IMPLICATIONS OF MIGRATION PATTERNS ASSOCIATED WITH THE MINING AND MINERALS INDUSTRY IN GHANA

Frank K. Nyame, Department of Geology, University of Ghana, Legon, Accra, Ghana
Email: fnyame@ug.edu.gh

J. Andrew Grant, Department of Political Studies, Queen's University, Kingston, Canada
Email: andrew.grant@queensu.ca

1.0 INTRODUCTION

Historically, significant labour migration from within the West African Sub-region played a major role in Ghana's mining industry (gold, diamonds, manganese, bauxite). Available records suggest that the industry in pre-independence Ghana witnessed labour migration from Nigeria, Burkina Faso, and as far 'a field' as Mali, Niger, and Chad. Many migrant workers eventually got engaged in various sections of the industry, either directly or otherwise, and may have made significant contributions to the development of the emergent post-independent Ghana as well as communities that sprang up with mining. Internally, many local or indigenous people also drifted to mining centres lured, in part, by employment, economic opportunities, and services that the industry offered. In short, buoyed by the then favourable political environment, the emergence of the burgeoning mining industry ultimately culminated in various dynamic changes in the socio-economic, political and cultural fabric of many indigenous communities. Trade, education, inter-marriages, business and skills development, among others, thrived as a result of the emerging migrant workforce. Migrants – ranging from skilled to semi-skilled to non-skilled – gradually settled in various mining centres or sectors such as railways, health, agriculture, civil and public service – all of which mainly serviced the industry. This was essentially a period, by the standards of the era, when medium to large scale mining (LSM) entities that operated mainly underground mines processed high grades of gold (often over 100g/t).

A subsequent period of stagnation and decline in the industry due to a myriad of factors – such as lack of expansion, modernization, diversification, capital investment, and so on – up to the early 1980s led to significant out-migration of people from the mining areas but, not necessarily, from the country. The subsequent collapse of infrastructure and economic wealth resulted in the 'death' of many mining communities in what are characteristically termed 'ghost settlements or towns'. Currently, the labour market within the industry appears to be saturated with certain local skills but equally deficient in others. For example, many locally trained and highly skilled geologists are steadily being engaged by exploration companies to work in neighbouring Liberia and Sierra Leone whilst, at the same time, expatriates have 'moved in' in specialized areas such as contract mining, provision of specialized goods and services, ore reserve estimation, and laboratory quality assurance. Of additional interest is the growth of and migration patterns within the artisanal and small scale mining (ASSM) sector where labour migration from both within and outside the country into mining areas could invariably have serious repercussions on the dynamics of LSM-ASSM relations, resource utilization, conflict generation and other potentially negative socio-economic, political, cultural and environmental impacts on existing systems.

The structure of the paper is as follows. We begin by sketching out a theoretical framework on migration and regional political economy which will help guide our analyses. Next, we provide an overview of the history of migration in the Ghanaian mining sector. Moving on the more empirical aspects of the paper, we explain the various stages of 'life cycle' of mines and its implications for migration flows. In the penultimate section of the paper, we contrast recent migration trends in LSM with ASSM. We present a discussion of policy-relevant implications with respect to the impact of migration patterns on political, socio-economic, and environmental systems in Ghana in the concluding section of the paper.

2.0 THEORETICAL FRAMEWORK: MIGRATION AND REGIONAL ANALYSES

Our theoretical framework is informed by literatures on migration (Massey et al. 1993, Kritz et al. 1992, Stark 1991, Massey 1989) and the political economy of regional cross-border flows referred to as the 'New Regionalisms Approach' (Grant and Söderbaum 2003, Söderbaum and Shaw 2003, Hettne and Söderbaum 2000). The literature on migration has benefited from related research on the operation of labour markets in both the developed and developing world. Given its breadth and scope in the extant literature, we will return to the theoretical aspects of migration shortly. First, however, a few words on the New Regionalisms Approach (NRA).

2.1 The New Regionalisms Approach (NRA)

As denoted in the phrase itself, the NRA takes the *region* to be an especially important level of analysis. Moreover, the NRA seeks to emphasize the importance of non-state actors and the informal sector in relation to state actors and formal structures as they relate to matters of political economy and governance. The works of Iheduru (2003), Bach (2003), and Bøås (2003) on the NRA in the African context are particularly helpful in drawing attention to the dynamic between regionalism and regionalization from 'above' (i.e., state-directed) on the one hand, and from 'below' (i.e., non-state forces) on the other. Although the Mano River Union (MRU) and the Economic Community of West African States (ECOWAS) are known as state-directed initiatives to promote formal regionalization and economic integration in West Africa, most economic transactions and trade conduits are autonomous from the state (Iheduru 2003: 58-59). Many of these cross-border commercial conduits and networks are based on ethnic ties from 'below'. As discussed below, migrant networks operate in a similar fashion along ethnic lines despite the efforts of states to restrict migration from 'above'.

