The political economy of transitory mining in Ghana: Understanding the trajectories, triumphs, and tribulations of artisanal and small-scale operators

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A B S T R A C T

While artisanal and small-scale mining (ASM) and its impact on socio-economic development have produced voluminous studies, knowledge of the underlying migratory dynamics of artisanal miners remains incomplete. Using Ghana as a case study, we explore the trajectories, adaptation responses (“triumphs”), and implications (“tribulations”) associated with ASM operators. Based on in-person interviews, participant observations, and mining-site visits conducted from 2005 to 2012, the study reveals that several factors influence how migrant miners strategically “hop” from one mine to another – a phenomenon we describe as “transitory mining” – to exploit low-yield gold (and, to a lesser extent, diamond) deposits. We find that miners are forging strong bonds with host communities by sending pre-mining negotiation teams and employing extended family networks to arrange mutually beneficial agreements with local actors. These strategies and techniques lower the entry barriers into ASM by facilitating access to mineral-bearing lands. Even though transitory mining has increased mineral discoveries and personal incomes, we examine how such “triumphs” are hindered by vexing “tribulations”. First, there are growing human security threats posed by armed thugs who prey on miners and mining communities as well as police raids of illegal mining that often involve violence. Second, the deleterious environmental impact of transitory mining continues unabated.

1. Introduction

Migrant miners, both internal and trans-border, continue to fuel the economically significant – but largely informal – artisanal and small-scale mining (ASM) sector throughout much of sub-Saharan Africa. Ghana – like Sierra Leone, Guinea, Democratic Republic of Congo (DRC), Tanzania, Zimbabwe, and many other African countries – is endowed with valuable minerals, such as gold and diamonds, which may be extracted via ASM techniques. Concomitantly, the countries of sub-Saharan Africa are afflicted with weak regulatory regimes on natural resources, sluggish economic growth, high levels of unemployment and poverty, a dearth of business and livelihood opportunities, and high population growth. In recent years, however, strong international demand and rising global commodity prices have boosted the extraction of a wide variety of natural resources from Africa (Grant et al., 2013a,b; Malpeli and Chirico, 2013; contributors to Grant et al., 2014). Most notably, gold prices have witnessed a substantial increase over the past dozen years, rising from an average of US$ 270 per ounce in 2001 to nearly US$ 1800 per ounce in early 2012, before levelling out at the US$ 1300- to US$ 1400-per-ounce-range in 2013. This has served to continuously attract new entrants, especially domestic and cross-border migrants, into the ASM sector. Ghana is an evocative example of such trends, for the country’s ASM sites are teeming with people of diverse identities in terms of nationality, ethnicity, age, and gender who possess differing skills, capital, and interests in their efforts to extract gold or diamonds (or gold and diamonds; see for example Nyame and Grant, 2012:170–171) from weathered saprolitic horizons, geologically-recent sediments in streams and river valleys, or hard rock (un-weathered bedrock) materials. According to a senior government official, these ASM sites have been known to create new towns populated by Ghanaians and foreigners, supported by mining activities and their myriad economic spin-offs:

These artisanal miners come from both Ghana and surrounding countries. The activities may start in a small way at one site and then within a short time, there are lots of people. Take Kuiu in northern Ghana, for example, where there was not even a single hut or house a few decades ago… [has] become so big that it is
now probably the largest illegal mining site in West Africa with people from Ghana, Burkina [Faso], and other countries operating at the place. Now, it is very difficult even for government to drive them [galamsey] away.2

Even when world market prices were relatively low in the early 2000s, it was estimated that Ghana’s ASM sector – both legal and illegal sectors included – comprised as many as 200,000 to 300,000 participants (Hilson and Potter, 2003:250; Aubynn, 2006:227). As the 2000s progressed and mineral prices rose, so too did the number of ASM sector participants in Ghana, growing to roughly 500,000 individuals (Nyame et al., 2009:10; Tschakert, 2009a:24). Both indigenous and migrant miners are involved in ASM activity, though evidence gathered in gold and diamond mining areas across the country suggests the latter group forms the majority at most mining sites in Ghana. The distinction is occasionally made between miners who hail from a locality or near a particular mining area and those who do not. In practice, however, it becomes very difficult to distinguish between the two types of participants at some ASM sites since some indigenes, once initiated into mining, later move and become migrants in other mining areas. Though variable, the proportion of migrants to indigenes was very high at most sites in the present study.

Several scholars, such as Kesse (1975), Adepoju (2005), Nyame and Danso (2006), and Nyame and Grant (2007), have noted that the historical record and documentation of migration within ASM sectors across West Africa is thin despite the conventional belief that the phenomenon has been occurring for decades – if not centuries. Following the seminal work conducted by Swindell (1974) on ASM sector migration in Sierra Leone, recent scholarship has sought to address this gap by focusing on more contemporary trends in West Africa.3 This growing collection of scholarly and policy-oriented studies emphasizes the importance and governance challenges of the ASM sector and highlights the economic, environmental, and socio-cultural impacts of ASM activities throughout the region (see for example ILO, 1999; Akabzaa, 2000; Hilson, 2002, 2003, 2006; Amankwah and Anim-Sackey, 2003; Hilson and Potter, 2003; Banchirigah, 2006, 2008; Luning, 2006; Nyame and Danso, 2006; Yakovleva, 2007; Nyame et al., 2009; Tschakert, 2009a; Grant et al., 2011, 2013b; Maconachie and Hilson, 2011a; Malpeli and Chirico, 2013). Ghana is a regular case study in such scholarship owing to its reputation as a magnet for cross-border migrants and a generator of internal migration as well as the importance of the political economy of mining in the country. Put differently, mining and migration are primary concerns of the Ghanaian government and have become infused with economic development discourses generated by politicians, government officials, non-governmental organisations, and international organisations such as the World Bank and the United Nations. The political economy of transitory mining often comes to the fore in Ghana, as the government is continually faced with the governance challenges of balancing the economic benefits and environmental drawbacks from ASM activity on the one hand, while seeking to address simultaneously the political interests of communities that depend on ASM activity and assuaging other vital contributors to the national economy, such as large-scale mining firms that often find illegal ASM to be disruptive, on the other. While this body of literature is welcome and has produced some much-needed insights concerning the migration-ASM nexus, the motivating factors that drive migrants to strategically “hop” from one ASM site to another site – a phenomenon we describe as “transitory mining” – require greater elaboration and deeper understanding. A detailed analysis of the Ghanaian case would also assist researchers to comprehend similar migratory patterns in countries where political instability (e.g., DRC) and restrictions on researchers (e.g., Zimbabwe) may deter sustained, on-the-ground research on ASM activity.

