard”.<sup>28</sup> Chinese media reports have highlighted the large sums that Chinese miners made in Ghana. For instance, the *twenty-first Century Business Herald* – a Chinese business daily – reported on the riches made by some miners from Shanglin, quoting earnings of US\$500 million, and referencing stories of gold bars sent to China as gifts and the purchasing of Ferraris (Ghanaweb, 17 May 2013).<sup>29</sup>

While interviews with returned miners in Shanglin did not confirm the claims of gold being smuggled out of Ghana, some miners certainly earned substantial sums, which were then transferred to accounts in Shanglin County. Indeed, the previously cited report referenced one local bank source as stating that in May and June 2011 alone, more than one billion yuan (approximately US\$150 million) was wired into Shanglin from abroad.<sup>30</sup>

In our interviews, officials in Shanglin also estimated that in the peak years over 10 billion yuan (approximately US\$1.5 billion) flowed through the county’s financial institutions each year.<sup>31</sup> The interviews with returned miners also suggested that in the best of times 100,000 yuan could be made in gross profit *daily* (approximately US\$15,000), per small-scale mining operation of about eight Chinese miners.<sup>32</sup> Although the media stories of lavish spending by Chinese miners are often exaggerated, there is no doubt that substantial sums of money were involved in this migration episode, and that fortunes were quickly made by some Shanglin miners.

Yet lucrative and illicit business also involved substantial risks for the Chinese miners in their Ghanaian operations. The crackdowns and recent moratorium are extreme examples of the structural risks facing the miners, but there are also everyday risks involved in the extraction of gold in Ghana. The Chinese miners were very security conscious, and all returned miners that we spoke with reported that they purchased multiple weapons to protect themselves against potential night-time robberies at their mining sites. Additionally, selling the gold was a particularly dangerous activity. In the words of one returned miner: “We sell the gold to an Indian or Chinese middleman who transfers money directly to our account in China. However, the local thieves know when and where we are going to sell the gold so we have to be very cautious not to get robbed on the way”.<sup>33</sup> In addition to being risky, the initial investment is capital-intensive often requiring loans and/or the pooling of money for investment through family and friend networks.

However, small-scale mining was not a lucrative business for everyone. While a relatively small number of Chinese and Ghanaian miners have earned huge sums, not everyone has been successful, and many have even lost out from the gold rush. For instance, inequalities amongst Ghanaians involved in small-scale mining have increased substantially. This includes a gendered dimension, as women, children, and many young people are left to extract the “scraps” left after mechanized alluvial gold mining. This involves rewashing gravel in heaps of “tailings” at pits that have been abandoned after intensive mining with the Chinese machinery.<sup>34</sup> The benefits have also not accrued equally amongst the Chinese. From interviews with returned miners, it appears that those who arrived early (before 2008) were often able to invest in their own equipment and find productive concessions. These miners were thus able to quickly enrich themselves. This group often transferred funds back to China for investment in large urban areas rather than in Shangling itself – e.g. the buying of property in Nanning, Shanghai, Beijing, and other burgeoning real estate markets. They also invested in scaling-up their mining activities in Ghana and other countries in West Africa, such as Cameroon, Sierra Leone, and the DRC. However, the Chinese miners who went later as wage labourers, rather than investors, were not able to earn such large sums of money. Often these miners attempted to save up for investment in their own machinery as soon as possible. Unfortunately for many of them, they were only able to invest just before the 2013 crackdown. This left many Chinese miners with large debts and no ability to repay without continuing to mine.<sup>35</sup> Indeed, first-hand accounts confirm reports of less fortunate Chinese miners, especially those who had arrived shortly before the crackdown in mid-2013, who had not gained sufficient income from gold to repay loans or to afford a flight home, and hence fled into remoter parts of “the bush” to continue mining in what had become a hostile context (Quartey, 2013).