Since its inception in scholarly circles in the late-1990s (Bach 1999, Hettne et al. 1999, Hettne 1999, Bøås et al. 1999, Hettne and Söderbaum 1998), the NRA has tended to be a social scientific analytical tool. Thus, the NRA will serve as a useful guide in terms of understanding the theoretical aspects of cross-border and internal migration. Our empirical findings are grounded in geological analysis, in-person interviews and discussions, and participatory observations in the mining areas. Ultimately, we expect that our work will contribute to a more nuanced and scholarly understanding of migration and mining through the synthesis of social scientific and natural scientific investigations contained herein.

2.2 Migration

Returning to the theoretical considerations associated with migration, we agree with the observation posited by Massey and colleagues that international migration lacks a unifying theoretical framework (Massey et al. 1993). In the absence of such a robust framework, a series of fairly disparate theories – ranging from immigration policy to cross-border migration flows to internal population movements – has arisen and evolved over the past few decades. Although some overlap among these theoretical and analytical strands relating to the study of migration exists, there is room for scholarly expansion in this area of inquiry. Indeed, we agree with the assertion "that a full understanding of contemporary migratory processes will not be achieved by relying on the tools of one discipline alone, or by focusing on a single level of analysis" (Massey et al. 1993: 432). To this end, we incorporate multi-disciplinary and multi-level approach in this paper. Our analysis is informed by political science, economics, policy studies, geology, and environmental studies and derives its findings from micro-, meso-, and macro-level contexts.

At the micro-level of neoclassical economic theory, it is assumed that individual migrants are acting out of rational self-interest as the motivating factor for moving from one area, region, or country to another. The act of migration is expected to yield a positive outcome or net return for the individual migrant. This is a reasonable assumption in circumstances of unforced migration. In the case of forced migration due to natural disasters, such as drought, hurricanes, and so forth, and man-made factors, such as political and religious persecution, civil strife, and inter-state warfare, the singular benefit for internally-displaced persons (IDPs) and refugees is survival. Since migration involves movement across long distances, financial costs are incurred in order to defray transportation and related expenses. The initial outlays of these financial or monetary costs – which are often substantial relative to one's income or savings – are considered either a necessary sacrifice or an investment in order to reap future rewards after arriving in a new area. In addition to personal net gains for a migrant, his (or her) household may also benefit from the move. If alone, migrants will often send a portion of their income to family members back home. These monetary remittances to the household in a migrant's country of origin are of great (though notoriously difficult to measure with precision) importance to those local and indeed national economies in question.

In the 1980s, migration research witnessed the evolution of the so-called 'new economics of migration' (Massey et al. 1993: 436-437, Stark and Bloom 1985). The perspectives associated with the new economics of migration framework represent a compelling theoretical development insofar that they expand the micro-level to include households and their calculations of risk as well as contextualizes the concept of income. Remittances are useful not only as income but also as a form of insurance against economic failures that may afflict the destination household. Given the relative high cost of formal insurance against household financial crises such as crop failure and the rarity of employment insurance in many developing countries, one or more members of a household may migrate in order to help protect against these risks. This is carried out by earning autonomous sources of income that may be sent back to the household in the form of remittances.

Since most migrants are separated from their households for extended periods of time, there is an obvious need for social networks in and around their destination areas. Over time, migration flows may rise to a suitable critical mass such that migrant networks begin to materialize.

Migrant networks are important "sets of interpersonal ties that connect migrants, former migrants, and nonmigrants in origin and destination areas though ties of kinship, friendship, and shared community origin" (Massey et al. 1993: 448). Migrant networks – which operate informally and coalesce around common traits such as country or region of origin, religious affiliation, tribal or ethnic linkages, language, culture, etc – may assist newcomers with employment opportunities, housing, and other logistics involved in getting settled in a new area. Human beings are social animals. Thus, migrant networks may also help mitigate feelings of loneliness and social isolation that often afflict new arrivals in unfamiliar territory. In effect, migrant networks help reduce some of the financial costs and risks (and social dislocation pains) associated with moving to a new area or region.

Migrant networks trend towards a meso-level of analysis due to its assumptions about the operation of migrant communities. With that said, migrant networks are based on micro-level units of analysis with respect to individual decision-makers within relatively small communities that are subject to the ebb and flow of population movements. A similar micro-level and meso-level synthesis is present in scholarly work on 'micro-regional' networks (Söderbaum and Taylor 2007 [forthcoming], Breslin and Hook 2002). Given our focus on cross-border and internal migration flows in West Africa, our analysis is influenced in part by such theoretical and practical understandings of 'micro-regional' frameworks. Specifically, we are particularly interested in the political economy of migration and how it underpins the movement of migrants to mining areas. We will return to these issues in following the section on the history of the mining and minerals industry in Ghana.