Our study of transitory mining is based on a review of relevant secondary sources as well as primary sources such as in-person interviews, participant observations, and mining-site visits conducted from 2005 to 2012. Although logistical challenges prevented us from following migrating groups from site to site, we did visit several mining sites over a period of three-to-four months. For instance, as detailed in Section 4.1, repeated visits over the course of three months to an ASM site near Eguafo in the Komenda-Edina-Eguafo-Abrim District of south-central Ghana provided insights into how transitory miners move from mineral exploration to extraction phases. Specifically, field work for this study was conducted at various ASM sites in western Ghana (i.e., Nanankwak, Wasa Akropong, Japa, Gyedu Kese, Agona Amenfi, Asankran Breman, Kwabeng, Asankran Sa), eastern Ghana (i.e., Akwatia, Akantin, Krobiso), south-central Ghana (i.e., Ayamfuri, Manso Nkran, Abirem, Eguafo), and northern Ghana (i.e., Dokrue, Kuii). We employed qualitative research methods that entailed 80 semi-structured in-person interviews and discussions with participants in the mining sector, such as government officials, large-scale mining company personnel, and migrant and non-migrant miners, and conducted participant observations at the abovementioned ASM sites. Since legal and illegal ASM participants face similar conditions and challenges (and some had even alternated between operating legally and illegally over the years), we interviewed members of both groups.5 We occasionally followed-up with interviewees via telephone. We eventually abandoned the use of structured questionnaires when it became clear that some interviewees (e.g., diggers, informal traders, investors/tributors, representatives of ASM associations, mining support service providers such as processing machine mechanics) were unwilling, uninterested, or apparently suspicious of the motives behind the study. On one occasion, miners were antagonistic and prevented us from talking to any of the people present at the mining site. Several miners also complained of “research fatigue”, citing reasons to the effect that they had not benefited from previous research projects belonging to other researchers or that the “whole exercise was a waste of their precious time”. Hence, we found that informal discussions with prospective interviewees resulted in greater willingness to answer a modest set of oral questions in a semi-structured interview environment. In-person observations conducted in the mining areas also provided important insights and a better overall

2 Interview with a senior government official at the Minerals Commission, Accra, Ghana, on 16 August 2012.

3 The bulk of the analyses contained herein focus on ASM in the gold sector, though there is some overlap and relevance to the diamond sector given similar strategies and relations with local communities (Amankwah and Anim-Sackey, 2003; Velpaada and Ali, 2005, 2006; Nyame and Danso, 2006; Nyame and Grant, 2012). Notably, however, the suspected “dilution” of Ghanaian diamond exports by Ivorian conflict diamonds had negative repercussions for many participants in the diamond sector in the latter part of the 2000s. The delays in export procedures were just one of several measures taken by the Kimberley Process (Grant and Taylor, 2004; Hughes, 2006; Grant, 2010, 2011, 2013a,b) to scrutinise rough diamonds from Ghana. The subsequent delays drastically affected numerous artisanal diamond miners at Akwatia in eastern Ghana, as many migrant miners lost their livelihood in mining and trading of diamonds, causing them to begin to leave Akwatia in 2007 (Hilson and Clifford, 2010). Some former diamond diggers and traders ended up in ASM gold sites in various parts of the country (Nyame and Grant, 2012).

4 See for example Zack-Williams (1995), Binns and Maconachie (2005), Grant (2005a,b), Maconachie et al. (2006), Maconachie and Binns (2007), and Maconachie (2011) on ASM in Sierra Leone; and Aryee et al. (2003), Hilson and Potter (2005), Banchirigah (2008), Aubynn (2009), Hilson and Banchirigah (2009), Nyame et al. (2009), and Nyame and Grant (2012) on ASM in Ghana.

5 It has been estimated that only about 10–15% of ASM operators in Ghana are licensed by the government (Hilson et al., 2007:278; Tschakert, 2009a:24), which was consistent with our pool of interviewees.
understanding of the source, movement, coping techniques, and strategies employed by participants in the ASM sector as well as extant challenges and threats to human security.

The above methodology enabled us to delve into the nuances of transitory mining in two ways. First, it aided in our examination of the various “push-pull” factors involved in transitory mining, such as resource location and availability, road and telecommunications infrastructure, processing technology, favourable global mineral prices, presence of local and transnational investors, and labour demand in remote mining regions. In turn, our in-person interviews, participant observations, and mining-site visits allowed us to demonstrate how such factors structure the decision-making environment of pre-mining strategies and behaviours of migrants in mining areas. For example, we find that by establishing strong bonds with local communities in as short a time as possible, miners are able to adapt fairly easily to their new places of work. Adaptation techniques employed by miners include sending pre-mining negotiating teams and extended family networks to arrange mutually beneficial agreements with local actors. All these techniques and strategies serve to lower the entry barriers into ASM by facilitating access to mineral-bearing lands. Second, our methodology helped us understand that even though transitory mining has contributed significantly towards increased mineral discoveries and personal incomes, such “triumphs” are being countered by vexing “tribulations”. Specifically, we observe two alarming trends in Ghana’s ASM sector. First, in response to a growing number of human security threats posed by armed thugs who prey on miners, mine sites, and local communities that host miners, miners have started to band together and form self-defence groups. Given that police raids of illegal mining often involve violence, conditions are reaching a level of volatility that risk “militarizing” the country’s ASM sectors. Second, transitory mining is also aggravating extant environmental problems, as huge swathes of vegetation, soil, and other environmental compartments are being threatened or destroyed, and a growing number of water bodies are becoming polluted. Although slightly more advanced and pronounced in Ghana, the above factors and repercussions of transitory mining can be found elsewhere in Africa.\(^6\) Mindful of the potential for increased violence in the ASM sector and the real environmental impact of ASM activities, our policy-relevant findings seek to enhance the effectiveness of the efforts of government officials and development partners to regulate and formalise the ASM sector.