### Wider Economic impact

Since the beginning of the gold rush, the contribution of gold production from the small-scale sector to the Ghanaian economy has increased substantially – a direct result of the mechanized production introduced by Chinese miners. Official figures (see Table 1) reveal that the small-scale sector has grown rapidly in the last decade, especially from 2010 onwards. The volume of gold from small-scale mining increased seven-fold from 225,411 ounces in 2005 to 1,576,478 ounces in 2013, and, despite dips, this was maintained in 2016 at 1,570,029 ounces.<sup>36</sup> Additionally, the percentage of total gold production from small-scale mining (in comparison with large-scale mining) has increased from 7.4 per cent in 1995 to 15.2 per cent in 2008, and then to a remarkable 36 per cent in 2013 and 38 per cent in 2016. The most recent figures for 2016 show total annual gold production of 4.13 million ounces, of which 2.56 million ounces is from large-scale production and 1.57 ounces from small-scale production. This indicates how the small-scale sector, despite its largely illicit nature and the adverse economic impact of the current moratorium, has developed into a highly significant economic sector within Ghana,

TABLE 1  
TOTAL GOLD PRODUCTION IN GHANA

Year	Large Scale Producers (oz)	Small Scale Producers (oz)	Total Ghana Production (oz)	ASM contribution to total gold production (%)
2005	1,913,534	225,411	2,138,945	11
2006	2,090,721	247,063	2,337,784	11
2007	2,239,696	388,594	2,628,290	15
2008	2,378,012	418,943	2,796,955	15
2009	2,564,095	555,737	3,119,832	18
2010	2,624,391	767,196	3,391,587	23
2011	2,697,661	978,611	3,676,272	27
2012	2,856,243	1,481,670	4,337,913	34
2013	2,820,419	1,576,478	4,396,897	36
2014	2,685,399	1,484,793	4,170,192	36
2015	2,848,574	1,070,648	3,919,222	27
2016	2,561,441	1,570,029	4,131,440	38

Source: Minerals Commission Ghana 2014; Ghana Chamber of Mines, 2015, 2016a,b.

During the gold rush, local business people did well from the soaring demands for fuel, food and rental accommodation. According to one ASM association member, “local businesses were booming, especially sales of fruits, vegetables and general food items; locals employed to operate mining machines [by Chinese miners] were paid better wages than those working for local small-scale miners”.<sup>37</sup>

In his words, “the town was hot, very busy” and local people “had money in their pockets”.<sup>38</sup>

Research has revealed that local traders were upset when the task force chased away the Chinese miners, resulting in a decline in sales.<sup>39</sup>

This confirmed the study by Liu (2014), who undertook interviews in Dunkwa at the time of the first crackdown in June 2013. Local respondents reported loss of employment – for instance as cooks or laundry women at mining sites – and significant declines in business income. Some local traders even stated: “we want them [the Chinese miners] to come back” (Liu, 2014: 14).<sup>40</sup> The Chinese miners have also seen themselves as facilitating the economic transformation of “backward” areas of Ghana, saying things like: “before there was nothing” and that the Chinese presence has “changed and improved the situation of the local people a lot... they wanted us there because they can earn money too”.<sup>41</sup>

However, economic booms are also characterized by the emergence of losers. Local people who were not able to benefit from the mining have suffered from the rising cost of living, notably food prices and rents, driven up by the high demand. At the height of the boom, basic goods such as vegetables and meat, became scarce or unavailable, reportedly bought up *en masse* by Chinese miners and taken to their encampments.<sup>42</sup>

In addition, shortages of diesel became a common phenomenon in Dunkwa due to the high demand for fuel to run the excavators.<sup>43</sup>

Further negative effects were due to the switch in land use from farming to mining, with a detrimental impact on agricultural production. This also contributed to rising food prices and reduced availability of locally produced food, with people from outlying villages now more dependent on buying food from markets in Dunkwa (necessitating wage incomes) and less reliant on subsistence production.<sup>44</sup>

The loss of farmland is a significant long-term negative effect, as good agricultural land has been destroyed and is no longer fit for cultivation after being sold by local land owners to Chinese miners for short-term financial gain.<sup>45</sup>

## Political impact

Where was the state in this context and what does this episode tell us about the Ghanaian state more generally? This is a particularly pertinent question, given the degree of illegality involved. Initially, the government appeared slow to respond to the sudden scramble for the country's mineral resources by foreign and local miners alike. However, by 2012 and 2013 the gold rush started to become a political issue, with the situation being described as "out of control" and characterized by "a culture of impunity" by a senior environmental official.<sup>46</sup> The state's inaction became the target of an increasingly critical media, with stories about local conflicts and environmental destruction becoming headlines in major news outlets. This despair over lack of government action is typified in an early 2013 article in the *Daily Graphic*, the country's most established newspaper. Under the headline of "Deal with illegal miners now", the author states: "As we look on in helpless amazement, foreigners continue to degrade our lands and pollute our waterbodies" (Frimpong, 2013).