Macro-level theoretical approaches to migration examine the relationships between the supply and demand of labour, wages, and capital within and among countries. Rooted in neoclassical economics, macro-level analyses seek to explain how these three variables impact the flow of migrants across and within borders. For instance, macro-level models predict that labour will flow from 'labour-abundant' regions or countries to 'labour-scarce' ones in order to secure the higher wages on offer. According to the same logic, capital-scarce regions or countries will attract capital investments from capital-abundant ones in expectation of earning higher returns in the former (Massey et al. 1993: 433-434).

Though parsimonious in many respects, macro-level analyses assume migrants to be homogeneous entities, and, most importantly, complete freedom of movement of migrants between countries. Asymmetrical immigration and labour laws among states and enforcement capabilities do not enter in the macro-level equation. Furthermore, the macro-level flows envisioned by neoclassical economics focuses on licit flows – labour and capital abiding by rules, regulations, and laws – among formal sectors. Illicit flows, such as illegal migrants or trade in contraband and smuggled items, are difficult to quantify. Similarly, labour and wages in the informal sector require a more nuanced analysis that acknowledges a higher degree of heterogeneity among actors. The aforementioned 'new economics of migration' is particularly suited to the present analysis of migration and mining in Ghana and West Africa. Prior to continuing with our examination of what is 'new', however, we turn to what is 'old' in migration and mining in Ghana. That is, a brief historical overview of migration in the mining sector in Ghana.

3.0 HISTORICAL PERSPECTIVES AND DYNAMICS OF MIGRATION IN THE MINING SECTOR IN GHANA

The history of migration in the mining and minerals industry in Ghana dates back over a century when many ethnic communities which existed mainly as tribes and/or kingdoms used gold not only as a medium of exchange to trade in various goods and services but also an embodiment of the power, wealth, and influence of various tribal groups or states. In fact, many of the internecine wars throughout the West Africa sub-region before the arrival of Europeans and likely up to the mid-nineteenth century were, in part, deeply rooted in the quest by some such states to not just extend their influence and territorial boundaries but, even more importantly, conquer mineral rich lands. Militarily weaker states, almost always at the mercy of stronger, powerful, and more organised states, were either forced to flee from their agricultural or mineral-rich lands or forcibly annexed and 'incorporated' into victorious kingdoms. Indigenous tribes in forest areas also traded in salt and other commodities with coastal states which also occasioned minor migration of people from the hinterlands to coastal areas.

3.1 The political economy of mining in the Gold Coast colony

With the onset of colonization by the British Empire and attendant resource-driven export oriented economy, vast areas of the then Gold Coast were acquired by various prospectors for exploration. The colonial government, having prioritized mining as a major economic activity, vigorously pursued a policy which sought to enhance the role of mining in the various satellite colonies and the need for mineral resources to feed the industrial establishment in the British Empire. At the beginning of the twentieth century, the colonial government tacitly encouraged investment in the mining sector, first by making available to prospective overseas investors information on the mineral potential of the colony and second by actually recruiting qualified and/or skilled personnel to explore and manage exploration programmes to identify and document the mineral wealth of the colony. By 1913 (and thus before the onset of World War I), the then colonial government had had a Geological Survey Department established and manned by highly educated and skilled personnel many of whom were recruited overseas. Names of various Directors of the Gold Coast Geological Survey (now Geological Survey of Ghana) in the persons of Sir Albert Kitson (1913-1930), Dr. N. R. Junner (1930-1946), T. Hirst (1946-1951) and D. A. Bates (1951-1962) are credited even to this day with numerous mineral discoveries as well as scholarly publications that continue to feature prominently in geological literatures worldwide.

The Gold Coast Geological Survey was mandated to pursue vigorous recruitment of highly skilled expatriates in various earth science disciplines (e.g., petrology, mineralogy, geochemisty, geophysics, palaeontology, structural geology) from countries around the world, such as the United Kingdom, Australia, the United States, Bulgaria, the Soviet Union, Romania, and Poland. Various gold prospects, manganese, bauxite, and diamonds (alluvial) were discovered in rock formations named Birimian (after a type of rocks in the Birim River valley, eastern Ghana) and Tarkwaian (typical rocks also found at Tarkwa, western Ghana). By 1930, geological maps were not only replete with the mineral bearing areas of the Gold Coast but also credited with the actual occurrence of mineral prospects or deposits all over the landscape especially in the south-western

and northern parts of the colony. This information on the mineral-rich potential of the Gold Coast was made available by the colonial administration to prospective investors in the United Kingdom – many of whom explored, acquired, and mined gold on concessions in various parts of the country. During the period, some mines produced prolific amounts of processed ore with tonnage/grades exceeding 100g of gold per tonne of material.

