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Sustainability in the Mining Sector of Ghana: An Empirical Study

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Prince Amoah

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Abstract

Sustainability in mining has received much global attention in recent years from academics, policy makers, and industry leaders, and other players. However, scant attention has been paid to examining the sustainability practices of mining companies within developing countries in addressing the proximate and long-term social and environmental impacts of mining activities. To address this knowledge gap, this study examines how large-scale mining companies address their social and environmental impacts through their sustainability practices. This study is situated within an interpretivist paradigm and employs a qualitative research methodology based on multiple cases, drawing on data from interviews with six (6) managers of multinational mining companies operating in Ghana, and 12 key stakeholder groups.

This thesis contains four empirical findings chapters. The first of these examines the sustainability practices of large-scale mining companies in addressing environmental impacts throughout mine lifecycle. The findings indicate that the environmental sustainability practices are determined by regulatory compliance and corporate environmental responsibility. Although the environmental sustainability practices are predicated on the requirements in relevant policies and legislation, the findings demonstrate that regulatory pressures drive large-scale mining companies to embrace beyond compliance initiatives based on perceived ethical obligations. The second findings chapter examines the barriers to environmental sustainability implementation in large-scale mining in Ghana. The findings demonstrate that both institutional and corporate challenges are hindering effective sustainability implementation.

The third findings chapter investigates the sustainability practices of large-scale mining companies in addressing social impacts throughout mining development. The findings show that large-scale mining companies have embraced a broader scope of social sustainability implementation based on a changing institutional environment. Drawing on stakeholder theory, the findings indicate that mine managers address social sustainability challenges based on instrumental and normative considerations. The fourth and final findings chapter examines the drivers for and barriers to mining companies' social sustainability practices by drawing on stakeholder theory and institutional theory. The findings suggest that regulatory evolution, institutional pressures, post-closure legacies, transparency and disclosures, and managerial cognition are key drivers for the social sustainability implementation of large-scale mining companies. On the contrary, the barriers to social sustainability implementation stem from institutional voids and divergent stakeholder interests.

Thus, by doing a critical reflection of the findings, this study contributes to theory by offering a series of propositions and suggesting a holistic framework for social and environmental sustainability implementation. Regarding stakeholder theory, the findings show that Large-scale mining companies experience fewer pressures from local communities and activists because of their lack of proactive engagement on environmental sustainability issues. Drawing on institutional theory, the findings suggest that multiple and contradictory logics within various institutional arrangements undermine social and environmental sustainability implementation. Additionally, this study provides a frame of reference for practitioners including mining companies and mine managers, regulatory officials, policy makers, and mining pressures groups who are involved in social and environmental sustainability implementation. Future research may consider data sets from other empirical domains, which might uncover differences in the emerging framework for sustainability implementation.

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List of Related Publications

Journal Articles

Amoah, P., & Eweje, G. (2021). Impact mitigation or ecological restoration? Examining the environmental sustainability practices of multinational mining companies. *Business Strategy and the Environment*, 30(1), 551 –565. <https://doi.org/10.1002/bse.2637>.

Amoah, P., & Eweje, G. (2020). CSR in Ghana’s gold-mining sector: Assessing expectations and perceptions of performance within institutional and stakeholder lenses. *Social Business*. DOI: <https://doi.org/10.1362/204440820X15929907056661>

Amoah, P., Eweje, G. & Bathurst, R. (2020). Understanding grand challenges in sustainability implementation within mining in developing countries. *Social Business*.10(2), 123 –149. <https://doi.org/10.1362/204440820X15813359568309>.

Conference Presentations and Proceedings

Amoah, P., Eweje, G. & Bathurst, R. (2019). *Challenges to sustainable environmental impact mitigation within the mining sector in Ghana*. Paper presented at the 9th annual Australasian Business Network Conference, Melbourne, Australia.

Amoah, P., Eweje, G. & Bathurst, R. (2018). *Sustainability implementation within the gold-mining sector in Ghana: Issues and prospects*. Paper presented at the 8th annual Australasian Business Network Conference, Auckland, New Zealand.

Workshops/Training

Amoah, P. (2018). *Sustainability in the gold-mining sector in Ghana: An empirical study*. 8th ABEN doctoral workshop, Auckland, New Zealand.

Chapter 1

Introduction

This research examines sustainability practices in the mining sector in Ghana. It seeks to understand the sustainability practices of large-scale mining companies in addressing social and environmental risks through the mine life-cycle within a challenging and non-enabling or weak institutional context (Amaeshi et al. 2016). The issues of sustainability in the mining sector and the need to explore its identity, guiding logics, change processes, and liabilities defined the aim and provided the motivation of this study. Based on this, the study requires assessing the interactions between stakeholder and institutional pressures on the adoption of sustainability practices by large-scale mining companies while understanding the effects of organizational characteristics. Particularly, while there are environmental regulations on mining, the mechanism for compliance is weak and non-enabling. In a similar vein, social sustainability practices occur largely in a self-regulatory context due to the lack of regulatory and policy frameworks.

However, Amaeshi et al. (2016) posit that companies may have significant urgency to engage in responsible practices as they cannot be constrained by some institutional incentives for irresponsibility. For example, large-scale mining companies are mostly involved in voluntarily reporting their sustainability practices as evidence of their responsibility to their stakeholders and their host countries (Brown, de Jong, & Levy, 2009; Fonseca et al., 2014). Yet, the idea that companies may implement effective practices towards sustainability without a strong institutional and regulatory mechanism has also been questioned (Moran et al., 2014; Shum & Yam, 2011). Given this, it is not clear about what drives large-scale mining companies to embrace responsible practices and how they are

addressing the impacts of their activities, especially in challenging and weak institutional contexts. Thus, this study examines the drivers, and barriers to the adoption of sustainable practices in the mining sector, focusing on social and environmental sustainability mechanisms, analysed in the context of the broader institutional landscape. This study is situated within an interpretivist paradigm and employs a qualitative research methodology based on multiple cases to examine managerial and stakeholder perceptions regarding how large-scale mining companies address their social and environmental sustainability impacts in local communities.

The purpose of this chapter is to provide an overview of the study with the first section discussing the research background and an overview of mining in Ghana. The second section presents the justification including the research gaps. The third presents the research objectives, research questions, and goals. Then, the fourth section briefly introduces the philosophical considerations and research methodology to provide indications of how the research was carried out. The fifth and final section describes the significance, followed by definitions of key terms, and the structure of the thesis.

1.1 Background of the Study

The benefits of mining such as foreign direct investment, high export revenues, employment opportunities, and infrastructural developments have contributed to an expanding minerals sector in many developed and developing countries (Horsley, Prout, Tonts, & Ali, 2015; Taylor & Bonner, 2017). Mining refers to the extraction, beneficiation through ore enrichment, and processing of solid minerals from the earth's crust through open-pit, quarrying or underground excavation (Holmberg, Kivikytö-Reponen, Härkisaari, Valtonen, & Erdemir, 2017). The process of minerals extraction is by nature finite, but its impacts

endure long after mine closure. Therefore, host communities and other stakeholders evaluate mining impacts in relation to their net contribution to improving human and eco-system balance over the long term (Hodge, 2014), and the benefits and costs to society (Zhang & Moffat, 2015). Additionally, the impacts of mining require corresponding investments in sustainability initiatives that provide long-term outcomes to society (Pimentel, Gonzalez, & Barbosa, 2016). Thus, according to Dashwood (2014) sustainability practices by companies are not seen in isolation, but also consider environmental and social concerns in the mining sector, especially in countries with weak regulations and mechanisms for enforcing compliance.

Many developed and high-income countries like the USA, Canada, and Australia also have large and expanding solid mining sectors. For instance, the mining sector in Australia contributes up to 8% of GDP (Bice, 2014)..The total economic contribution is equal to the rates of mining benefits in many developing countries but the proportional contribution is lower in most mineral-rich advanced countries due to their higher degree of economic diversification. However, mining in developed countries occurs within well-functioning institutions and rule-based processes, which foster economic growth and environmental integrity (P. Söderholm & Svahn, 2015). For example, Canada's mining sector has achieved significant successes due to partnerships between the government and the industry in fostering robust institutional systems that promote sustainability. Indeed, K. Söderholm et al. (2015) posit that the basis of any sustainability policy is stringent environmental regulation, which is required in achieving sustainable development. However, even in resource-rich developed countries like Australia and Canada with stronger regulations, institutional arrangements, and robust compliance enforcement mechanisms (Morrison-Saunders et al., 2016), environmental and social sustainability remains a critical challenge

to the sustainable futures of local communities. Yet, the relative success of sustainability implementation in developed countries compared to the developing world provide lessons in managing a mine throughout the phases of resource extraction.