However, despite this perception of a state conspicuous by its absence, our research reveals that the Ghanaian state was both active and present – but not effective from a regulatory perspective. Undoubtedly, a number of authorities failed in their responsibilities: immigration officials, the Minerals Commission, regional and local governments and the police. Yet Ghana is not a failed state or even a weak state, as is evidenced by the subsequent military-style operation undertaken by the Inter-Ministerial task force in mid-2013 and again with the moratorium and Operation Vanguard in 2017 and 2018. So why did such pervasive institutional failure occur at different levels of government? It would seem that endemic corruption is the main explanatory factor, with politicians and government officials at different levels colluding with illegal mining activities. This happened explicitly, with officials taking bribes to "look the other way", and thus sharing in the benefits of unlawful practices. And it occurred more subtly, with officials unlawfully providing (false) permits (for a price) that placed Chinese miners in legal grey zones – e.g. immigration officials would issue Chinese miners with work permits that were clearly not valid under national law. In interviews, miners said that this created a confusing and precarious situation, as they felt recognized by some parts of the state but not others. To make the situation more complicated, the Chinese miners felt that they often had good working relationships with local elites and the police. One interviewee even told us that the Chinese miners in one area would simply visit the local police station each month to turn themselves in for breaking the law, and then pay the fine for their transgression.<sup>47</sup>

Allegations of corruption amongst Ghanaian state officials and traditional authorities was a recurring theme in interviews in Ghana. For instance, one Chinese resident in Ghana with first-hand experience of the Shanglin miners stated that with the task force the Chinese miners were "no longer *protected* by the [Ghanaian] government".<sup>48</sup> In other words, foreign miners have been protected – at least by some governmental actors – and were thus able to carry out unlawful and profitable activities, as long as they continued to make financial contributions to corrupt officials and politicians. This interviewee further alleged that "money talks", and that Chinese miners had made payments to officials at both upper and lower levels of government, with the latter also expected to channel money to their superiors. He alleged that "many people were involved", including high-ranking politicians and officials from key government agencies.<sup>49</sup>

## CONCLUSION

This article has looked at a remarkable phenomenon, the South-South irregular migration from China to Ghana of tens of thousands of miners to work illicitly in informal small-scale gold mining, most notably during the boom years of exceptionally high gold prices from 2010 to 2013.

While much South-South migration is from poorer to relatively wealthier countries, for instance Ethiopia to South Africa or Nepal to Malaysia, this was an example of migration from upper-middle income China to lower middle-income Ghana – driven by access to valuable mineral resources. It is notable, however, that this migration flow, as an irregular one, involved predominantly working-class miners from an ethnic minority group in a relatively poor region of China moving to another socio-economically deprived area in rural Ghana. It is, therefore, a case of marginal people travelling from one periphery to another in search of resources to make a livelihood, and hopefully to strike it rich. As noted above, research findings confirm that this has been a spontaneous movement of people with no direct linkage to, or encouragement from, the Chinese state. Despite a common focus on access to mineral resources, this is a very different kind of Chinese engagement in Africa from Chinese state-related projects often associated with “infrastructure-for-resources loans”.

Such irregular migration into an informal sector has received very limited scholarly attention. This article has explored the question of what impact mass migration of this kind has on the livelihoods of both Chinese and Ghanaian informal miners, as well as on wider economic, environmental, and political landscapes in Ghana. We conclude that the impact has been significant in a number of dimensions.