2. Transitory mining: ASM and migratory movements in West Africa

We concur with Hilson (2005) and Jønsson and Bryceson (2009), that a singular, precise definition of ASM does not exist. However, it is generally understood that ASM differs from large-scale mining in several ways: the latter involves private, joint-venture, or public firms that have corporate structures, possess sizable capital investments, and only operate on defined land concessions granted by governments. Importantly, ASM activity varies more widely in terms of scale, level of technology, and degree of organisation. ASM can be conducted by as few as one person or as many as several hundred, and the technology employed can range from rudimentary shovels, pick-axes, and sifters to sophisticated excavators. Smaller ASM operations may operate akin to an informal collective whereby the investors each have a share in the profits, whereas larger ASM operations will rely on numerous individual labourers who may (or may not) turn up to work at the site each day. We also understand the term “ASM activities” to include: mineral exploration and prospecting; digging, transporting, and processing (or “washing”) ore-bearing materials; support activities such as repairing, maintaining, operating, and renting machines such as excavators, dredges, ore crushers and processors, diesel generators, and pumps, as well as capital flows provided by individual financiers (or sponsors) and mineral traders.

Our findings indicate that the movement of mining sector operators is based on neither whims nor singular causes. Rather, such movements are predicated on complex factors that are weighed and assessed by individual mining sector participants. Hence, in the interests of conceptual clarity, we advocate the use of the term “transitory mining” because it captures the type of ASM activity wherein miners move strategically from one deposit or site to another in a locality within a given country or from one country to another. Our interactions and discussions with miners and mining groups at all the study sites over a seven-year period suggest that approximately 70% of digger miners and more than 90% of tributors (sponsors and investors) reported that they had moved from one ASM site to another within Ghana. Roughly 35% of the women and men who engaged in ancillary work, such as preparing meals, selling small consumer goods (such as mobile telephone air-time cards, packages of food and water), and repairing machinery, had similarly moved along with miners to new places of work. These service providers, some of whom are migrants themselves, perform an important supporting role in transitory mining. Artisanal miners usually rely on local food-sellers for sustenance at the mining sites, and local homeowners for nearby lodging and other meals. Moreover, inputs and services that are integral to the mining process – such as tools and equipment merchants, mechanics (to maintain and repair machinery), and, according to many participants, traditional medical practitioners – are usually supplied by people outside the immediate mining communities who often move with miners in order to support themselves and their households based on the economic spin-offs of mining activities. Several factors – the nature and location of ore materials, the quality of road and telecommunications infrastructure, improved processing techniques and the world price of gold, availability of tributors, and demand for specialised labour and services – were assessed by ASM sector operators. A combination of these five factors, which we describe in greater detail below, explain how a pool of mobile, semi-permanent miners were produced and why they “hop” from one deposit to another within a given locality, country, or countries in the sub-region, resulting in a dynamic set of transformations across the ASM landscape.

2.1. Nature and location of ore materials

The nature and location of the mineral ore often determine how frequently the ASM operators will move from one mining area to another. Owing to a lack of specialised knowledge and training, artisanal miners rarely undertake economic and technical feasibility studies of mineral deposits prior to actual mining. As a result, artisanal miners tend to focus on alluvial mineral deposits rather than hard rock or primary material deposits. Although alluvial deposits are generally easier to detect and extract than hard rock or primary deposits, the former have a greater tendency of erratic distribution and are often quickly exhausted. If the nature of the deposit is alluvial, then we can expect ASM participants to spend a shorter period of time at the site, thereby increasing the frequency of movement of the miners. New locations of the mineral deposit is also assessed by ASM operators. It is common for artisanal miners to discuss mineral deposits (alluvial or hard rock) located within – or near – the concession belonging to a large-scale mining firm. Conducting

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\(^6\) See comparable cases of migratory patterns associated with ASM operators in Tanzania (Fisher, 2007; Jønsson and Fold, 2009), Sierra Leone (Maconachie and Hilson, 2011b; Maconachie, 2014), and Cameroon (Schure et al., 2011; Bakia, 2014).
unlicensed ASM activity in close proximity to a company's concession carries similar risks as operating on the concession itself for two reasons. First, there is a greater chance of accidental discovery by mine security personnel or government monitors if operating close to a commercial concession. Second, while some large-scale mining firms are willing to “turn a blind eye” as long as ASM is not occurring on their concessions, other companies do not want ASM operators to become entrenched in an area where they may wish to expand their concessions in the future. As regards existing concessions, although the artisanal miners know that trespassing on and extracting minerals from such lands is illegal, they attempt to justify their actions by questioning the legitimacy of the firm's claim to the land or accusing a firm of waiting too long to begin extraction. Such ASM activity on a large-scale mining concession risks raising the ire of the company. Some firms report illicit mining activity to government agencies, although this does not always resolve the issue. As one large-scale mining official explained:

There are several galamsey people doing small work in the concession in the Ankasia area, Dominase area, and even Gyedu area. They use pick-axes, shovels, and sluices. But now at Agona, Kwaben, Saa, and Breman, they [galamsey] are using excavators and trucks – and also threaten our workers when we want to go and drill in some areas. We have reported [the galamsey activity] to the Minerals Commission and the Police but still there is no answer to this problem.7

Artisanal miners are also cognisant that illegal mining on company concessions have led to violent confrontations between large-scale mining firms and miners (and host communities) in the past (Nyame and Blocher, 2010). Despite the risks, artisanal miners will engage in illicit mining on large-scale mining concessions while seeking to avoid apprehension by mine security personnel through the payment of bribes or concealing their activity from government regulatory personnel. However, such schemes tend to fail after a time, forcing ASM participants to re-locate on a frequent basis.