Further, the development contributions of companies in the mining sector in developing countries have been insufficient to compensate for sustainability concerns associated with their activities (Jamali & Mirshak, 2007; Yakovleva, 2005). For example, in Africa, individuals living in resource rich countries are 3% less literate, have shorter life expectancy by 4.5 years, and have greater rates of malnutrition among women and children relative to other nations on the continent (Chuhan-Pole, Dabalén, & Land, 2017). This may be due to the weak governance and institutional structures, which are incapable of capturing the terms of references indicated in the environmental impact assessment process at the pre-licensing stage into effective operational and mine closure mechanisms (see Venables, 2016). Considering this, there is increasing attention on the roles mining companies have in addressing social and environmental sustainability risks associated with their activities on host communities and wider social processes. To deal with the challenges, many large-scale mining companies operating in developing countries are voluntary signatories to the Global Reporting Initiative (GRI) and the International Council on Mining and Metals (ICMM) frameworks on economic, social, and environmental sustainability. For instance, there are nine (9) economic, 30 environmental, and five (5) social performance indicators as well as human rights and labour categories, which companies are supposed to cover in their sustainability reporting.

Based on the above, studies on sustainability in mining mostly focus on developing countries, which tend to have monitoring and implementation challenges in their mineral extraction policies and development (Helwege, 2015; Tuokuu, Gruber, Idemudia, & Kayira,

2018). For example, stringent environmental rules increase the time, cost, and risks associated with operating mines (K. Söderholm et al., 2015). This may explain why countries with a greater dependency on mining exhibit weak governance and enforcement mechanisms. For instance, according to Wudrick (2015) even in developing countries with strong legislations governing social and environmental impacts, lack of political will may hinder effective monitoring, adequate investigations of social and environmental concerns, and lack of prosecution for multinational companies which fail to comply with local laws. Hamann (2003) posits this as resulting from the effect of globalization where the power of governments is diminishing relative to multinational corporations, which then limits the degree to which they can be regulated by legislations. Therefore, this study focuses on the social and environmental sustainability initiatives of large-scale mining companies throughout the phases of resource extraction within a developing country (See Table 1.1).

Environmental challenges including deforestation, pollution, loss of fauna and flora and harmful ecological exposures due to ore leaching causing acid mine drainage are major concerns of mining across the globe, particularly in developing countries (Ayelazuno & Mawuko-Yevugah, 2019; Idemudia, 2011; Moran, Lodhia, Kunz, & Huisingh, 2014). For example, mining-induced deforestation increased Amazon forest loss to 70 km beyond operational lease boundaries between 2005 and 2015 in Brazil (L. J. Sonter et al., 2017). In addition to this, mining leads to increased living costs in host communities, contributes to the erosion of cultural and social affinities, community dislocations, land tenure disputes and other social concerns (Owen & Kemp, 2015; Sakyi, Efavi, Atta-Peters, & Asare, 2012). Thus, the effects of mining have resulted in a rethink of solid minerals extraction in many developing countries. For instance, the legislative assembly of El Salvador voted

overwhelmingly to ban all forms of metal mining in 2017 due to diminishing water sources from polluting projects (Bebbington, Fash, & Rogan, 2019).

Table 1.1: Main impacts during and after the life of a mine.

Minerals exploration	Mine Development	Mining Operations	Mine Closure
Limited, but escalating impact as exploration progresses.	Limited impact during studies, assessment, planning, but future impacts and mitigation opportunities are 'locked' at this stage. Major environmental and social impacts during mine construction. Surge in demands for jobs. Resettlement, displacement, in-migration.	Major environmental and social impacts, depending on the nature and scale of the deposit and mining method. Demand for jobs, goods and services. Fiscal revenue flows.	Winding down of operations lead to educated impacts but can leave lasting environmental legacies and social dislocation. Loss of jobs and fiscal revenues.

Source: (UNDP & UN Environment, 2018, p. 30)

Moreover, mining effects have implications for the achievement of the United Nations Sustainable Development Goals (SDGs), which envisage an equitable, socially inclusive and globally sustainable development (Yonehara et al., 2017). According to Fraser (2018) mining has contributed to many of the problems the SDGs seek to address, and thus, uniquely positioned to contribute to sustainability. The purpose of this study is to understand the practices of large-scale gold mining companies in addressing social and environmental sustainability risks during and after mine closure within an empirical domain with weak institutional and enforcement mechanisms. Thus, this study requires

assessing the effects of stakeholder pressures within the institutional environment and understanding the influences of the mining companies within a context of anomie.

Further, recent scholarship on the mining sector has emphasized sustainability as a way for mining companies to account for the consequences of their activities (Dougherty & Olsen, 2014; Gomes, Kneipp, Kruglianskas, da Rosa, & Bichueti, 2014). Accordingly, in mineral-rich developing countries, companies come across as having the capacity to embrace technologies and initiatives that enhance their sustainability practices (Barkemeyer, Stringer, Hollins, & Josephi, 2015a). Thus, implementing sustainability initiatives is a way to address social, environmental, and health challenges (Ahi & Searcy, 2015; Fuisz-Kehrbach, 2015) which is perhaps more critical for companies in the mining sector due to the inherent finiteness of mineral resources and the associated risks during and after mine closures (Njeru & Kragt, 2015). However, according to Njeru and Kragt (2015) many mining companies have not adequately mitigated their environmental and social impacts and therefore present liabilities to local communities and the governments of the host countries after mines are decommissioned. Thus, Essah and Andrews (2016) argue that if mining companies are claiming to be embedding sustainable practices, it is important to examine how they are implementing sustainability in addressing their impacts.

Even though there are different opinions about what constitutes sustainable mining, Gordon, Bertram, and Graedel (2006) observe that a synthesis of different views on sustainability converges on a common issue which is an ongoing availability of resources and a productive environment that supports healthy communities at mining sites. In addition, Mudd (2010, p. 99) suggests that the sum of all individual “mines over time and space and their respective resources, impacts and benefits should be

considered in ascribing sustainability to mining”. In light of this, mining companies are expected by governments, local communities, and other stakeholders to operate within environmentally sustainable limits and generate net positive benefits to society (Kemp, Worden, & Owen, 2016).

Despite the growing interest in sustainability research and the plethora of studies on sustainability in the mining (Antwi et al., 2017; Karakaya & Nuur, 2018), there is a dearth of knowledge about how sustainability initiatives of companies in the mining sector address their impacts. Specifically, there is inadequate in-depth theoretical and empirical research that focuses on how mining companies are addressing social sustainability concerns (Rodrigues & Mendes, 2018; Suopajarvi et al., 2016). The following section provides an overview of the mining sector in Ghana.

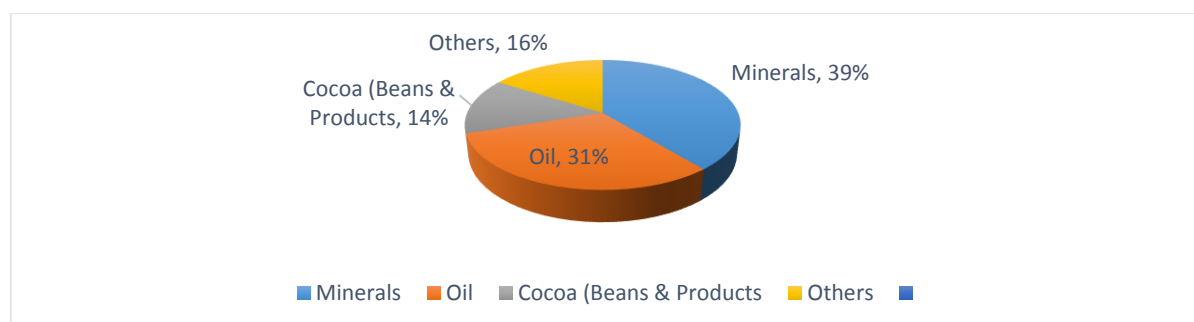
1.2 Mining in Ghana

The history of mining, especially gold extraction in Ghana, dates back over 2500 years (Jackson, 1992) but the implementation of the structural adjustment programme in 1983 witnessed a burgeoning growth in the sector (G. Hilson, 2002a). The government of Ghana was required by the World Bank and International Monetary Fund (IMF) to introduce mining reforms, which included privatising and de-regulating the mining sector, to qualify for direct financial investment. These reforms have produced impressive growth of over 700% between 1980–2000 in the sector and culminated into more than US\$3 billion in foreign direct by 1999 (Akabzaa & Darimani, 2001; G. Hilson & Potter, 2005). The recent available data indicates that since 2005, mining-related investment is over 50% of Ghana’s total FDI inflow while contributing about 19% of the tax revenues of government in 2013 (ICMM, 2015).

Additionally, the reforms involved generous fiscal incentives such as tax breaks for companies that invested in the sector resulted in mining concessions accounting for over 13.1% of the country’s total land area (G. Hilson & Banchirigah, 2009). While the total workforce engaged directly in the producing member companies of the Ghana Chamber of Mines was 11,899 in 2019 (GCM, 2019), the mining sector is also responsible for creating 4–28 additional jobs in other sectors (UNDP & UN Environment, 2018). For instance, the rate of direct and indirect employment associated with mining stood at 1.3% of the Ghanaian labour force in 2013 (ICMM, 2015).