The economic impact has been momentous. From a traditional industry largely using the same rudimentary methods for centuries, small-scale gold mining in Ghana has changed irrevocably, and Ghanaian miners now use the machinery and techniques introduced by the Shanglin miners. Indeed, such mechanized mining can no longer be described as “artisanal”. Despite small-scale mining being long neglected by the government in favour of large-scale production by transnational mining corporations (Hilson et al., 2014), the mechanization of production has meant that the proportion of gold produced from small-scale mining has now soared to one-third of the country’s total output. Economic opportunities for those directly involved can be substantial. Those Ghanaians at the apex of small-scale gold mining now earn large sums of money from mechanized mining, and, for these local actors at least, small-scale mining has moved beyond a poverty-related activity. It is also evident, however, that inequalities have widened, with increased stratification within the small-scale mining industry in Ghana, where women and children at the bottom of the hierarchy have to eke out a living from the heaps of “tailings” that remain after intensive mining has been completed. Further research could investigate the differential impact of mechanized small-scale mining on rural dwellers in Ghana.

Equally, it is clear that while some Shanglin miners, themselves from a relatively poor minority ethnic group, have amassed considerable fortunes in a short time, there are also significant inequalities within the Chinese mining groups, dependent on positions as owner or labourer. While the mining groups are often described as collaborative efforts (He, 2013), hierarchical structures can be observed (Song, 2013). This also indicates that individual Chinese miners have benefited in Ghana in significantly different ways – with some even being exploited. For instance, in some cases when gold is not discovered, the Chinese employers (i.e. owners of the equipment) have refused to pay the salaries of the Chinese employees.<sup>50</sup>

These findings mirror research on small-scale mining *within* China – for instance Lu and Lora-Wainwright’s (2014) study in Hunan Province – which found that livelihood benefits are highly differentiated, with wealthier investors who began mining earlier profiting at a much higher rate than more marginalized individuals entering at later times. Future research could focus on the cleavages and power differentials that exist within and across groups of Chinese miners, and examine the differentiated impact that the Ghanaian gold rush has had on their livelihoods and the welfare of their households back in China.

Environmental degradation is a serious consequence of unregulated mining. The anti-*galamsey* narrative of government and the media about illegal mining in Ghana has always included criticism of adverse environmental consequences, notably mercury seepage into rivers and streams. However, the scale of these consequences is now much greater, with mechanized and intensified production

resulting in much larger areas of land degradation and the severe pollution of water-bodies. It is undoubtedly the case that Chinese miners introduced mechanized production, including the equipment to mine (illegally) in rivers, and such techniques have subsequently been adopted by Ghanaian miners. The absence of government action in the face of such illegal mining in rivers, both prior to and post-2013 task force (Crawford and Botchwey, 2017), has led to the current crisis where the severe pollution of arterial rivers is now perceived by the Ghana Water Company as threatening future household water supplies. These environmental impacts require further in-depth study to understand how the changes in the physical landscape from intensified mining have impacted on local people's lives and livelihoods, as well as the necessary regulation to stem and reverse environmental destruction.

The political impact is also highly significant and consequential. While it appeared that the state was largely absent during this dramatic period of mass irregular migration into informal and illicit small-scale gold mining, our findings are that both the state and traditional authorities were present and active during this episode – but mainly in a corrupt and self-enriching manner. The abuse by many state officials, politicians and traditional chiefs of their positions of power and authority, for purposes of private wealth accumulation, is the key factor that explains why illegal mining by Chinese and other foreign miners, along with their Ghanaian counterparts, continued unchallenged for so long. The image of Ghana as a shining example of democracy in Africa is severely tarnished by such findings, and poses further research questions about the nature of the state in Ghana and in whose interests, it operates, whichever of the two main political parties is in power.