3.2 Migrant destinations in the mining economy

The relative success of exploration and development in the mining industry under the British colonial administration fuelled massive infrastructural development in road and rail transport, banking, health services, and education in and around resource-rich areas in what is now the Western, Ashanti, and, to some extent, Eastern and Central regions. The demand for labour in the mining industry far outstripped supply in what used to be a predominantly agrarian economy in these areas. It is known that in many cases, indigenous people or the local labour force were either unwilling or unable to supply the labour requirements (Adepoju, 2005). The shortfall in labour supply, improvements in road networks and communication infrastructure, and less stringent inter-regional border controls, among others factors, provided the necessary impetus and demand for which encouraged a wave of immigrants from neighbouring British, French, and the German colonies into the Gold Coast in search of work. Immigrants from Guinea, Mali, Burkina Faso, Liberia, Sierra Leone, Nigeria, Togo, and other West African countries congregated in the mining areas and constituted a workforce that often far outnumbered native or indigenous people. It is on record that just before onset of the Second World War in 1935, well over one hundred prospects or deposits located in fairly narrow gold bearing corridors described as belts, were owned by foreigners in the Gold Coast and Northern Territories (Junner, 1935).

Out of six such belts then known to host most of the mineral deposits in the country, the Axim-Konongo (Ashanti) belt, which stretches from Axim in the south to Konongo in the north, constituted the most important zone and therefore received the greatest proportion of immigrants. The discovery of rich and fairly vast deposits of gold, manganese, and diamonds within this belt at what is now Konongo, Obuasi, Tarkwa, Nsuta, Bogoso, and Prestea – combined with the presence of comparatively better infrastructure linking these areas with other parts of the country (rail and road transport, telecommunications) – provided fertile spatial environments for immigration. Migration flows into these areas, which in some cases continue even at present, were in response to the volume and grade of reserves (gold and bauxite), concentration of mines, infrastructure, and numerous industries that serviced the mines and potential for acquisition of mine-related skills. Further migration also took place with the discovery and opening of new mines in other parts of the country as 'transitory' migrants hopped from one mine to the other in search of better working conditions and wages. It is to be also noted, that expansion of the resource dependent export-oriented agrarian and metalliferous economy at the time created immense opportunities and encouraged a net influx of labour and commercial migrants to the mining areas from all over the sub-region. Some migrants suggested the presence of local recruitment networks in the sending regions that disseminated information on the prospects and working conditions in the mines. Others also corroborated the existence of networks that pre-financed the cost of migration and ensured work at the mine at an agreeable fee. This pattern of migration into the mining sector expectedly continued even after independence in 1957 and was of lesser significance only in terms of migration to urban and peri-urban settings such as Accra,

Tema, and Takoradi where the prospects of finding work attracted comparatively high number of immigrants.

Notably, as early as 1913 when labour migration into the mining sector was, if anything, at an initial stage, the demand for agricultural labour was already very high compared to the government or civil service work. The civil service, with its low remuneration, failed to attract immigrants into the sector. It is documented that exploration work at the geological survey, for example, could not attract casual labourers who rather preferred to 'carry cocoa' due to the high wages paid in the cocoa industry (Kesse, 1975). The comparatively higher wages in the mining sector and related industries, therefore, served as a magnet that eventually attracted a continuous stream of migrants to work in various mines.

4.0 MIGRATION PATTERNS VERSUS STAGES OF MINING

Unlike many economic undertakings (e.g., agriculture, banking), mining of a metalliferous or non-metalliferous commodity (e.g., gold, diamond, crude oil) in any particular location is basically premised on a raw material or resource that is finite, often with life span that is dependent upon several factors. These factors include the expected size (amount or volume as the case may be) of the resource or reserve, rate of production (or depletion), world market price, political and economic stability within the location environment (i.e., the country), technological advancement, cost per unit of production, and other concerns. In fact, the resource base for many of such mining projects could be depleted in a matter of decades. Furthermore, roughly three distinct phases or stages can be identified in any mining operation; that is, growth, stagnation or decline, and closure. Each of these phases may be more or less intimately linked with (labour) migration, both internal and cross-border. It should be noted, however, that migration patterns associated with growth, decline, and closure phases of the mining process may be distinctly different in terms of nature, net flux, or occupation. It is pertinent to note, however, that many of the causative factors that contribute to migration patterns especially at the growth stage of mining are in accord with the many of the works reviewed by Massey and colleagues (1993).

4.1 Growth stage

The growth stage of mining usually begins with exploration or the search for mineral deposits on a given defined and legally acquired terrain, delineation of an ore deposit which can be mined at a profit under existing conditions, and actual mine development involving massive infrastructural investment in the form of plant and equipment, access roads, residential and office buildings, electricity, water supply, recreational facilities, and, in some cases, resettlement of whole communities that may be impacted directly by the activities of the mine. The exploration programme, which could last from two to over ten years, only attracts minimum-required labour, both skilled (e.g., project managers, geologists, surveyors, drillers) and semi-skilled to unskilled (e.g., drivers, casual labourers). Skilled personnel are usually recruited from outside the area of operation in contrast to the unskilled labourers who tend to predominantly come from the area or region itself. During the development phase when ore has been delineated and ready to be mined at a profit, demand for all forms of labour from skilled to unskilled tends to be high, qualitatively in conformity with the volume and quantum (or diversity) of work required. People may be

engaged directly by the mine to undertake various essential tasks whilst others may be employed by sub-contractors who perform various tasks for the company at a fee. This phase, therefore, attracts maximum labour of all kinds often equalled only when existing mines undergo massive expansion projects. The recently established Chiraano Gold mine in the Western Region and the Newmont gold projects at Terkyere and New Abirem in the Brong Ahafo and Eastern Regions, respectively, provide excellent examples of the development of mining concerns.