2.2. Road and telecommunications infrastructure

In recent years, improved road and telecommunication networks have opened up previously inaccessible mineral frontier regions in Ghana, linking the so-called “hinterlands” to urban areas. As a result, ASM operators are now able to move with greater ease and more rapidly from place to place throughout the country. And, crucially, mining equipment may be transported to mining areas that were previously inaccessible. Comconmitantly, commercial mobile telephone providers such as MTN, Vodafone, Tigo, and, more recently Glo, have extended the reach and coverage of their services to many rural areas. In turn, communication can now occur readily between people, even in relatively remote locations such as mining areas. These improvements in road and telecommunication networks allow ASM participants to react more promptly and move more quickly from place to place in response to information about new deposits. Artisanal miners have also gained access to information concerning better mining methods, equipment leases, and remuneration in other localities. This information comes from other miners, local community members, and family members across the country. Although such information tends to focus on economic opportunities, interviewees have also described how tips received from contacts via mobile telephone services have empowered them to evade and re-locate their mining activities when security agencies and government monitors were about to conduct a “sweep” (or “swoop”) aiming to arrest and evict illegal miners.

2.3. Improved mining and processing techniques

The introduction of more efficient mining and processing equipment has enabled miners to extract huge volumes – especially of alluvial ore material – which can then be processed quickly. The following example observed in our study illustrates the speed in which transitory miners can transform an area into an artisanal mining site. In early November 2011, artisanal “explorers” discovered a promising source of gold-bearing ore near Agona Amenfi in the Wassa Amenfi West District of Ghana. By early December 2011, the trees and vegetation had been cleared by the transitory miners and rented excavators had arrived in order to remove the overburden and dig down below the original surface some several metres in depth – despite the fact that a large-scale mining exploration company held the mineral title on the land in question. One of the ways in which sponsors invest in ASM operations is by paying the rental fees for excavators, which range from the local currency (Ghana cedi or GHc) equivalent of US$ 500 to US$ 800 per day in Ghana. By January 2012, the excavators had been replaced by manual labourers who were primarily engaged in processing the gold-bearing ore and gravel via water pumps, hoses, sieves, and sluices. Transitory miners were the predominant group at this ASM site, although some people from surrounding communities also participated in the mineral processing activities. A couple of decades ago, it would have been needed several months for active mining of such intensity to have been initiated after the discovery of gold-bearing ore. In this contemporary case, however, it took less than three months for sustained ore processing to begin. Yet, as a result, alluvial deposits become exhausted within shorter periods of time, causing transitory miners to move more frequently from one area to another in search of other deposits.

More efficient extraction methods have also enabled miners to re-process or recycle long-abandoned mine tailings and waste from old large-scale mining or ASM sites, often with very good recoveries. Some ASM operators therefore return to previous mine sites to recycle mine tailings or collect such tailings to sell to other transitory miners who then re-process previously dumped mine waste or tailings in order to recover profitable minerals. For example, in the Western Region, ASM participants have sold abandoned mine tailings to mining companies, such as Sankofa Gold Limited at Prestea, which use mine tailings as part of their raw materials. The development of better mineral extraction methods attracts ASM operators and causes them to move from “new” to “old” mining sites in a type of zig-zag pattern in search of a profitable source of minerals. Gold is the most common mineral to witness re-processing given its five-fold increase in price on the world market over the past dozen years. High world prices have incentivized private investment in the ASM sector and, in turn, triggered intense artisanal gold mining at the local community level. In attempts to cash in on the bonanza, ASM groups and sponsors of their activities move from place to place ferrying equipment to work on mineral-rich lands wherever they may be available.

2.4. Role of tributors

Increasingly, local and foreign tributors (i.e., investors) have penetrated the ASM sector and filled the gap created by the lack of access to formal credit and other capital inputs for artisanal miners. By providing much needed cash, tools, and equipment, these investors play a vital role in determining the place where miners work within a given area in two ways. First, tributors tend to reside very close to the site of their investment in an effort to monitor production (some tributors receive a share of all extracted

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7 Interview with a large-scale mining company representative based in Agona Amenfi, Ghana, on 6 December 2011.
minerals, while others recoup their investment through the subsequent sale of gold or rough diamonds) and deter theft of tools and equipment. Although tributors are known to travel to mining areas to organise mining teams, the majority are sought out by ASM operators. Thus, artisanal miners tend to migrate to areas where tributors are known to reside. Second, some tributors engage “pre-mining teams” that conduct exploration for good, mineral-bearing ground and/or negotiate with local land owners and custodians (usually traditional authorities such as chiefs) regarding the distribution of the proceeds from mineral production prior to actual mining.

2.5. Specialisation of labour and services in the ASM sector

In contrast to its origins as a rudimentary practice characterised by labourers with few skills, meagre capital investment, and low output, artisanal mining processes are becoming increasingly and systematically specialised with distinct groups performing different tasks (Nyame, 2013). This transformation has created a pool of semi-skilled migrant labour that either undertakes mining at particular sites or moves as self-sustaining informal groupings from site to site in order to work for a set fee. Typical in this category are miners who undertake primarily shaft excavation, timbering, drilling, and blasting of ore-bearing rock. This pool of semi-skilled transitory ASM participants constitute people who had gained some prior experience by, at one time or other, working for exploration and mining companies and were either retrenched or had retired. Because of the specialised nature of their activities, this semi-skilled labour force moves in accordance with local demand for their services. Other contract miners work in ore extraction, haulage, and processing. For example, a site we studied near Wassa Akropong (Western Region) featured two transport owners involved in haulage of ore, one from the local community with a Mercedes-Benz truck and the other from Obuasi (Ashanti Region) with two KIA trucks. The extraction and processing teams, all migrant miners, were also from Prestea, which is located a considerable distance away from the mine site.

3. Trajectories and adaptation responses of artisanal miners

Although the above discussion has employed examples from Ghana, transitory mining and its pool of mobile, semi-permanent miners have materialised in other parts of West Africa and are subject to the same set of abetting factors. “Semi-permanent” refers to the approximate length of time that a particular miner resides primarily in a particular mining area before they “hop” to another area. Thus, to be considered “semi-permanent” in the present study, a miner would normally participate in ASM activity in and around one or more sites within in a relatively small mining area for anywhere from roughly two months to two years. Conceptually, a semi-permanent miner differs from an individual who participates in mining activities on a seasonal basis (e.g., during breaks in the farming cycle) or part-time basis (e.g., to supplement other livelihoods). The previous section has also provided insights into the rationale of ASM operators in terms of accounting for the frequency of movements from one mineral deposit to another. This section builds upon this discussion by elucidating the trajectory and adaptation responses of miners across Ghana’s ASM sector.