Unregulated mining, as exemplified by the recent “free-for-all” for Ghana's gold resources by both Ghanaian citizens and foreign nationals, cannot continue without severe adverse consequences, most notably environmental ones. The policy implications, with particular reference to livelihoods and landscapes, require reforms in both mining and migration policies. First, in terms of mining policy, artisanal and small-scale mining has undergone changes in terms of technology and scale that are irreversible. This has occurred mostly through foreign involvement, and there are indications that this still continues, albeit less obviously than before. Foreign nationals, mainly from China, continue to be involved in the sector through financing, equipment supply and maintenance, direct mining and trading of gold. The Ghanaian government has to recognize this through legislation, for instance by reclassifying the mining industry to include a medium-scale mining sector in terms of technology and scale of production, with an appropriate legal framework that includes joint ventures with foreign miners. Importantly, an effective system to address environmental problems is required, with responsibilities clearly delineated. This system could include, for instance, upfront fees and monitoring of compulsory reclamation of mining sites. Second, Ghana's migration policy has to come to grips with the reality of South-South irregular migration and put in place a mechanism to manage this. Perhaps, the state could consider the issuance of customized work permits, with eligible lines of employment. The current policy of *ad hoc* crackdowns undertaken by governments of both main parties is unlikely to succeed, and does not reflect a progressive path to address high unemployment, especially of youth in rural areas, and low productivity in ASM.

This article has focused on analysing the significant impacts of irregular migration from China into the informal small-scale mining sector in Ghana. Building on this, further research in both Ghana and Shanglin County in China could provide a critical examination of South-South labour migration and the complex web of relationships that connect peripheral rural China with the margins of Ghana. Such research is aimed at shedding light on “the processes implicit within global capitalism that prompt large numbers of precarious and marginal people to move from one place to another – and sometimes back again – in search of more secure livelihoods” (Loubere and Crawford, 2017: 121), as well as the accompanying patterns of resource extraction, capital accumulation, exploitation and inequality within and between the people involved in both places.

## NOTES

1. In early April 2017, the government under President Akufo-Addo announced a moratorium on all small-scale mining, including the cessation of the issuance of new mining licences, partly in response to the crisis in the sector that has emerged from the changes introduced by the mass migration phenomenon discussed here
2. It is estimated that 85 per cent of ASM operations remain informal and illicit (Ofosu-Mensah, 2016)
3. (<http://www.pulse.com.gh/news/illegal-mining-ghana-places-moratorium-on-small-scale-mining-licenses-id-6482890.html>.) A moratorium on all ASM was declared in early April 2017, initially for six months, then for a further three months, and extended indefinitely in early March 2018 (*Daily Graphic*, March 8 2018)
4. (<http://www.ghana.gov.gh/index.php/media-center/features/3966-operation-vanguard-a-timely-saviour-of-our-environment>.) The head of the task force, Colonel Amoah Ayisi, stated on 30 January 2018 that Operation Vanguard had arrested 983 miners, including 12 Chinese and four Burkinabe miners, and seized large amounts of mining equipment and weapons, including 366 excavators, 3,100 dredgers known as Champhi and 859 water pumping machines. (<https://www.myjoyonline.com/news/2018/January-30th/only-10-of-galamsey-suspects-convicted-operation-vanguard-laments-slow-prosecution.php>.)
5. In September 2010, the government of Ghana signed an agreement for a 13 billion USD loan with the Chinese Development Bank and Chinese Exim Bank for infrastructure development, especially in the (then new) oil and gas sector, with sixty percent of contracts going to Chinese companies and repayments guaranteed by supplies of crude oil (<http://china.aiddata.org/projects/2034>).
6. Personal correspondence.
7. Interviews with returned miners and officials, Shanglin County, Guangxi, 15 and 18 August 2017
8. Interviews with returned miners, Shanglin County, Guangxi, 16 August 2017.
9. Buabenso Focus Group Discussion, 29 July 2014.
10. Interviews with a Chinese journalist and a Chinese businessman who are primarily based in Ghana, Nanjing City, 22 August 2017.
11. Interview with parents of a non-returned miner, Shanglin County, Guangxi, 16 June 2018.
12. Interviews with returned miners, Shanglin County, Guangxi, 15 August 2017.
13. Interviews with mining machinery company and returned miners, Shanglin County, Guangxi, 15-16 August 2017.
14. Interviews with returned miners, Shanglin County, Guangxi, 15-16 August 2017.
15. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
16. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
17. Interview with community leader, Pokukrom, 27 July 2014.
18. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
19. See, for example, <https://www.myjoyonline.com/news/2017/May-8th/arrest-of-powerful-chinese-galamsey-woman-blow-by-blow-account.php>; <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Galamsey-queen-broke-Lawyer-604674> 28 November 2017; <https://yen.com.gh/93195-photos-the-high-life-galamsey-queen-asia-huang.html#93195>.
20. Andoh, 2017. Media reports have also included the arrest and detention of a Chinese woman allegedly involved prominently in the small-scale mining industry, inclusive of allegations of sexual blackmail against high-ranking Ghanaian politicians and officials. (GhanaWeb 10 May 2017).
21. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
22. Scholars have suggested government-led dialogue and training for galamsey miners to improve awareness concerning mercury use (Hilson et al., 2007), in contrast to ostracization through the negative dominant discourse that portrays miners as lawless and criminal with no concern for environmental harm (Tschakert and Singha, 2007; Nyame and Grant, 2014).
23. Buabenso Focus Group Discussion, 29 July 2014.
24. Interview with Assembly member for Pokukrom, Upper Denkyira East Municipal Assembly, 27 July 2014.
25. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
26. Interviews with small-scale concession holders, Upper Denkyira East Municipality, Ghana, 26 July 2014 and 29 July 2014.
27. Interviews with small-scale concession holders, Upper Denkyira East Municipality, Ghana, 26 July 2014 and 29 July 2014.
28. Interview with Chinese national, resident in Ghana, Accra, 12 January 2015.