There are 12 active gold mines in Ghana, the majority of which operate open pits but a few combine this with underground mining that is fully owned or run in partnership between multinational companies and local firms (Chuhan-Pole, Dabalén, Kotsadam, Sanoh, & Tolonen, 2015), and contribute about 40% of Ghana’s gross foreign exchange earnings including 5.7% of GDP (Mensah et al., 2015). The figure below (Figure 1.1) shows the share of minerals in Ghana’s gross merchandise exports in 2018. However, this indicates a slight reduction in the share of minerals export as this stood at 43% in 2017 based on data from the Bank of Ghana (GCM, 2019).

Figure 1.1: Share of export commodity in gross merchandise exports



Source: Based on Data from the Bank of Ghana, 2019.

The Government of Ghana has pre-emptive rights over all mineral resources and mineral licensing (Garvin, McGee, Smoyer-Tomic, & Aubynn, 2009), resulting in local mining communities having little direct influence over licensing and mining development. Lands that belong to families and the traditional customary system automatically come under the control of the State after the discovery of mineral resources. Indeed, within large scale mineral development, the level of influence local communities can exert is limited to a social license to operate which in practice is limited to their power to confer social legitimacy (Esau & Malone, 2013; Prno & Slocombe, 2012).

A social license to operate is an intangible construct associated with the degree of match between stakeholders' expectations and actual behaviour and involves companies' social legitimacy (Parsons, Lacey, & Moffat, 2014). Additionally, Hall, Lacey, Carr-Cornish, and Dowd (2015) posit that, unlike a legal license provided by regulators, a social license to operate depends on the quality and continuum of acceptance by a community of stakeholders. Stakeholder acceptance legitimises mining activity and facilitates its continuity when companies engage with host communities and conform to wider social values (Parsons et al., 2014).

A study by Bice (2014) analysing how multinational mining companies define their social license to operate reveals a close definitional connection to their sustainability practices. Thus, stakeholders' acceptance and approval of the activities of mining companies in Ghana depend on their perceptions and expectations, which makes addressing sustainability concerns critical within the industry. For example, a study by Garvin et al. (2009) on perceptions of mining communities in Ghana indicates disapproval of the activities and practices of the companies. This also includes a

gap in expectations of corporate behaviour between local stakeholders and mining companies. In a similar vein, a study by Essah and Andrews (2016) demonstrates a disparity in the sustainability discourse between host communities and mining companies in Ghana. This difference relates to the wider perception that there are almost no trickle-down benefits of mining that contribute to the long-term wellbeing of local communities (Taabazuing, Luginaah, Djietror, & Otiso, 2012). Finally, mining companies elsewhere have been shown to utilise modern extractive process, which is technologically and capital intensive, and as a result, there are fewer regional inputs and benefits to local communities (P. Söderholm & Svahn, 2015). These findings raise questions about the implementation of the entire sustainability strands within the mining industry in Ghana.

Moreover, Ghana as in most mineral-dependent developing countries continuously requires FDI inflows in the sector, which compels successive governments to build transactional relationships with large-scale multinational goldmining companies (Ayelazuno & Mawuko-Yevugah, 2019). This situation has prevented the Government from being able to demand accountability from companies in relation to local communities and other stakeholders (Akpalu & Normanyo, 2017; G. Hilson, 2011). The absence of clear social sustainability requirements in existing mining legislation and the lack of enforceable institutional mechanisms has resulted in corporate dominance leading to greenwashing (Andrews, 2016).

The institutional context is important in this study because a largely self-regulatory social sustainability initiative as practiced in Ghana raises concerns about the adequacy of regulations in addressing their social and environmental consequences since industry initiatives suffer compliance deficits (O’Faircheallaigh, 2015).

Regarding environmental issues, Ghana is ranked highest in Africa in a regional assessment of mining countries with sound environmental policy and regulatory framework placing 15th out of 58 countries globally (Amoako-Tuffour, 2017). However, because of the lack of effective monitoring, compliance, and enforcement mechanisms (Tuokuu et al., 2018), Ghana may be defined as having a weak and non-enabling institutional environment (Amaeshi et al., 2016). Therefore, assessing the sustainability practices of large-scale mining companies in addressing social and environmental impacts requires an understanding of the effects of the institutional environment. For instance, the interaction between stakeholder pressure and the internal characteristics of firms including size, level of internalization, and competitive position may influence sustainability practices and performance (Delmas & Toffel, 2004; Helmig, Spraul, & Ingenhoff, 2016). Therefore, while investigating how mining companies address the consequences of their activities, the role of stakeholder pressures and the influence of firms' internal characteristics in moderating institutional pressures deserves equal attention.

Overall, understanding the implementation of social and environmental sustainability, in this case from the context of Ghana's large-scale mining industry is a critical concern, especially in this age of the sustainable development goals. The following section provides the justification for this study by presenting a summary of the knowledge gaps in literature.

1.3 Motivation of the Study

The motivation for this study comes from my master's research, which investigated the consequences of gold mining on local communities in a mining district in Ghana.

During the fieldwork, the environmental and social impacts of mining activities were conspicuous, especially after discovering a chemical leakage incident, which exposed inhabitants of Newmont Ahafo mining area to potassium cyanide and devastated fauna and flora in 2009 (Sakyi et al., 2012). This developed my ideas and interest in sustainability issues because despite Ghana's policy of redistributing a portion of mining rent to host communities (Standing, 2014) and the billions of dollars received by mining companies and the government from gold exports, the local communities remain deprived of basic indices of development. Similarly, while there are laws and regulations covering almost every assessment parameter, I still witnessed environmental sustainability risks in local communities. This motivated me to conduct further research and examining the sustainability practices of large-scale mining companies before, during, and after mine closure.

The continuous sustainability risks in Ghana might be resulting from the lack of proper accountability in the redistribution of mining wealth by the government and the failure of mining companies in implementing initiatives that would accrue net benefits to host communities. The mining impacts are magnified by the loss of agrarian farmlands, massive deforestation, pollution of water sources, and an upsurge in living costs due to large-scale population movements into mining areas (Akabzaa, 2009; Lawson & Bentil, 2014). Considering this, social and environmental challenges in local communities have reinforced my interest to understand sustainability practices in addressing mining impacts.

Finally, a study of sustainability in mining has practical implications for the achievement of the UN sustainable development goals (SDGs). For instance, Nkonya, Mirzabaev, and von Braun (2016), estimate the global annual cost of land

degradation due to land use to be over US\$300 billion and stretches to 30% of the total global land area. Sub-Saharan Africa accounts for 26% of the total global cost of land degradation, mainly because the majority of its people depend on natural resources (Nkonya, Anderson, et al., 2016). This is more pronounced in countries with a large mining sector where the environmental consequences of mining activities are widespread and destructive (Hilson & Hilson, 2017; Idemudia, 2011). However, although mining is the fifth largest global industry, its potential to contribute to land quality and sustainability and has not received adequate attention.

1.4 Justification of the Study

As mentioned, this study examines the sustainability initiatives of large-scale gold mining companies in Ghana in relation to impacts on the environment and wider social processes. This is important because according to the UNDP and UN Environment (2018, pp. 27, 55) mining “presents critical sustainability challenges and risks, especially in terms of environmental sustainability and sustainable social development” and also “about 75 percent of mines close prematurely, leaving legacies of environmental impacts and large costs for the public”. Accordingly, Kemp et al. (2016) posit that risks in mining relates to the potentially harmful social impacts which are triggered by large-scale activities. As such multinational or large-scale mining companies with vast resources, face greater scrutiny and pressure to address social and environmental concerns through their sustainability practices (de Villiers, Low, & Samkin, 2014; Hsu, Chang, & Luo, 2017; Yakovleva, 2005) as defined by their social contract with society, which grants legitimacy and relevance. Consequently, the mining industry claims to have embraced sustainability practices in addressing their impacts

and obtain a social license to operate due to the social and environmental impacts (Dashwood, 2014; Fonseca, McAllister, & Fitzpatrick, 2014).

Therefore, Essah and Andrews (2016, p. 83) suggest that if mining companies are claiming to be engaging in sustainable practices, “then there is the need to examine what they mean when speaking of sustainability”. Yet, despite the plethora of studies about mining in developing countries, the link between corporate initiatives to specific social and environmental impacts have not been adequately examined in Ghana. For instance, Arthur, Wu, Yago, and Zhang (2017, p. 644) indicate that “there is an obvious research shortage in this area as little research has been carried out to assess current practices and the performance of mining companies in Ghana in terms of their social and environmental responsibility performance.” Thus, this study seeks to link sustainability practices of companies to the proximate and long-term social and environmental impacts of mining activities.