3.1. Trajectories

In plotting the trajectories of various ASM groups in Ghana, it became clear that the time spent at a particular mine and the distance travelled from one mining site to another was highly variable. Over the course of our study, several mining sites located in Wassa Amenfi West District in western Ghana and Komenda-Edina-Eguafo-Abirem District in south-central Ghana were particularly illustrative of this variability. For instance, in December 2010, two alluvial sites teeming with thousands of ASM participants – digger miners, food vendors, equipment operators, spare parts dealers, and informal gold traders – suddenly opened at Asankran Breman in the Wassa Amenfi West District. By March 2011, we detected a gradual northeastern shift of mining groups towards Saa and Kwabeng, a distance of about 10 km. Towards the end of June 2011, the focus and intensity of activity by the mining gangs had moved more than 20 km further north to Agona, Gyedu, and Ankaase – with only isolated small gangs of mainly local people remaining at the original site at Asankran Breman. Some of the local people at Asankran Breman had moved along to the new mining sites, either working with the migrant miners or constituting distinct groups working independently at the new mine sites.

Further interviews revealed that some miners from the original Asankran Breman site had taken a different trajectory altogether and had moved over 40 km westwards to join other ASM groups operating in the Enchi-Dadieso area close to the Ghana-Côte d’Ivoire border. Similarly, the leader and some members of a hard rock ASM group encountered in October 2009 in the Bawdie-Pampe area in the Western Region had, by February 2011, relocated to open new artisanal mining sites in the Abirem-Eguafo area close to the coastal town of Elmina in the central region of Ghana. The trajectories of each ASM group in the study varied in accordance with their information about and perception of the attractiveness of the new mining sites in terms of the nature and location of the ore, the quality of roads and telecommunications infrastructure in the area, type of processing techniques, number of sponsors, and demand for specialised ASM labour and services. Spatially, these miners had moved several hundreds of kilometres from their original mining sites in the forested hinterland to the coastal belt of Ghana.

3.2. Adaptation responses

Given their fairly rapid temporal movement and extensive spatial range, how do these transitory miners adapt to an ever-changing working environment? Our study suggests that the most successful miners choose to initiate various “community-entry” mechanisms to establish, as quickly as possible, strong bonds with local people, which in turn enable them to adapt to local norms and practices, and better integrate themselves in the new place of work. Those migrant miners that choose to ignore local populations and simply begin ASM operations risk aggrieving host communities. The former type of transitory miners engage local communities by invoking entry mechanisms through intermediaries who visit potential mining communities to arrange for prior testing of mineral-bearing ground, perform necessary customary rites and seal agreements, and negotiate compensation issues (e.g., land allocated for mining is unable to generate income from agricultural and other uses). After an agreement is struck and consent is given, local community members often offer various forms of food and shelter for miners – usually at a fee, but sometimes in exchange for paid employment at the mining site. In fact, some transitory miners enter into symbiotic relationships with land owners, traditional authorities, security personnel, and government monitors on the basis of promised shares of mining.

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8 For a recent analysis of the role of traditional authorities in granting access to land for ASM activities in Ghana, see Nyame and Blocher (2010).

9 We are cognisant of the rather arbitrary nature of this temporal period, though it is reasonable to assert that a residency of less than two months connotes a more transient existence and one of more than two years suggests greater permanence in the local community.
proceeds. This is not to say that transitory miners are welcomed with “open arms”, as local communities are aware that migrants may still run afoul of local customs and traditions (Al-Hassan et al., 1997; Shepherd et al., 2005) as well as disrupt environmental ecosystems. Moreover, it takes time for the levels of trust that underpin network bonds to grow, which varies from one economic sector to the next (Lyon, 2000). The greater the differences between migrants and local populations in terms of place of origin, ethnic identification, and religion, the greater the time required for levels of trust to increase. Trust begins with initial working relationships, and is enhanced through iteration. Although some segments of the local population will remain wary of the migrant miners, it is not uncommon for the “newcomers” to also bond with local communities through marriages and friendships – the likelihood of each type of relationship increases in proportion to the duration of stay in a particular community or area.

In our study, we also analysed several instances wherein miners were strategic in the use of their extended family networks in order to gain access to mineral-bearing lands. In Ghana, extended family members may live permanently outside their original ethnic or cultural domains and still not only trace their lineage and ancestry to their extended family’s roots or place of origin but also mostly stay in regular contact by attending funerals, festivals, and other socio-economic and cultural practices. One miner at Agona Amenfi (western Ghana) who originally worked with a mining group in the Tarkwa area described how, in particular, such family ties had enabled him to get land fairly easily and cheaply compared to other transitory mining groups operating in the Agona Amenfi area. This practice is common amongst other migrating miners who share the same ethnicity or similar socio-cultural background. The three most explicit cases of this strategic behaviour occurred in Agona Amenfi in the Wassa Amenfi West District (western Ghana), Jappa in the Wassa Amenfi East District (western Ghana), and Kobriso in the Akwatia area (eastern Ghana). In each case, the miners employed extended family networks as a community-entry tool to establish social and economic links with local land owners in order to gain subsequent access to mineral-rich land. Over the past few decades, the growth of inter-ethnic group marriage, expansion of farming and other agricultural activities that rely on an influx of seasonal labourers, and increase of other socio-economic and cultural activities have led to generations of extended family members re-locating to different places, resulting in the growth of ethnically diverse communities across Ghana—including the more remote frontier regions of the country.

4. Implications and impact of transitory mining

Since transitory mining appears to be drawing more and more participants and becoming a semi-permanent or permanent occupation, we expect that the aforementioned strategies and adaptation techniques will persist for some time. Yet there are several implications, some positive and some negative, that have emerged as a result of such strategic and adaptive behaviour, which have lowered the entry barriers to ASM participation and facilitated access to mineral-bearing lands. Put differently, the increased movement of transitory miners has provided benefits for and placed burdens on Ghana’s mining economy as well as its constituent miners and mining communities – notwithstanding the deleterious impact on the environment. We elaborate on these benefits and burdens below.

4.1. Mineral discoveries, output, and income generation

The growth of transitory mining has realised admittedly modest yet nonetheless important benefits for the Ghanaian economy. Transitory mining has led to new discoveries of sub-economic mineral deposits as ASM operators utilise local knowledge of terrains, native artisanal workings, and experience gained at different mine sites to explore and exploit new deposits throughout the country.