Because greater numbers of people with variable skills are engaged to undertake various tasks at the development phase of mining, migrant labour becomes an essential ingredient to overcome the shortfall in labour supply due to inability or unwillingness to source from the local communities. Furthermore, the array of skills required would ordinarily be impossible to be satisfied by the local communities. At one mining site during our studies, we encountered huge numbers of migrants, mainly internal (from Ghana) but also cross-border (from Mali, Guinea, Burkina Faso, Togo, etc.), at a mine gate. Such were the desperation, tenacity, and zeal for work shown by the immigrants, especially the trans-national migrants, that many had not only pitched camp in the proximity of the mine gate but do actually lurk around for twenty-four hours in anticipation of employment at any time when needed. This observation, however, contrasted sharply with internal (Ghanaian) migrants and especially so for 'indigenous migrants' who come from areas close to the mine who would normally only be at the mine gate for a few hours every morning and leave for their homes and villages. Some migrants, unable to find work in the mines, tend to be employed as farm hands offering labour in the agricultural sector the produce of which mainly serves to feed inhabitants in the growing mining (local) economy.

Apart from labour migration, commercial, and what could conveniently be classified as 'institutional' migration are also intimately linked with the growth phase of mine development. Traders from within Ghana and beyond migrate to the mining centres to trade in various goods and services. Household, luxury, hardware and all sorts of merchandise are traded briskly usually in towns and villages surrounding the mines. Trading in gold and diamonds also proliferate in mining communities and is done by people outside the main mining entities. Companies and entrepreneurial interests of all sizes, ranging from banks, fuel stations, bars, restaurants, guest-houses, small appliance dealers to taxis and small goods vendors, similarly move into the mining areas to render essential services and to profit from the mines' existence. Still other people also migrate to mining centres from all over the sub-region to take advantage of opportunities offered by localisation of the mine in terms of spin-off and support industries that require small scale companies and entrepreneurs.[1] Institutional migration appears quite distinctively, though by no means always, related to every large-scale mining process. It is here described as a kind of internal migration involving 'movement' of vital institutions, and by inference requisite personnel, from urban and peri-urban areas to communities that host mining. Such institutions, examples of which include regulatory and law enforcement agencies, are required to provide effective and prompt service to the mining industry as well as safeguard the interest of the country. In Ghana, the Environmental Protection Agency (EPA), Minerals Commission, Security Services (e.g., the Police and Fire services), and Internal Revenue Service (IRS), among others, could be placed in this category. Many such institutions have been established in remote, mineral-rich areas to cater for newly established mining concerns.

4.2 Stagnation and/or decline

During periods of low commodity prices, high cost of production, exhaustion of reserves, obsolescence of equipment, change in technological advancement, and unfavourable government policies, mining activity may stagnate or decline with serious and often disastrous effects on especially the labour required to undertake various processes. In other cases, mining companies may restructure or downsize as a consequence of stagnation and decline in economic activity or just to take advantage of new mining and processing technology in order to stave off competition. Two examples – well known in the Ghanaian mining industry – will suffice for illustrative purposes, one involving the change from deep level lode to surface mining of gold and the other from recent advances in ore processing technology. Transformations brought about in these two aspects of gold mining have enabled huge volumes of otherwise low grade, near-surface material to be mined and processed profitably and at considerably lower costs using far less people. For example, surface mining technology is now being used for gold at Prestea and Tarkwa which only decades ago utilised deep mining methods. Again, advances in processing technology about two decades ago led to the introduction of the 'heap leach' process which enabled very low grade oxidized gold ores of about 1.5g/t, compared to earlier grades of over 8g/t, to be profitably mined. Restructuring may also involve anything from introduction of new plants and equipment to mechanization of some processes hitherto undertaken manually by many people. In such situations workers, especially the lowly-skilled, are made redundant, triggering a wave of migration not only of the workforce but also people in other sector industries as well as support and spin-off businesses that depended heavily on the presence and activities of the mine. Many such migrants – often the most skilled, youthful, and male – migrate to other mining centres in search of jobs leaving behind vulnerable members including women, children, and the aged. With little or no deep cultural roots in the area, such vulnerable members become victims of various vices. In some cases, many women and children have had to engage in all sorts of activities, legal to illegal, in order to earn a living.[2]