Further, a previous study closely related to sustainability in mining examined the relationship between CSR and sustainable development in the industry in Ghana (Hope & Kwarteng, 2014) but not sustainability practices in addressing impacts. Thus, in the absence of adequate institutional mechanisms and incentives, how mining companies self-regulate their social sustainability practices is unclear. Additionally, a study by Essah and Andrews (2016) which provides insights into this research shows a disconnection between corporate and community views about sustainability. However, these studies do not explore fully how the practices of large-scale mining companies address the sustainability concerns which draw from mining activities.

Moreover, studies indicate that managers are unwilling to allocate resources towards sustainable outcomes without mandatory requirements (Shum & Yam, 2011). In the same vein, while environmental issues are governed by various legislation and policies, the relevant regulations are evolving and lacking compared to international standards (Armah et al., 2011; Ayee, Søreide, Shukla, & Le, 2011). Beyond this, there are issues of low regulatory compliance caused by lack of enforcement, political will, and stakeholder engagement in Ghana (Andrews, 2016; Tuokuu et al., 2018), which point to a weak and non-enabling institutional environment. As such, how companies self-regulate their practices to achieve social sustainability in a mining landscape without adequate institutional mechanisms is unclear. The argument here is that companies have significant urgency to engage in responsible practices as they cannot be constrained by some institutional incentives for irresponsibility (Amaeshi, Adegbite, & Rajwani, 2016). Against this background, Amaeshi et al. (2016) called for investigating multinational companies and their internal environment, and how these shape CSR or sustainability practices in a challenging and non-enabling context. Accordingly, this study examines the practices and the drivers for and barriers to the sustainability practices of multinational mining companies in Ghana.

Moreover, according to Essah and Andrews (2016), 41% of the workforce in Ghana's mining industry lost their jobs in 2014 raising legitimate concerns about the social sustainability of gold mining companies in terms of employment, household income, welfare, and equity of benefits. For instance, Adu, Amuakwa-Mensah, Marbuah, and Mensah (2016) in their quantitative study found that mining is negatively correlated with household income in Ghana. This adverse impact decays with distance because

households within 20km of a mine have lower incomes compared to those living away from where mining takes place.

Additionally, there is a visible lack of development in the country's mining communities despite an estimated 400% increase in the price of gold over the past 15 years (G. Hilson & Hilson, 2017). What is also interesting is that within this same period, the levels of income inequality between the few expatriates who are the top management staff and the other employees continue to widen. For example, the earnings of top managers and expatriates who are about 7% of the workforce constitute 66% of the entire wealth of the mining sector (Ankrah, Gbana, Emmanuel, Arthur, & Agyapong, 2017) resulting in agitations by employees for a fairer salary structure in Ghana. Finally, the fatality frequency rate of Ghana compared to other major mining countries shows a relatively higher incidence than that of other countries (Stemn, 2019). For instance, (Stemn, 2019, p. 152) indicates that the “average annual fatality of five and serious injury of 51, with the highest figures recorded in 2011 and 2012 for fatality and 2010–2012 for serious injury”. This rate of fatality is higher than other major mining countries such as the United States and Australia.

Similarly, while Dashwood and Pupilampu (2015) indicate that mining communities in Ghana typically have high poverty levels, studies by Loayza and Rigolini (2016) and Viveros (2016) respectively show a positive average economic effect on local communities in Peru and Chile. The reason for this discrepancy between the two South American countries and Ghana is unclear even though they are all resource-rich developing countries with expanding mining sectors. Yet, while these are critical social impacts of mining, there is a dearth of empirical and empirical research on social sustainability (Åhman, 2013; Dempsey, Bramley, Power, & Brown, 2011; Eizenberg &

Jabareen, 2017). Specifically, Suopajarvi et al. (2016, p. 61) observed that “discussions on social sustainability are quite rare in mining research”. This demonstrates a growing need to investigate the practices, drivers, and barriers to social sustainability implementation in mining to close this research gap.

Finally, a stream of research in the literature has examined the role of institutional pressures and stakeholder salience in driving companies to embrace sustainability practices. For instance, previous studies have examined institutional pressures and how they impact a firm’s adoption of sustainability practices (Dashwood, 2014; de Villiers et al., 2014; Gifford, Kestler, & Anand, 2010). Moreover, an increasing number of studies have emphasized a combination of external and internal institutional pressures as an effective way for companies to adopt sustainability practices (Fikru, 2014; Raufflet, Cruz, & Bres, 2014a). However, while regulatory pressure and self-regulatory responses may drive social and environmental sustainability practices, the evidence shows ongoing mining challenges. Thus, irrespective of institutional pressures in sustainability implementation, studies have also acknowledged the role of internal organizational characteristics in connecting sustainable practices to effective organizational performance (Delmas & Toffel, 2004, 2011). Particularly, internal organizational characteristics relating to sustainability is critical when companies face institutional complexity (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011; Sayed, Hendry, & Bell, 2017; Smith & Tracey, 2016). Institutional complexity refers to the situation in which companies experience incompatible prescriptions due to multiple, competing, and contradictory demands and plural logics in their operational environments. Indeed, Greenwood et al. (2011) has called for empirical studies to contribute to the elaboration and further understanding of institutional complexity. This

is significant in examining the sustainability practices of large-scale mining companies requires understanding the complex institutional context in which companies operate. Yet to date, there are no published studies on the role of institutional complexity and the influence on sustainability implementation in Ghana.

1.5 Research Objectives, Goals, and Questions

The main objective of the study is to investigate the social and environmental sustainability practices of large-scale mining companies throughout the mine lifecycle in Ghana. To achieve this objective, the following research goals were formulated.

The first goal of the study is to review systematically the existing sustainability literature in general and provide a complete picture of the social and environmental themes in mining research. The second goal focuses on examining the sustainability practices of large-scale mining companies in addressing environmental impacts. The third goal relates to assessing the barriers to environmental sustainability implementation. The fourth goal is concerned with examining the sustainability practices of large-scale mining companies in addressing social impacts while the fifth involves an examination of the drivers for and barriers to social sustainability implementation. The sixth and final goal is to integrate the empirical findings to offer a holistic theoretical framework for social and environmental sustainability implementation. Table 1.2 outlines the research goals and the chapters in which they are addressed.

Table 1.2: The research goals of the study

Goals	Research Questions	Chapter
To provide a picture of the sustainability literature and present a picture of social and environmental themes in mining.		Chapter 2: Literature Review
To examine the sustainability practices in addressing environmental impacts.	How do the sustainability initiatives of large-scale mining companies address their environmental impacts?’	Chapter 4: Sustainability Practices for Addressing Environmental Impacts
To investigate the barriers to environmental sustainability implementation.	What are the barriers to the environmental sustainability practices of large-scale mining companies?’	Chapter 5: Environmental Sustainability Barriers
To examine the sustainability practices in addressing social impacts.	How do the sustainability initiatives of large-scale mining companies address their social impacts?’	Chapter 6: Sustainability Mechanisms for Addressing Social Impacts
To investigate the drivers of and the barriers to the social sustainability practices of large-scale mining companies.	What are the drivers for and barriers to the social sustainability implementation of large-scale mining companies?’	Chapter 7: Social Sustainability Implementation–Drivers and Barriers
To develop a holistic social and environmental sustainability framework in mining.		Chapter 8: Discussion

Based on the primary objective, research goals, and the systematic review of literature in chapter 2, the following research questions have been developed:

1. How do the sustainability initiatives of large-scale mining companies address their environmental impacts?’

2. What are the barriers to the environmental sustainability practices of large-scale mining companies?
3. How do the sustainability initiatives of large-scale mining companies address their social impacts?
4. What are the drivers for and barriers to the social sustainability implementation of large-scale mining companies?

1.6 Research Philosophy and Methodology

As discussed in detail in chapter 3, this research is based on an interpretive epistemology because it depends on the subjective meanings of individual experiences, which constitute social reality (Ormston, Spencer, Barnard, & Snape, 2014). This subjectivity of individuals in socially constructing reality is better understood from an interpretivist paradigm (Creswell & Poth, 2017). As such, the interpretivist approach is useful in this study because examining sustainability implementation in mining requires understanding the perceptions, expectations, and subjective ideas of research participants including the companies and various stakeholder organizations. Based on subjective experiences, individuals functioning within social systems form their perceptions of reality, gain insights, and construct meanings regarding the implementation of social and environmental sustainability in the mining industry. Therefore, positing this study within an interpretivist paradigm is consistent in meeting the research objectives of examining the social and environmental sustainability practices of large-scale mining companies.

Further, this study is exploratory as it seeks to investigate an area of research inquiry that has received scant attention in challenging and non-enabling institutional contexts regarding weak implementation mechanism and governance gaps. While sustainability is a well-

established research field, most studies focus on environmental impacts and not a combination of social and environmental issues relating to sustainability implementation. Consequently, given its explorative-interpretivist nature, this study also employs qualitative and abductive approaches. According to Ritchie and Spencer (2002), a qualitative approach helps to explore and gain insights into unknown issues and understand the lived experiences and perceptual realities of individuals. Abduction starts with basic theoretical insights, data collection and analysis, theory matching, the suggestion of propositions, and/or the modification or expansion of existing theories and concepts (Kovács & Spens, 2005; Meyer & Lunnay, 2013; Thornberg, 2012). This approach sufficed for this study because while this is exploratory, suggestions from the social and environmental sustainability literature were required to provide some directions.