The following ASM site10 – near Eguafo in the Komenda-Edina-Eguafo-Abirem District, in south-central Ghana – exemplifies how transitory miners conducted mineral “exploration” in an area that was previously thought to be located outside of known gold mineralisation belts (Kesse, 1985). Fig. 1 depicts a quartz vein that was initially revealed after years of foot traffic to a nearby farming tract eroded the topsoil. The vein served as an indicator for the potential presence of gold-bearing ore, which led the transitory miners to excavate a series of shafts in order to determine its gold content (see Fig. 2). The first exploratory shaft was excavated at a depth of about 5 m.

The above exploration activity occurred not far from a more developed ASM site11 in the same District (though closer to Abirem), wherein excavation and processing of ore-bearing rock and gravel within muscovite-bearing granitoids and surrounding alluvial plain were well underway despite being located in an area that did not fall within the established gold-bearing zones in Ghana. In addition, the recent gold rush along the beaches of Elimina (Grant et al., 2013b; Hirons, 2014), which generated a great deal of public discussion in Ghana, also exemplifies the prolific exploration capabilities of transitory miners. ASM participants have also served as useful “pathfinders” for subsequent acquisition of mineral-bearing areas by large-scale exploration and mining companies in Ghana.

As regards output, there has been a substantial increase in mineral production by ASM operators – the cumulative output from formal (registered) artisanal miners and informal (illegal or galamsey) artisanal miners – over an eleven-year span (2000–2010). In comparative terms, Ghana’s ASM production has grown much more rapidly than large-scale mining production during this period. Whereas estimated gold production by artisanal miners increased from 147,663 ounces in 2000 to 767,196 ounces in 2010, output from large-scale mining firms only rose from 2,309,489 ounces to 2,624,391 ounces within the same period.12 From 2000 to 2010, ASM production also increased more than five-fold (i.e., 519.6%) – compared to a corresponding 13.6% increase in production by large-scale mining companies. Gold production from the ASM sector rose from 6.0% of total national gold production in 2000 to 22.6% of overall production in 2010. The

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10 Observations at the site conducted on 19 April 2011.
11 Observations conducted near Abirem, in Komenda-Edina-Eguafo-Abirem District, Ghana, on 20 April 2011.
12 Gold production figures in this paragraph are based on data obtained from the Minerals Commission of Ghana.
government benefits from an increase in formal artisanal mining activity through the initial payment of registration fees and permits and the subsequent collection of various taxes and fees when such production is later traded to and exported by large gold dealers.

Participants in transitory mining (both formal and informal) are able to earn income – albeit one whose benefits are subject to variation and risks several hazards. Transitory mining – particularly for digger miners – is a physically taxing occupation that is subject to myriad workplace safety issues. ASM gold and diamond “pits” are notorious for mudslides and cave-ins – not to mention exposure to fine particulates in the air, mercury and its vapour when gold amalgamates are formed and burned, and malaria-bearing mosquitoes from stagnant pools of water (Aryee et al., 2003; Tschakert and Singha, 2007). Since employment options for low-skilled and semi-skilled workers in rural areas are scarce, transitory mining can either supplement farming activities on a seasonal basis or serve as a primary source of household income. Although most individuals in the ASM sector have not witnessed meaningful increases in personal wealth, transitory mining continues to attract new participants – especially youths. This segment of the population has been diverted from farming and other vocations by the quick – albeit small – remuneration that can be earned from illicit ASM activity, commonly referred to as “galamsey”. A Ghanaian government official highlights this trend:

Some years back, there was no galamsey problem in this area. But some of the youth [from the area] who went to Akontansie [near Tarkwa] to do [illegal] mining came back to start galamsey after Tarkwa Gold Fields [then known as State Gold Fields Limited] was bought [privatised]. Many new people [non-indigenes] also came and from that time especially in the last five years, galamsey is a big, big problem. Now most of the young people in the area do not want to do farming because of galamsey.11

Some ASM participants do earn modest returns for their labour and build enough capital to sponsor their own mining teams or lease a plot of land for mining. Other ASM operators are at least earning some income, however meagre, which reduces some pressure on government support services. Since transitory miners also tend to reside in rural areas, this economic activity serves to divert a modicum of people from the inflow to urban areas, thereby reducing slightly the impact on already tenuous municipal services and saturated labour markets. Although the government considers

the above aspects of transitory mining to be beneficial, there are other significant trade-offs – centred on human security and the environment – that must be acknowledged. We elaborate on these trade-offs below.

4.2. Human security impacts and conflict generation

There is a well-developed body of literature that examines the linkages between natural resources and systematic violent conflict such as civil wars (see for example: Collier and Hoeffler, 1998; Ross, 2004; Le Billon, 2005; contributors to Mehler and Basedau, 2005; Brunnschweiler and Bulte, 2009; Heupel and Zangl, 2010; Lujala, 2010; Cornish, 2011:21–22; Humphreys, 2012; Rustad and Binningsbe, 2012). In the West African sub-region, Sierra Leone and Liberia are the most notorious examples of such linkages. Although Ghana has not experienced civil warfare that seeks to control gold, rough diamonds, or other valuable minerals, there has been a rise of armed robbers that target transitory miners, mining communities, and road users in ASM areas in parts of the country. In August 2011, a spate of successive and fatal armed robberies occurred in the Asankrangwa-Bawdie, Asankrangwa-Enchi, and Asankrangwa-Sompre-Bekwai areas where intense transitory mining activities had been going on for roughly two years. The robbers targeted miners, individuals residing in mining communities, and vehicles plying the roads in areas that were traditionally subject to very low incidences of crime. A telling example of the increasing violence and audacity of the attacks occurred near the village of Sompre, on 11 September 2012, which claimed the life of one person.14 Transitory miners have decrived the activities of migrating criminal gangs, but this has had little effect. Interviewees report that these criminal groups have become more brazen and that it is not uncommon for these individuals to stalk transitory miners at various ASM sites and demand weekly or monthly extortion payments from miners. Why have these criminal activities that disproportionately target transitory miners gone largely ignored by the police and state security forces? As Tschakert (2009a,b) avers, the dominant discourse regarding Ghana’s ASM gold miners is that such groups have quasi-criminal tendencies that harm themselves and the environment through mercury usage. Episodic outbursts of aggression within ASM areas (e.g., escalated disputes over territory or share of “winnings”) or against security personnel and government monitors (e.g., for mining in prohibited areas) contributes (rather than detracts from) the image of transitory miners operating in conditions of lawlessness and impunity. Furthermore, there is little sympathy for artisanal miners given that the entire country has also been grappling with a steady rise of armed robberies for some time now. Since media accounts rarely discuss migrants in a positive light (Hilson et al., 2007:284; Tschakert, 2009a:24), transitory miners suffer an additional discursive burden as indigent groups that roam the country with vaguely venal intentions. The weight of such negative discourses means that the state has little incentive to protect transitory miners from criminal and violent acts. Although illegal miners are not a defenceless group, the lack of justice, recognition, and respect not only restricts their human security but also casts a discursive shadow over those ASM participants who are either permanent members of local communities or part of the minority who conduct ASM operations on a legal basis.