For nearly two decades, the Ghana Consolidated Diamonds Ltd. at Akwatia, the only large-scale diamond mining company in Ghana, has been on divestiture. Unable to attract investment and having to work with outmoded and obsolete plant and equipment, the company dispensed with the services of many unskilled or lowly-skilled workers many of whom still reside in the area and are unemployed. The predominantly skilled labour force, meanwhile, either stayed on or with time moved out and secured jobs in other mining areas. This observation appears to support Hollywood (2002) who argues in favour of the association of migration with occupations in the British mining industry makes up for the imbalances in the demand and supply of labour. One direct consequence of the decline, though, has been the phenomenal increase in artisanal and small scale mining (ASSM) activity; arguably from the low-skilled mainly unemployed former workers of the mine. Again, lack of investment capital over the years in the state owned Ghana Railways Company Ltd. has seriously affected production and transport of bauxite being mined by Ghana Bauxite Company Ltd. at the mine site at Awaso in the Western Region. Inability by the railway company to effectively and regularly cart bauxite to the sea port at Takoradi due to, among others, frequent breakdown of few coaches available has critically impacted substantially and negatively on bauxite mining at Awaso. In fact, the situation has become so dire that fleets of vehicles have had to transport the bulky raw material all the way to the Takoradi port – a situation which, if persists, would prompt migration of mainly skilled labour to other mining

areas. The energy crisis and resultant electricity outages currently experienced in the country may also slow down the activities of mining companies.

4.3 Closure stage

The most important stage in the mining process with potentially disastrous consequences on migration has to do with mine closure. Any form of mine closure, whether anticipated or occasioned by circumstances beyond control of the mine management, results in net outflow of people at various levels of the socio-economic hierarchy. Eventual collapse of infrastructure and economic wealth results in the most significant out-migration of labour and businesses leading to the creation of 'ghost settlements and towns'. All that exist of many such ghost settlements, such as Obuom in the Ashanti Region, are remnants of mine infrastructure underneath a 'forest' of bush and trees. Settlements which manage to survive the closure nevertheless witness strong decline in their socio-economic status. Hiawa in the Western Region is a prime example of rapid and substantial economic decline following the closure of a nearby mine.

5.0 RECENT TRENDS AND IMPACT OF MIGRATION IN LARGE SCALE MINING (LSM) AND ARTISANAL AND SMALL SCALE MINING (ASSM)

Many mineral resource-rich countries that have had a long history of mining have seen studies devoted to mining and migration. To our knowledge, published work devoted solely to migration patterns in the LSM and/or ASSM sector in Ghana are either non-existent or preliminary. However, some mention has occasionally been made of migration in relation to mining by various authors on the subject of migration in Ghana or West Africa (Adepoju 2005, Benneh 2005, Francis 2001).[3] Because the LSM sector in Ghana operates under a much more organised and regulated regime for the past decade or more, some amount of information on aspects of migration such as expatriate staff strength, occupation and countries of origin is available.

5.1 The Large scale mining (LSM) sector (1995-2006)

Data on labour statistics in the LSM sector (gold, bauxite, manganese, diamonds) from 1995 to 2005 depict a gradual decline of total workers from 22,519 to 15,396.[4] In 2006, however, a small yet appreciable spike occurred, with the total number of workers involved in the LSM sectors growing to 18,742. This period roughly coincides with increasingly higher gold prices on the world market, an obviously important contributory factor to the sustained level of investment flow into the gold mining sector of the economy. Even though the data appears limited in scope especially since no data on ASSM is available for comparison, it does provide useful information within the LSM sector itself.

At the growth stage of mining (from exploration to exploitation) which may take between two and ten to fifteen years, there is often increased ASSM activity in and around the concessions of LSM companies, a situation which frequently results in very serious resource utilisation conflicts between LSM and ASSM miners. In northern Ghana, for example, trenching and drilling of sites by some companies on their concessions have resulted, in some cases, in virtual 'invasion' of the sites by migrating artisanal or illegal miners. Interesting, it appears the LSM, under such

circumstances, have not be able to effectively manage such situations probably due to factors such as:

a) tacit collaboration of local communities with illegal miners
b) no clearly defined target or resource especially at the initial stages of exploration
c) uncertainty in continuity or otherwise of venture
d) inability and cost involved to fully secure confines of large concessions or property
e) LSM usually not well 'grounded' in the area in terms of requisite infrastructure at that stage
f) statutory provision requiring part of concession to be shed off after the exploration work

Again in many of the agrarian communities in LSM areas, low yielding crops, lack of improvements in technology and extension services, decreased soil fertility, lack of support (by way of insurance or from government, etc), erratic rainfall patterns, increased rural-urban drift (youth), improved communication infrastructure and the inordinately long gestation periods for many agricultural products such as cocoa and oil palm to mature make agricultural labour unattractive to many people – especially the youth. In addition, socio-economic changes brought about by the LSM's presence, together with inability to find work in LSM, enhances the prospects of migration of many local people from the area in search of better opportunities elsewhere. This is in conformity with various theories of migration, such as those based on Immanuel Wallerstein's well-known World Systems Theory (WST). Almost simultaneously, however, migration in the opposite direction appears to gain momentum in areas occupied by LSM.