Moreover, to examine the sustainability practices of large-scale mining companies in addressing social and environmental impacts, the study employed a case study method based on multiple cases. The use of a multiple case study approach in qualitative research helps in theoretical replication and analytical generalization in which empirical findings are compared to previously established theories (Polit & Beck, 2010). Additionally, to collect qualitative data, the study used the interviewing method. The research participants were purposively selected to allow for the inclusion of individuals with expansive knowledge and insights into social and environmental sustainability practices in a mining context (Flyvbjerg, 2006). The data was drawn from semi-structured interviews with 18 managers of selected large-scale mining companies, and representatives/key informants from regulatory institutions, municipal assemblies, traditional councils, civil society organizations, and the industry association. To ensure research quality, data was also collected from secondary sources such as sustainability reports from companies and

documents from regulatory institutions. Regarding data analysis, Clarke and Braun (2014) recommend the thematic approach, which provided a flexible and detailed account of coherent but distinctive themes.

1.7 The Significance of this Study

Mining is the fifth largest global industry and therefore the activities, practices, and policies of extractive companies are widely recognised as critical to the sustainable futures of developed and developing countries (Fonseca et al., 2014; Fraser, 2018). Accordingly, there is growing interest within the academic, practitioner, and policy-making circles regarding sustainability implementation in the mining sector (Dashwood, 2014; Fonseca et al., 2014; Mudd, 2010). Indeed, mining companies are developing new methods and technologies to address the sustainability risks associated with the extraction, beneficiation, and processing of solid minerals (Barkemeyer et al., 2015a).

However, promoting sustainability practices in an industry mostly engaged in the mining of non-renewable resources is paradoxical since minerals extraction may eventually lead to physical depletion (Dobra & Dobra, 2014; Mudd, 2007a; Rodríguez, Arias, & Rodríguez-González, 2015). As such, mining companies have embraced sustainability practices including clean production processes, sustainable communities, and impact mitigations that contribute to maintaining the service capacity of the ecosystem. However, Brueckner, Durey, Mayes, and Pforr (2013, p. 111) indicate that “what remains in question is whether such changes in sustainability practices in mining have been effective across the sector and led to a reduction in the impacts the sector has traditionally been having on people and place”. Also, the potential of the mining companies to contribute to sustainability has received scant attention (Barkemeyer et al., 2015a), especially in challenging and weak

institutional contexts. Thus, this research attempts to fill this gap by examining the social and environmental sustainability practices in addressing proximate and long-term impacts using data from large-scale mining companies in Ghana and their stakeholders. The significance of the study can be summarized as follows.

First, this study contributes to the literature by examining the sustainability practices of large-scale mining companies in addressing social and environmental impacts. One finding in this study demonstrates that mining companies implement environmental sustainability based on regulatory compliance practices and corporate environmental responsibility. Additionally, large-scale mining companies have embraced broader social sustainability practices beyond a narrow focus on community development projects in response to a changing institutional environment. Regarding environmental sustainability practices, the proposition is that large-scale mining companies respond to regulatory pressures by embracing perceived ethical obligations. In terms of social sustainability practices in a largely self-regulatory context, large-scale mining company initiatives are determined by the interaction between institutional factors and internal organizational pressures.

Taken together, large-scale mining companies have developed better social and environmental sustainability strategies that address impacts during the extractive phase, but practices towards enhancing sustainability communities after closure are random, fragmented, and inadequate. Particularly, mining companies are addressing post-mining environmental sustainability risks through concurrent land reclamation practices that meet 40% restoration of indigenous plants, but no strategy towards fauna reintroduction. Thus, it is expected that the empirical findings may enhance the knowledge of corporate managers, policy makers, and scholars on the nature of social and environmental sustainability implementation in the large-scale mining sector. For example, understanding the

sustainability practices throughout the mine lifecycle will help managers, regulators, and policy makers decide on new sustainable initiatives.

Second, this study contributes to advancing existing knowledge about the barriers to environmental sustainability implementation in the mining industry, as there is a dearth of empirical research in this area. The findings indicate that while Ghana has a relatively sophisticated minerals policy, there are gaps in natural resource governance and the impact mitigation practices of large-scale mining companies. The resource governance issues relate to regulatory gaps, weak monitoring and enforcement mechanisms. Additionally, the gaps in the impact mitigation practices of large-scale companies include difficulties in managing legacy impacts, ambient climate such as air and noise pollution, and ground water quality because of chemical seepages. For instance, mining companies see the cost of addressing legacy environmental impacts as prohibitive and potentially destructive to corporate sustainability. Thus, past chemical spillages and infiltrations from tailings storage facilities remain a sustainability challenge in local communities. Overall, the empirical findings on the barriers are expected to enhance the understanding of corporate managers, policy makers, and scholars on environmental sustainability implementation in Ghana.

Third, the systematic review of literature identifies the relatively scant research on social sustainability in mining (Rodrigues & Mendes, 2018; Suopajarvi et al., 2016). Additionally, because social sustainability implementation occurs largely within a self-regulatory context in Ghana, this study responds to the call to examine multinational companies and their internal environment including their organizational culture and how they shape corporate social responsibility or social sustainability in challenging and non-enabling institutional environments (Amaeshi et al., 2016). Thus, by responding to this call and contributing to the social sustainability literature in mining, this study investigates the drivers for and

barriers to social sustainability implementation in Ghana. Regarding the drivers, factors including regulatory evolution, mimetic and normative pressures, post-closure legacy, and internal organizational issues such as internationalization, transparency and disclosure, and managerial cognition, propel large-scale mining companies to embed and implement social sustainability initiatives. In terms of the barriers, the findings observed regulatory competition, stakeholder issues including speculative development and over-dependency, unethical leadership, institutional voids, and lack of social closure policy. Interestingly, many of the social sustainability barriers relate to the fluidity and tensions between a centralised and decentralised policy because of the existing customary and normative patterns within the Ghanaian social structure. These empirical findings also have implications for theory, practice, and policy.

Fourth and finally, the extant literature demonstrates inadequate knowledge of how institutional pressures interact with internal organizational characteristics to influence sustainable outcomes. Particularly, there is a dearth of studies on how institutional complexity and paradox affect the sustainability practices of firms, requiring further research (Greenwood et al., 2011). Drawing on institutional and stakeholder theories, this study suggests that mining companies face multiple institutional pressures and stakeholder demands relating to sustainability practices in a weak institutional environment. These plural institutional logics are manifested in the contradictions between centralization and decentralization in resource governance; mining investments against compliance enforcement; and gaining competitive advantage as against promoting sustainability. The findings also suggest that stakeholder pressures within a non-enabling institutional context lead to a convergence of interest between mining companies and the most powerful stakeholders such as government and local tribal chiefs. As such, convergent logics in the

face of institutional complexity results in complicit commonality, which is antithetical to social and environmental sustainability. Therefore, it is suggested that effective sustainability implementation depends on the interactions between internal organizational characteristics or values, and the drivers, barriers, stakeholder pressures and institutional complexity. Therefore, the findings indicate that policy makers need to develop robust institutional mechanisms that support social and environmental sustainability objectives. Similarly, managers of large-scale mining companies need to utilize their internal organizational pressures and make a strategic decision to implement sustainable practices irrespective of the institutional constraints.

1.8 Working Terms

This section defines frequently used terms in this study in a clear and concise manner for consistency and clarification.

Sustainability

The term ‘sustainability’ is a widely used lexicon associated with the Brundtland Commission report in 1987 and sometimes used interchangeably with sustainable development (Barkemeyer, Holt, Preuss, & Tsang, 2014; Bell & Morse, 2013; Vallance, Perkins, & Dixon, 2011). Accordingly, Hector, Christensen, and Petrie (2014, p. 8) define sustainability as “an end-state in which the needs of humankind and the needs of nature are both satisfied within some form of dynamic equilibrium.” Generally, sustainability is understood to consist of three strands or dimensions—social, environmental, and economic, which is variously referred to as the “three circles” (Barkemeyer et al., 2014), or the triple bottom line of people, planet, and profit ((Elkington, 1998; Moran & Kunz, 2014a). These

sustainability dimensions are recognised to be connected and should be in equilibrium as a company cannot compensate for a negative outcome in an aspect with a strong performance in the others (Viveros, 2016). In this study, sustainability is used interchangeably with sustainable development in a holistic sense involving the idea of short and long-term social, environmental, and economic practices of companies towards meeting present and future needs of society. However, because the study involves the examination of social and environmental sustainability practices, the empirical findings, discussion, and theoretical framework would reflect these two dimensions.