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11 Interview with a government official based in Wasa Amenfi West District, Ghana, on 19 January 2012.

14 The District Police Commander confirmed the report, and said that one person was apprehended by community members in the area and then handed over to the police for questioning. He also stated that investigations were underway, and that efforts were being made to track down the alleged perpetrators. This information is based on a telephone interview with the District Police Commander on 12 September 2012.

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Fig. 2. ASM mineral exploration shafts located near Eguafa in south-central Ghana.
Another human security concern that applies to transitory miners is land use conflict between large-scale mining companies and artisanal miners, the political economy of which is well known in Ghana and has been documented by several scholars including Akazzaa (2000), Hilson (2002), Hilson and Potter (2003), Hilson and Yakovleva (2007), Bush (2009), and Teschner (2013). Transitory mining has a tendency to generate land use conflict that pits artisanal miners and local communities on one side and mining firms and the government on the other. Large-scale mining companies lobby the Ghanaian government to intervene in order to prevent illegal ASM activity on their concessions. While the government often complies, it is mindful not to act too forcefully in the lead-up to national elections for fear of alienating local communities that depend on ASM operations both directly and indirectly for sustaining economic livelihoods. There are exceptions, of course, as Aubyn (2006) points out in a description of a mutually agreeable arrangement that ultimately enabled artisanal miners, who had trespassed onto the concession of Gold Fields Ghana Limited, to continue to operate in the Aboso area in western Ghana. In most cases, however, such conflicts are not amicably resolved, and even Aubyn (2009:69) later conceded that the long-term prospects for such an arrangement are modest at best.

The general state of enmity is illustrated by incidences of conflicts that surface periodically between the two main competing groups – artisanal miners and mining communities versus large-scale mining firms and the government – in recent years at Bibiani in the Western Region, Obuasi in the Ashanti Region, and Noyem in the Eastern Region. The nature of the difficult relationship has continued to stoke tensions, leading Ghanaian President John Dramani Mahama to establish an inter-ministerial team in April 2013 that aims to ameliorate “large-scale mining–artisanal mining relations” by curbing illegal ASM operations. Yet, in September 2013, reports of police brutality arose once again in the aftermath of multi-stakeholder meetings that included residents of local mining communities and focused on a new phase of large-scale mining to be conducted by Prestea Golden Star Resources Limited near Nakaba and Bondaye.

4.3. Environmental costs

In general, transitory miners move relatively quickly from place to place without performing much in the way of reclamation of mined out areas. Our observations in the field confirm the description of Aryee et al. (2003:135) that many post-ASM areas resemble “moonlike landscapes consisting of unstable piles of waste, abandoned excavations and vast stretches of barren land”. Transitory mining activities exact an enormous toll on environmental resources including soil, vegetation, and water bodies such as streams and rivers. Mercury is not only a danger to ASM operators in the gold sector (its usage in amalgamates continues despite workshops and sensitisation campaigns held in ASM communities) but it also harms the natural environment when it enters streams and rivers and is absorbed by fish (Babut et al., 2003:217–218).

The environmental impact of transitory mining is exacerbated by the need for artisanal miners to avoid detection and arrest by security and regulatory agencies. The following example is evocative of the intertwined policy challenges that transitory mining pose in Ghana: “If you go to the Tano River on the Enchi Road, they [artisanal miners] have dredges that have turned the whole water [channel] into dirt. We sometimes arrest them but it is difficult because we only get to hear [or know] they are there after they have worked for some time.” Moreover, transitory miners often conduct quick, well-timed mineral extraction and processing on illegally accessed land, leaving the site in as short a time as possible in what they commonly refer to as “quick bash” (or “hit and run”) mining. Indeed, as Bush (2009:57) observes, “galamsey are mobile, skilled at finding gold deposits and innovative at resisting capture”. One of our transitory miner respondents confirmed that “quick bash” schemes are sometimes conducted at night at lucrative sites on mineral lands belonging to large-scale mining companies – often in collusion with mine security personnel. Notably, however, large-scale mining concessions are not the only venue for this type of ASM activity. “Quick bash” also occurs in protected forest reserves and within stream or river channels where mining activities are prohibited by law. Transitory miners also undertake “cross-transfer” of ore material from one mine site to a processing centre several kilometres away. For example, we found that ore mined at a remote site in the Bawda area in the Wassa Amenfi East District is sometimes transported to Tarkwa in the Wassa Fiase District – a distance of over 59 km – for “fee per visit” processing. ASM participants are being both rational and strategic, as “cross-transferring” ore allows them to evade company-employed security personnel and government regulatory agencies, take advantage of lower processing costs, and secure better market prices for gold. However, transporting massive volumes of ore material from different places and processing at a single centre can have the unintended consequences of introducing dangerous physical, chemical, and microbial contaminants into the new environment.

In 2000, Ghana’s Environmental Protection Agency (EPA) was entrusted with monitoring the environmental impact of the ASM sector. Amankwah and Anim-Sackey (2003:135) applauded the decision to expand the EPA’s governance portfolio, and predicted that the government institution would “bring environmental sanity into” Ghana’s ASM sector. Though it would be an exaggeration to characterise the present environmental situation as “insane”, the EPA has largely failed to bring order to the ASM sector over the past 14 years for two reasons. First, the procedures for securing an environmental permit for ASM activity from the EPA is relatively complex and renewals are often delayed or rejected for arbitrary reasons (Hilson and Potter, 2003:254–257). Second, post-mining land rehabilitation and reclamation is an expense that many ASM operators would prefer not to have to incur. A maxim that is commonly invoked by ASM participants is “time is money”, which is compounded by the challenge that many interviewees cite – the high interest that accrues on informal loans to support a mining gang. Hence, one can understand why following the EPA’s set of rules and regulations can be unappealing for ASM operators.