5.2 The Artisanal and Small Scale mining (ASSM) sector

For the purposes of clarification, small scale miners are artisanal miners who are licensed to operate on a small piece of land and who are required to market their produce through the Precious Minerals Marketing Company (PMMC) or designated agents affiliated to PMMC. Illegal miners – known as *galamseys* – on the other hand, practice their trade without any regularisation or licence from the regulatory agencies. The 'theoretical' distinction between the two is, for all intents and purposes, blurred when one visits mining sites where these people or groups of people operate. We find it more convenient, at least in this study, to lump the activities of the two together under the heading of ASSM. In addition, we frequently prefer to use the terms illegal mining (or miners), *galamseys* (the local terminology for illegal miners or mining), and ASSM interchangeably.

ASSM is one of the fastest growing more or less informal economic sectors in the country. As indicated above, the ASSM sector is the most difficult to regulate due, among others, to the nomadic and often seasonal nature of their activities. In addition, these activities normally take place outside the control of the government or regulatory agencies. The sector is still not only largely unregulated but also profusely 'contaminated' with illegal artisanal or *galamsey* miners the numerical strength and areas of operation of which remain largely unknown, although one estimate places the figure at approximately 100,000 to 200,000 (Aubynn 2006: 227). Apart from few registered or licensed small scale operators, no one knows precisely how many people are engaged in illegal mining of gold and diamonds in the country. Ghana's Minerals Commission

estimates that small scale miners generated about 4,500 jobs as at the end of 2006. Conservatively, however, well over half a million participants may be involved in the illicit business at any particular time throughout the country especially in the dry season when such activities become more prominent. During peak periods of operation, the sector attracts an army of migrants from all over the sub-region, in part an indication of the serious unemployment conditions in the region as a whole.

Various authors including Massey and colleagues (1993) have suggested that the cumulative effect of investment and globalization which result in improvements in transportation and communication infrastructure in many hinterlands, in turn, favour migration of labour in the opposite direction – that is, towards the source of investment. Whilst this may be true in a number of situations, our studies on the mining industry in Ghana amply suggest these same effects could also be responsible for migration movements not necessarily opposite, but rather in the same direction, as investment. This is especially evident in the ASSM sector where improved roads and telecommunication systems infrastructure undertaken by government or LSM companies to link rural resource-rich areas to urban and peri-urban settlements have provided excellent opportunities for investment by both internal and trans-national migrants. The improved communication networks have also facilitated transport of mining and processing equipment, mainly locally made and/or from China, which hitherto would not have been possible due to lack of access. Many of such 'small time' investors move to and/or settle in the hinterlands to trade in gold and diamonds, for example, pre-finance ASSM and *galamsey* activities and normally recoup the initial investments from the periodic produce made by 'diggers' at site. Even though the wages paid are not commensurate with the nature of work done, participants in the *galamsey* activities appear satisfied with the opportunity to 'earn a living' out of the work. These so-called investors actively recruit many poverty-stricken and unemployed youth and women from the locality and beyond, thereby perpetuating the business. In some cases financiers, unable to break even or after sustained losses, simply abscond, leaving people who may have worked for months unpaid. In short, such an investment drive mainly serves the interests of the investors at the expense of people physically engaged in the *galamsey* activities. Women, children and many people who have had to bear the brunt of the dangerous, difficult, and dirty work of digging, carrying, and processing the ore are therefore usually worse off economically by participating in the ASSM activities.

6.0 CONCLUSION

This paper makes an original contribution to the overall endeavour to map the current state of international migration research in Africa by examining the implications of migration patterns associated with the mining. In turn, we have elucidated the complementary issues of cross-border and internal migration as they relate to the mining and minerals industry in West Africa with a particular emphasis on Ghana. In terms of implications for the current and future studies of the relationship between migration and mining, we conclude with several policy implications in the context of LSM and ASSM.

Although governments may be vexed by inflows of informal labour from neighbouring countries or from rural areas to peri-urban and urban areas, it is difficult for state ministries and civil

servants to design policies that effectively control migrants seeking to work in informal labour sectors. This is readily applicable to the artisanal mining across Africa and elsewhere, including small-scale diamond extraction in Ghana, Sierra Leone, Angola, the Democratic Republic of Congo (DRC) as well as Brazil, Venezuela, and Guyana.[5] It is also important to emphasize the difference between perceived or expected net benefits and actual experiences once migrants arrive in the new area. Often, the gap is significant, as expected benefits can be quite meagre. Information to potential migrants is imperfect, supplied over long distances and embellished by returnees or those seeking to provide transportation services to migrants. An influx to what appears to be a particularly lucrative area – such as gold or diamond mining areas – may very well depress income levels.