Social Sustainability

Most scholars use the term ‘social sustainability’ with a broad scope to refer to many different aspects of the human condition such as cultural integration, political participation of individuals, equitable distribution of resources or the protection of the social-cultural traditions of communities (Dempsey et al., 2011; McKenzie, 2004; Vallance et al., 2011). It also involves issues within larger social processes and the human condition comprising basic needs, education, health, affordable housing, and quality of life (Åhman, 2013; Hutchins & Sutherland, 2008). Accordingly, because of the overarching themes in social sustainability, Vallance et al. (2011, pp. 342-343) have mapped the definitional boundaries to include:

(a) ‘development sustainability’ addressing basic needs, the creation of social capital, justice, equity and so on; (b) ‘bridge sustainability’ concerning changes in behaviour so as to achieve bio-physical environmental goals; and (c) ‘maintenance sustainability’ referring to the preservation – or what can be sustained – of socio-cultural characteristics in the face of change, and the ways in which people actively embrace or resist those changes.

The above definition provides a schema of social sustainability, which covers the development needs, the maintenance of social capital, and the collaborative relationships

with stakeholders capable of major influence for changes and transformations (Viveros, 2016). Thus, this broader framework for social sustainability is employed to examine the short-term and long-term practices of large-scale mining companies to address social impacts during and after mine closure.

Environmental Sustainability

The concept of ‘environmental sustainability’ has received the most attention among the dimensions in the triple bottom line (Barkemeyer et al., 2014; G. Hilson, 2000). According to Morelli (2011, p. 6), environmental sustainability refers to:

A condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.

Within the mining, environmental sustainability relates to the management of “waste rocks, tailings, acid mine drainage, airborne dust and other contaminants, which are deposited on land and in the air and water” (K. Söderholm et al., 2015, p. 130). Accordingly, Tost, Hitch, Chandurkar, Moser, and Feiel (2018) identified water, biodiversity and climate change as highly material to environmental sustainability in mining. The above definition to emphasize the interaction between human pursuits towards meeting needs and the practices to maintain or restore fauna, flora, water quality, biodiversity, and the ecosystem – the capacity of mankind to survive in dynamic equilibrium with the environment. As such, this study adopts the above definition to understand the sustainability practices of large-scale mining companies in restoring and maintaining biological diversity in the sense mentioned in the environmental impact categories.

Large-scale Mining

While Amponsah-Tawiah and Dartey-Baah (2011b, p. 62) define mining as the “the process of digging into the earth to extract naturally occurring minerals”, the extractive process is categorized into large-scale and small-scale. Additionally, studies on mining focus mostly on either large-scale or small-scale mining because of the differences between the two on many levels. For example, large-scale mining companies operating in developing countries, especially in Sub-Saharan Africa are owned by multinational companies headquartered in the global north or developed world while small-scale miners are locally-owned (Ayelazuno & Mawuko-Yevugah, 2019; G. Hilson, 2019; Jenkins & Yakovleva, 2006). In the same vein, the large-scale mining companies operating in Ghana are largely multinational companies (Amos, 2018; Chuhan-Pole et al., 2015; ICMM, 2015). Thus, studies on sustainability implementation in Ghana always focus on the large-scale mining sector (Arthur et al., 2017; Essah & Andrews, 2016), as small-scale mining is considered illegal, unregulated, and rudimentary. As such, the term ‘large-scale mining’ in this study refers to activities undertaken by multinational companies in Ghana as they have the technical know-how, environmental permit, the organizational structures for sustainability implementation and subjected to institutional requirements.

1.9 Thesis Structure

This section covers the structure of the thesis, comprising of nine chapters. Chapter 1 establishes the research background and provided the motivation and justification of the study. This was followed by an outline of the objective, goals, and research questions. The next section highlighted the significance of the study, definitions of key terms, and concludes with the thesis structure.

Chapter 2 provides a review of the existing literature in the areas of sustainability and sustainable development. Specifically, the chapter begins with the dimensions of sustainability, followed by social and environmentally sustainable practices in mining. Then, a brief discussion on the resource extraction and sustainability paradox with overviews on the sustainable practices in the global mining industry, developing countries, the Ghanaian context, and reporting standards. Finally, a brief discussion on the connection between sustainability practices and sustainable development is highlighted.

Chapter 3 presents the study's philosophical and methodological considerations and theoretical framework. First, this chapter introduces the research philosophy, followed by a discussion of the research methods. The next section presents the basic theoretical framework based on a discussion of stakeholder theory and institutional theory (institutional complexity and paradox). The third section discusses the criteria for participant selection, data collection and analysis.

Chapter 4 presents the empirical findings from the data analysis relating to the sustainability practices in addressing environmental impacts throughout the mine lifecycle. Particularly, the findings concerning the practices of large-scale mining companies from the conceptual or mining exploratory stage, mine development, operations, and closure are examined. The empirical findings cover the environmental sustainability practices in major impact categories such as water, biodiversity, climatic ambience, soil, and, mine waste.

Chapter 5 further presents the empirical findings from the data analysis concerning the barriers to the environmental sustainability implementation of large-scale mining companies. This specifically cover both institutional barriers and those relating to firms' practices.

Chapter 6 presents findings from the empirical data analysis relating to social sustainability practices of large-scale mining companies in addressing impacts throughout the mine lifecycle. In particular, the chapter examines both tangible and intangible social sustainability practices at the plant level within local mining communities.

Chapter 7 further presents the drivers for and the barriers to the social sustainability practices of large-scale mining companies. Particularly, the findings relating to a range of drivers for implementing social sustainability practices are examined. The next section explores the barriers that impede the social sustainability implementation of large-scale mining companies.

Chapter 8 presents a detailed discussion based on the findings of chapter 4, 5, 6, and 7 and suggests a series of propositions based on the empirical findings. The key themes in the findings' chapters are integrated and theoretically matched in view of stakeholder theory and institutional theory based on institutional complexity to propose a holistic sustainability framework.

Chapter 9 provides the conclusions of the study. This chapter revisits the findings in relation to research questions. The next section highlights the theoretical contributions, managerial, and policy implications. Then, the shortcomings were identified and the suggestions for future research. Finally, the researchers' reflection in this study is presented

Chapter 2

Literature Review

2.1 Introduction

This chapter reviews the existing literature on social and environmental sustainability in the extractive sector. To identify the relevant studies on social and environmental sustainability, the literature review was performed on two distinct but related broad research fields: Sustainability and corporate social responsibility. The literature suggests that the field of corporate social responsibility is well-explored. However, the sustainability field is a growing research area that requires continuous theoretical and empirical research. Particularly, while environmental sustainability has received some attention, social sustainability remains relatively unexplored, especially in the context of the mining and minerals sector.

Further, the literature review notes the role of global corporate practices, institutions, justice movements, and voluntary networks including formal standards and industry-led institutionalised frameworks as drivers/pressures for social and environmental sustainability practices by large-scale mining companies. For instance, Fonseca et al. (2014) notes the role of institutionalised voluntary practices in the global mining industry such as the global reporting initiative as mechanisms for reputation management and self-regulation. Additionally, Bebbington et al. (2018) assert the importance of institutions and governance in the development outcomes of resource-rich extractive countries and the influences of internal and external drivers of change. These issues are further examined in the holistic framework in chapter 8 as internal organizational characteristics, which interact with

stakeholder and institutional issues to influence social and environmental sustainability implementation in Ghana.

This chapter begins by introducing sustainability and offering a brief overview of its dimensions, followed by a discussion on the paradox of sustainability in mining in the first section. In the second section, an overview of social and environmental sustainability within mining is presented, followed by sustainability practices in the global and Ghanaian mining sector in the third. In the fourth and final section, a brief discussion on sustainability reporting standards and the connection between sustainability and sustainability are provided. Thus, the objectives of this chapter are to:

- Present the conceptualisation of the term ‘sustainability’.
- Present the conceptualisation of the terms ‘social sustainability’ and ‘environmental sustainability’.
- Categorise the nature of social and environmental sustainability practices in mining and the mechanisms for implementation.

2.2 Sustainability

The World Commission on Environment and Development in 1987 provided a much-quoted definition of sustainable development saying that “Humanity has the ability to make development sustainable: to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 8). Touché (2004) suggests that themes such as

maintenance of natural capital, human-ecosystem balance, and inter- and intra-generational equity are aspects of sustainability.

In addition, A. Dale and Onyx (2010) define sustainable development as the process of reconciling three imperatives including an ecological imperative to live within the global biophysical carrying capacity and to maintain biodiversity; social expectations that ensure the development of democratic systems of governance to propagate and sustain the values that people wish to live by; and the economic need to ensure the enjoyment of basic human needs. Choi and Ng (2011) observed that when companies embrace sustainability, they are responding to a fundamental societal need for a balance between profits, healthy community, and quality of life. Thus, sustainability is critical to the survival of corporations, and is an integral part of corporate strategy (Ahi & Searcy, 2015; Milne & Gray, 2013), and helps to explain the rationale for implementing social and environmental initiatives. In order to achieve sustainability, three distinct but overlapping strands are emphasized in the literature which includes social, environmental, and economic variables (Gomes et al., 2014; Goodland, 1995), also referred to as the triple bottom line (Kuhlman & Farrington, 2010; Moran & Kunz, 2014b). In addition, Elkington (1998) refers to the three dimensions as people, planet, and profit.