29. <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=274243>
30. <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=274243>
31. Interviews with local officials, Shanglin County, Guangxi, 15 August 2017.
32. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
33. Interviews with returned miners, Shanglin County, Guangxi, 14 June 2018.
34. Women's focus group discussion, Buabenso, Upper Denkyira East Municipality, 29 July 2014.
35. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
36. The dip in small-scale production in 2015 seems to be explained by two factors. First, the government clamped down heavily on illegal exports of gold and so many miners/buyers held on to what they had. However, this gold was later sold through the PMMC, leading to a 486% increase in the gold exports of PMMC in 2016 (from 267,662 ounces in 2015 to 1,570,029 ounces in 2016). Second, there was a global fall in demand for gold in 2015, leading to declining prices on the local market which in turn adversely affected production (Ghana Chamber of Mines, 2015, 2016a,b).
37. Interview with journalist, 23 July 2014; with former small-scale miner, 23 July 2014; with ASM association member, 26 July 2014, all Upper Denkyira East Municipality.
38. Interview with licensed small-scale miner and member of the ASM association, Upper Denkyira East Municipality, 26 July 2014.
39. Interviews with local radio journalist, 23 July 2014; with former small-scale miner, 23 July 2014; with ASM association member, 26 July 2014, all Upper Denkyira East Municipality.
40. Liu (2014: 14) reports a worker at a filling (gas) station in Dunkwa as stating that sales were "30-40 thousand litres per day when the Chinese were here; but now after the clamp down, the business dropped sharply to only 1 thousand litres per day". Additionally, one female market trader is reported as stating emotionally: "You Chinese people come back to Ghana! Chinese people come back to Ghana! Chinese is job and money! After Chinese were gone, my life is getting tougher. In the past I could earn 200 cedis working for Chinese, but now I have nothing. If you Chinese do not come back, we are going to march to the government to ask for your coming back" (2013: 15).
41. Interviews with returned miners, Shanglin County, Guangxi, 18 and 19 August 2017.
42. Interview with Municipal Assembly official, Upper Denkyira East Municipality 28 July 2014.
43. Interviews with the families of non-miners, Shanglin County, Guangxi, 17 August 2017.
44. Interview with municipal education director, Upper Denkyira East Municipality 25 July 2014.
45. Interview with small business operator, Wasa Akropong, Western region, 2 April 2014.
46. Interview with senior official at Environmental Protection Agency, Accra, 9 April 2014.
47. Interviews with returned miners, Shanglin County, Guangxi, 16-21 August 2017.
48. Interview with Chinese citizen resident in Ghana, Accra, 12 January 2015.
49. Interview with Chinese citizen resident in Ghana, 12 January 2015. He stated that those officials *not* benefiting "became crazy as there was so much money involved", which in his view was a key reason for the eventual crackdown by President Mahama.
50. Interviews with returned miners, Shanglin County, Guangxi, 16 August 2017.

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