5. Conclusions

Our study of ASM activities in Ghana has demonstrated that miners not only respond to structural factors but also exert agency when deciding to move from place to place to exploit marginal gold and diamond deposits – a process we describe as transitory mining. Put differently, the trajectories of participants in transitory mining are influenced by factors that are translated into individual strategies to access land in mineral-bearing areas. The trajectories of ASM operators to exploit deposits in different parts of the country are most influenced by the nature and location of the mineral ore, condition of roads and telecommunications, gold prices, presence of investors willing to render crucial financial support, and local demand for specialised labour and mining services. Miners are able to “triumph” over adversity by establishing strong mutually beneficial bonds with communities, which in turn results in much greater chances of gaining access to the land for mining.

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15 Interview with a government official based in Wassa Amenfi West District, Ghana, on 19 January 2012.
Although this article has focused on the more successful strategies of transitory miners, it is important to keep in mind that this is a heterogeneous group whose members vary widely in terms of strategic behaviour, resources, negotiation skills, and exploration capacity. Many ASM operators act on impulse and attempt to begin work as soon as they arrive in a new mining area. Some ASM operators lack the financial resources to support negotiated access to mining areas while others lack the art of negotiation or the knowledge to conduct non-random mineral exploration. The aforementioned case of the gold rush along the beaches of Elmina underscores the caveat that not all transitory miners employ strategic and adaptive behaviour. Moreover, even though transitory mining has resulted in increased mineral output from the artisanal mining sector in recent years, the practice is not without “tribulations”. Transitory mining has attracted armed gangs that prey on miners, therefore impacting negatively the human security of not only migrant miners but also innocent citizens living in ASM areas and nearby communities – a situation, which if left unchecked, will pose a threat to civilians residing along Ghana’s western and northern borders and imperil internal and cross-border commercial traffic. In addition, transitory mining has aggravated environmental degradation as migrant miners often strip away vegetation, introduce mercury into the soil and water during the gold-amalgam process, and abandon exhausted gold and diamond mining sites while neglecting to conduct reclamation or rehabilitation.

Conceptually, transitory mining emphasizes the agency of ASM operators via the acknowledgement of the depth of their decisions and responses to structural conditions in the sector. Yet, the trajectories of ASM operators are not restricted to considerations of their movements from one mining site to another. “Internal” trajectories within the occupations of artisanal mining are also notable. Our seven-year study also revealed that mobility was present in terms of movement up and down the various occupations within the ASM sector. For example, some ASM participants had started out as digger miners, had risen to become tributors/sponsors or mine owners, and were still operating in different areas within the country. Movement up or down the “ranks” of artisanal mining was based on varying degrees of personal ambition, levels of profitability of past ASM endeavours, and abilities of foresight insofar as saving and re-investing ASM proceeds. For instance, a digger miner interviewed in January 2009 at Bawdie-Pampe in western Ghana had avoided an army sweep in March 2010 and later became the leader and main sponsor of a mining group near his hometown of Eguabo-Abirem in southern Ghana in 2011. According to the interviewee, all the group’s members scattered or parted ways during the March 2010 army sweep on their mining camps, some having joined artisanal mining groups in different parts of the country (or even outside Ghana). He also noted that the army sweep caused some members of the group to quit mining altogether. Yet, he persevered and was able to become a tributor in an area not far from his hometown.

Although this article has focused on the trajectories of artisanal miners in Ghana, our findings are also instructive for other countries that are home to transitory mining and have relevance to the large-scale mining sector. In Ghana, as elsewhere, participants in the ASM sector seek to develop strategies to gain access to mining areas in response to external and internal constraints, incentives, and opportunities. In recent decades, policy-makers have often sought to implement regulatory regimes on ASM by legalising the activity in the hope of reducing its environmental impact while directing funds to government coffers in the form of various fees and taxes. Yet, such regulatory efforts often fail to adequately account for migratory in-flows of miners (which are magnified by weak and arbitration regulatory implementation, overly complex application procedures, and lack of regional harmonisation) and hence fall short in terms of curbing illicit ASM activities.

While the ASM sector attracts the bulk of the attention of policymakers, governance gaps also exist in the case of migration and the large-scale mining sector. For example, data from the Minerals Commission, Ghana’s main regulatory body for the mining sector, suggest the presence of growing numbers of expatriates in the large-scale mining sector of the economy in response to foreign investment and increased need for highly skilled personnel needed to fill various positions and/or render specialised support services. Furthermore, there are instances where foreign personnel, ostensibly in Ghana to work for large-scale mining companies, are found to be participating illegally in the ASM sector. Recent press reports abound of Chinese, Indian, and other foreign nationals operating in the informal mining sector – many of whom have been faulted for widespread environmental degradation in the ASM areas (Dzawu, 2013; Kaiman, 2013). This inflow may be juxtaposed with outflows of skilled Ghanaian mining-sector personnel, such as large-scale mining drillers and heavy-machinery operators, surveyors, geologists, mining engineers, metallurgists, and geological technicians who have moved to other countries in the sub-region and beyond in order to work for exploration and mining companies. Some members of this cohort exit the country through formal agreements and contracts with large-scale mining and exploration companies, but other mining-sector personnel leave through informal arrangements – without contracts and paid “off the books” – rather than in accordance with domestic labour laws. This trend in the large-scale mining sector is likely to continue so long as global commodity prices and demand remain relatively strong and attendant demands for Ghanaian skilled labour persist. Further study of the political economy of this emerging trend will shed light on the methods, strategies, and motivations of migrants entering and exiting Ghana via large-scale mining opportunities as well as the scope and ramifications of the attendant governance and economic impact on the mining sector. Arguably, a nascent form of transitory mining is emerging in the large-scale mining sector, and it bears a resemblance to the strategies and motivations found in the ASM sector.

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