However, Choi and Ng (2011, p. 269) indicate that “despite the recent attention to multiple dimensions of sustainability, the need to address sustainability has historically focused on each dimension separately”. Similarly, Endl, Tost, Hitch, Moser, and Feiel (2019, p. 2) suggest that “Research relating explicitly to the concept of sustainable development mostly focuses on one of its three dimensions, thus, a compartmentalized or sectoral approach to sustainable development”.

However, focusing on a single form of sustainability implementation as a stand-alone element is inadequate because of the “broad call for a comprehensive and integrative understanding and practice of sustainability” (Boström, 2012, p. 3). Against this background, the stakeholder and institutional pressures for sustainability implementation relate to social and environmental responsibility (Orlitzky, Siegel, & Waldman, 2011). Thus, this study focuses on both sustainable social and environmental practices to provide a comprehensive understanding of sustainability implementation.

2.2.1. The Social Aspect of Sustainability

Although sustainability is widely recognised to involve three major strands, the social dimension has received little empirical and theoretical investigation (Dempsey et al., 2011; Eizenberg & Jabareen, 2017). Particularly, “developing countries are the ones that tend to face deep social problems daily, but little is known about the organizational practices that enterprises in these countries have adopted to manage the social dimension of sustainability”. (Marques, Mendonça, & Jabbour, 2010, p. 238). Consequently, a common universal definition of social sustainability is lacking (Boström, 2012; Shirazi & Keivani, 2017; Staniškienė & Stankevičiūtė, 2018) because of the scant attention to what this concept encompasses. However, McKenzie (2004) defines social sustainability as “a life-enhancing condition within communities, and a process within communities that can achieve that condition.” As a process, McKenzie identifies the characteristics of social sustainability to involve equity of access to key services within and between generations; a system of cultural relations in which existing cultures receive protection; and the promotion of cultural integration. Additionally, active political participation of citizens at all

levels; the transmission of social sustainability awareness across generations; and a sense of community responsibility to safeguard and maintain that system of transmission is part of the social sustainability discourse. Similarly, Colantonio (2009, p. 887) says:

Social sustainability concerns how individuals, communities and societies live with each other and set out to achieve the objectives of development models, which they have chosen for themselves taking also into account the physical boundaries of their places and planet earth.

This definition emphasizes the role of communities to decide on their development needs, which includes processes that achieve the societal objectives established by the different societal actors.

Further, social sustainability as a key strand of sustainable development hinges on the assumption of participatory development and the protection of societal norms, symbols, and cultures (A. Dale & Onyx, 2010). Additionally, Black (2004) sees social sustainability as the extent to which values, identities, relationships and institutions can continue in the future. In a similar vein, social sustainability as an independent concept may relate to themes identified by Åhman (2013), which include “basic needs and equity, education, quality of life, social capital, social cohesion, integration and diversity, and a sense of place” (p. 1156). Hutchins and Sutherland (2008) identify other related themes include reductions in poverty, improvements in human health, education and gender equity, affordable and accessible housing, and security.

Moreover, in mapping the boundaries of social sustainability, Magis and Shinn (2009) define four constructs of social sustainability including human wellbeing, democratic government, equity, and democratic civil society. In a similar vein, Vallance et al. (2011) categorise

social sustainability in relation to development, bridge, and maintenance sustainability. They posit that development sustainability includes meeting human needs, creating social capital and equity; bridge sustainability involves changes in behaviour by harnessing the human potential to achieve improved environmental outcomes; and maintenance sustainability relates to the preservation of socio-cultural characteristics in the face of change. Taken together, the social dimension of sustainability is a broad concept that encompasses every aspect of the human condition and the relationship of people to wider social processes. Thus, while a common definition of social sustainability is lacking, several shared themes have been developed and defined regarding this concept (Tiainen, 2016). See Table 2.1 for the common social sustainability themes.

Table 2.1: Themes of social sustainability based on extant literature.

Themes	Definition	Sources
Community Resilience	The existence, development, and engagement of community resources to thrive in a changing environment. It involves the successful implementation of plans, development of new pathways, and its adaption to internal and external changes.	(Magis, 2010; Magis & Shinn, 2009)
Cultural Protection and Maintenance of Social Institutions	The maintenance of societal arrangements, normative patterns, and values, and the assimilation of new beliefs, practices, and rituals towards social transformation.	(Black, 2004; A. Dale & Onyx, 2010; McKenzie, 2004; Vallance et al., 2011)
Democratic Participation and Participatory Decision Making	Promotion of active participation of individuals in political, economic, and development processes.	(Boström, 2012; Magis & Shinn, 2009; Segerstedt & Abrahamsson, 2019; Tiainen, 2016)
Equality of Rights and Social Justice	Human rights, land user and tenure rights, and the protection of the rights of indigenous rights	(Boström, 2012; Colantonio, 2009; Shirazi & Keivani, 2017)
Basic Needs and Social Infrastructure	Includes shelter, food, sanitation, clothing, and education.	(Boström, 2012; Colantonio, 2009; Hutchins & Sutherland,

		2008; Vallance et al., 2011)
Employment	Access to paid jobs, which contributes to meeting basic needs and enhance the quality of life.	(Boström, 2012; Tiainen, 2016; Vallance et al., 2011)
Security	Safeguards from threats from economic and environmental impacts on individuals	(Boström, 2012)

2.2.2 The Environmental Aspect of Sustainability

Environmental sustainability refers to the maintenance of natural capital which is the preservation of factors and practices that contribute to environmental quality on a long term basis (Vintró, Sanmiquel, & Freijo, 2014). In addition, Morelli (2011, p. 6) defines environmental sustainability as:

A condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.

Environmental sustainability involves consideration of physical inputs into productive processes ensuring an environmental service capacity (Goodland, 1995) including environmental life support elements like healthy atmosphere, soil and water. A. Dale and Onyx (2010) posit that the environmental dimension is the most critical because it is the most fundamental to human survival. Indeed, Morelli (2011) observes that without a sustainable environment, it is impossible to imagine a sustainable society. Thus, environmental sustainability occupies a central position in any assessment of a company's social performance. In addition, Dahlsrud (2008) asserts that any discussion of the social responsibility of a firm should necessarily involve the environmental dimension. Generally, environmental impact categories

include climate change, acidification, ozone depletion, chemical pollution, freshwater use, and change in biodiversity (Dong & Hauschild, 2017).

Moreover, the literature provides various criteria or indicators in defining environmental sustainability. For instance, Moldan, Janoušková, and Hák (2012) identify the criteria of environmental sustainability to include, regeneration (the use of renewable resources not exceeding long-term rates of natural regeneration; substitutability (non-renewable resources efficiently used and the usage limited to levels, which can be offset by substitution with renewable resources); assimilation (referring to polluting substances not exceeding the assimilative capacity of the environment, and avoiding irreversibility beyond reversible thresholds). Additionally, Veleva, Hart, Greiner, and Crumbley (2003) reviewed environmental sustainability of multinational companies in the same industry and identified regulatory compliance (conformance to regulations and industry standards), eco-efficiency and performance (resource use efficiency measurement such as emissions, by-product, waste, occupational injuries), effect indicators (measure the effect of a firm on the environment, worker health and safety), supply-chain and product life-cycle (product distribution, use and disposal, and renewable sourcing, product recycling, and sustainable systems).

In summary, the environmental impact categories and criteria may be further categorised into four natural resource groups including air resources, water resources, land resources, and minerals and energy resources (Labuschagne, Brent, & Van Erck, 2005). These defining criteria and indicators of environmental sustainability provide a framework to assess and understand the impacts of firms' activities and their sustainable responses (See Table 2.2).

Table 2.2: Domains, impact categories, and criteria for environmental sustainability

Environmental Domains	Impacts Categories	Criteria for Sustainability
<ul style="list-style-type: none"> • Climate Systems (Climate change & risks) • Human Settlements (Covering cities, transport) • Energy Systems (Energy use and efficiency) • Terrestrial Systems (Biodiversity) • Carbon and Nitrogen Cycle (feedback processes) • Aquatic Systems (Biodiversity & freshwater ecosystems) 	<ul style="list-style-type: none"> • Climate change • Acidification • Ozone depletion • Chemical change • Freshwater use • Loss of biodiversity • Air pollution 	<ul style="list-style-type: none"> • Regeneration • Substitutability • Assimilation • Irreversibility

Source: Construct based on Moldan et al. (2012), and Dong and Hauschild (2017).