For instance, the impact of child labour in the mining areas further depresses remuneration by increasing the supply of unskilled labour. Although younger children tend to be assigned to support activities such as preparing meals for miners or moving wheelbarrows of waste gravel from one area to another, adolescents are known to engage in artisanal alluvial diamond mining and thereby depressing wages. Throughout West Africa – and especially in rural areas – school enrolment tends to be below desirable levels. This is due in part to the state's inability to provide free, high-quality public education to all children. School fees are often beyond the modest means of many households, and therefore decisions must be made concerning how many (if any) children will be sent to school.

The various challenges and opportunities presented by migration patterns in the LSM and ASSM sectors may have important implications on policy. Our studies suggest the growing influence of migration from the entire sub-region on especially the ASSM sector and the need for prompt action by government (national to local), regulatory agencies, communities, and civil society. It is evidently clear that the role of migration, both internal and cross-border, in fuelling and sustaining the activities – as well as the associated impacts – have not been given the necessary attention in all policies relating to the mining sector. Previously, one hardly found skilled to semi-skilled and/or well-educated personnel in ASSM. It is, at present, a very common observation at many ASSM sites or in the communities hosting ASSM to find such people who actively sponsor and finance such activities. Redundant and retired workers from LSM also participate in these activities as a means of livelihood. Many financiers source loans from the black market or banks to support the ventures suggesting that the ASSM activity would likely increase and/or continue to operate outside the official regulatory regime. If properly studied and the necessary support extended by way of skills training, capital infusion, monitoring, and evaluation, these people could be encouraged to manage ASSM activities in ways that could benefit all stakeholders.

Again, recent studies on the ASSM sector have documented its impact of the environment (Yelpaala and Ali 2006, Nyame and Danso 2006) as well as associated problems of HIV/AIDS, prostitution, child labour, crime and drug abuse in the sector and/or host communities.[6] Even though these efforts are commendable, more pragmatic approaches should be found towards ameliorating these problems in the communities. Policies should also take into consideration the nomadic nature of the activities as well as be made to target vulnerable migrant groups such as women and children who often become trapped or abandoned by their male counterparts in some areas without the resources to escape. In some communities, teenage single-parent girls and

young women migrants with children have been abandoned by their 'more mobile' nomadic male counterparts causing serious socio-economic strain on the women and children in question. This rampant sense of abandonment by migrant male miners was also noted in some communities where pregnant indigenous women had been left to fend for themselves – including against social stigmatisation by inhabitants in the communities.

Globalization has meant that companies of all sizes have had to frequently restructure their production processes in order to stay competitive and LSM companies are no exception. It is, however, suggested that any such restructuring be done with the active participation of government and experts in order to mitigate socio-economic impacts on redundant especially low-skilled workforce. If such processes are not managed in a sustainable fashion, it could create a pool of mobile labour that would ultimately find work in the ASSM sector which would, in turn, encourage a net inflow of migration into the mining areas.

One important observation with far reaching implications on LSM-ASSM dynamics is the strong perception by many local mining communities that ASSM activity is economically, socially, and culturally more beneficial than LSM. Any attempt to explain or solicit possible reasons for this perception is beyond the scope of this study. Its implications on migration trends in relation to host mining communities, conflict generation, and resource utilization cannot be, however, ignored. This could, perhaps, explain why recent attempts by the government of Ghana to flush out illegal miners from the concessions of large scale mining companies have not been very successful.

Finally, the benefits of migration in the mining sector are all too obvious to be ignored. Labour, commercial, and other forms of migration have helped transform not only various sectors of the economy though cross-linkages and knock-on effects but also in areas such as skills development, technology transfers, and the growth of commercially important mining towns such as Tarkwa, Prestea, and Obuasi. The mining metropolis of Johannesburg, South Africa, stands out as a classic example of the importance of migration in helping to build a self-sustaining, economically-viable city which, at present, is completely independent of mining. At the same time, however, patterns of migration can equally impact negatively on the sustainability of mining communities. The examples of Dunkwa on Offin, Obuom, Hiawa, and other mining towns that bustled with economic activity with mining but later completely 'degenerated' and/or became ghost settlements through outflows of migrants must serve as stark reminders on the need to not only plan but integrate the aforementioned factors into the mining and migration equation to ensure maximum benefits.

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ERRATA

Please note that the endnotes follow the list of references.

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NOTES

[1] Not all new migrants are able to find gainful employment. Female migrants are sometimes forced into prostitution near the commercial hubs created by the mines if no other means of employment is attainable. See for example Akabzaa (2000: 47-48).

[2] A number of socio-economic impacts associated with restructuring have been documented in the South African mining sectors.

[3] Related migration issues are also touched upon by contributors to Manuh (2005).

[4] Unless otherwise noted, the statistics in this section are based on Minerals Commission (2006). See also *Ghana: A Mining Journal Supplement* (2006).

[5] See for example Blore (2006a, 2006b, 2006c).

[6] These issues are addressed in the wider West African context by contributors to Hilson (2006).