2.2.3 The Economic Aspect of Sustainability

Economic sustainability construct involves internal and external strands. An internal description of economic sustainability includes considering the internal financial capacity, profitability, and share value of a corporation (Labuschagne et al., 2005). For instance, Govindan, Kannan, and Shankar (2014) indicate that a financial or economic driver of sustainability is a strategy where corporations increase their profits through sustainable initiatives that directly translate into increased economic capacity. Accordingly, the internal dimension of economic sustainability concentrates on profit extraction and investments that enhance a firm's financial standing based on the strategies of efficiency and effectiveness (Lang & Murphy,

2014). Thus, Labuschagne et al. (2005) identify four criteria related to internal economic sustainability, which include financial health, economic performance, potential financial benefits (financial benefits other than profit), and trading opportunities.

Further, the external strand of economic sustainability considers a company's impact on the wellbeing of its internal and external stakeholders and on economic processes at the local and national levels (Doane & MacGillivray, 2001). It also involves preserving productive capacities and avoiding activities that may hinder opportunities for future generations (Anand & Sen, 2000). This is evident during financial meltdowns, where society becomes deeply concerned about economic sustainability due to job losses, financial insecurity, and the concerns of external stakeholders (Choi & Ng, 2011). This aspect of economic sustainability emphasizes that individuals are most interested in the outcomes of sustainability on people rather than firms' profits or financial performance.

Moreover, the economic dimension of sustainability has received the most attention (Kim, 2018), with several studies examining how firms' enhance financial performance or strive for competitive advantage. Similarly, (Hutchins, Richter, Henry, & Sutherland, 2019, p. 687) posit that "decision makers within businesses focus on the economic pillar of sustainability as a matter of course. Until recently, it was the only dimension of sustainability that was actively addressed". Additionally, a study conducted by Armindo, Fonseca, Abreu, and Toldy (2019) in the metals industry shows mutual influences between the different dimensions of sustainability although the economic aspect is dominant. However, while economic sustainability is important to firms, the literature on mining indicates that

stakeholders are largely focused on social and environmental issues (de Villiers et al., 2014; Orlitzky et al., 2011; Rodrigues & Mendes, 2018). Thus, this study only examines the social and environmental practices in addressing impacts. The next section introduces sustainability in the context of non-renewable natural resource extraction.

2.3 The Non-Renewable Resource Extraction and the Sustainability Paradox

This study examines the extraction of non-renewable natural resources and sustainability practices in addressing the associated social and environmental impacts. The focus on non-renewable minerals extraction is significant because of the general scientific consensus of resource exhaustion, although there are increasing data to the contrary. For example, both Rodríguez et al. (2015) and Dobra and Dobra (2014) present data showing that factors such as mining costs and technical changes are a much larger determinants of physical resource exhaustion. This means that the continuous exploitation of non-renewable resources may not in itself lead to physical depletion if the opportunity cost of mining and the available technology does not provide economic incentives. Consequently, Dobra and Dobra (2014) indicate that there is no current evidence of resource exhaustion.

Considering these arguments, the main thrust of this study is not about whether the depletion of non-renewable resources is possible or even realistic, but that the continuous expansion in the mining sector in many developing countries raises critical concerns about the social and environmental sustainability of local communities. Additionally, the finitude of mineral resources relating to the continuous reduction in the physical stock as a result of extractive activities and the

social and environmental impacts (G. Hilson, 2012; Owen & Kemp, 2015) have brought mining into the mainstream sustainability discourse. Consequently, there are further discussions about how the depletion of a non-renewable natural resource can be sustainable. For example, (Mudd, 2007a) notes that this apparent contradiction because the non-renewable minerals inherently means that future generations cannot have a supply of the same resources due to depletion. It is this seeming paradox that this review now turns, in order to provide clarity to the context of this study.

As mentioned earlier, the common impacts of solid minerals extraction include pollution of surface and underground water, ambient dust and noise pollution, blasting-air overpressure causing ground vibration and loss of biodiversity after mine closure (Moran et al., 2014; K. Söderholm et al., 2015). As a result, mining companies are expected to operate within sustainable limits and account for the impacts of their operations on larger environmental and social processes. Similarly, Fraser (2018) expresses that the mining industry has its fair share of many of the sustainable challenges identified by the sustainable development goals and must be part of the global drive for solutions. However, according to Barkemeyer, Stringer, Hollins, and Josephi (2015b), while mining is the fifth largest global industry, its potential to contribute to sustainability has not received adequate attention.

Therefore, beyond the debate and paradox, an underlying construct in sustainability relates to the effective management of the environmental and social costs of mining development without transferring the associated risks to future generations. This view is consistent with the Brundtland's report definition of sustainable development and the United Nations' Sustainable Development Goals. For

instance, the sustainable development goals envisage an equitable, socially inclusive and global sustainable development (Yonehara et al., 2017). While equity and inclusiveness may involve fair distribution and consumption, sustainability in non-renewable minerals extraction focuses on managing risks and benefits. For instance, Gordon et al. (2006) suggest that addressing the environmental costs of minerals extraction should aim at achieving an ongoing availability of resources and an environment that supports the health and productive capacities of future generations.

Therefore, Laurence (2011, p. 279) suggests that “even though it is not possible for a mineral resource to last forever, it is possible for the mining operation and the benefits it provides to be prolonged.” As such, the goal of sustainability is to promote intergenerational justice by maintaining the capacity of the ecosystem to support productive processes without creating a gap between present and future generations. Accordingly, the study regarding social and environmental sustainability in mining relates to the view of Rajaram, Dutta, and Parameswaran (2005, p. 3), which state that:

Mining is sustainable when it is conducted in a manner that balances economic, environmental and social considerations, often referred to as the ‘triple bottom-line’. Sustainable mining practices are those that promote this balance”.

Given this, the context of the brief discussion in the next sections relates to the management of mining in a manner that is protective of the environment, human health, and social institutions.

2.4 Sustainability in Mining

As mentioned earlier, sustainability has become a dominant concept in the mining industry because of the critical social and environmental risks throughout the mine lifecycle (G. Hilson, 2012; Tost et al., 2018; UNDP & UN Environment, 2018). As a result, large-scale mining companies have responded to the sustainability risks by promoting the idea of sustainable mining industry (Fonseca et al., 2014; Lodhia & Hess, 2014). Thus, this section presents a review of the literature on social and environmental sustainability within mining in a global context.

2.4.1 Social Sustainability in Mining

Social sustainability practices have become a key requirement for the development of the mining industry (Segerstedt & Abrahamsson, 2019; Suopajarvi et al., 2016). However, social sustainability implementation has been historically linked to CSR practices in mining research (Boyer, Peterson, Arora, & Caldwell, 2016; Dashwood, 2014; Essah & Andrews, 2016; Rodrigues & Mendes, 2018). Given that CSR practices encompass different aspects of sustainability, studies on the social dimension has occurred within a conflated context. For example, Mutti, Yakovleva, Vazquez-Brust, and Di Marco (2012) mention mining companies embracing CSR practices in response to stakeholder pressure to address sustainability challenges. Additionally, Jenkins and Obara (2008) assert that CSR practices are a move towards greater social, environmental and economic sustainability in mining. As such, CSR as used in mining expresses the idea of triple-bottom line in the same way as sustainability or sustainable development. It is in this context that authors have pointed specifically to the scarcity of research on the social dimension of sustainability (Gunaratne, Samudrage, Wijesinghe, & Lee, 2016; Rodrigues & Mendes, 2018; Suopajarvi et al., 2016).

Further, social sustainability as a more recent concept than CSR (Setó-Pamies & Papaoikonomou, 2016) is gaining attention in mining contexts due to the increasing focus on creating a dynamic and inclusive society by coalescing formal and informal processes, structures, and relationships in support of current and future generations. This shift to social sustainability relates to the idea that “the very concept of CSR and the implications of its use have been criticized by many” (Segerstedt & Abrahamsson, 2019, p. 614) because it has not been integrated into community needs. However, while developing countries often pay less attention to social impacts (Hutchins & Sutherland, 2008), the share of social issues in sustainability reports of mining companies are increasing (Bice, 2014). Against this background, examining social sustainability within mining in the context of a developing country has the potential to contribute to knowledge in this area.

Moreover, social sustainability in mining is understood to involve “a set of processes that ensure a good balance between stability and change in both mining companies and the communities that surround mines” (Segerstedt & Abrahamsson, 2019, p. 612). This definition presents social sustainability as processual, which is an idea that has been supported by other authors (Colantonio, 2009; McKenzie, 2004; Tiainen, 2016). The process might involve mitigating social impacts of mining activities as suggested by Everingham (2012) who also posits that a sustainable strategy is not well developed in this domain. Beyond this, Tiainen (2016) perceives the participation and contribution of local communities in planning and decision-making processes as critical to social sustainability in mining contexts. In a similar vein, Segerstedt and Abrahamsson (2019) mention investments in community infrastructure and a strong collaboration between companies and local municipality, and organisations, and mine-affected people as major aspects of social sustainability. Thus, despite the lack of a common definition, the direct and indirect

references to social sustainability in mining research have produced emerging common themes in different institutional contexts, which are represented in Table 2.3.

Table 2.3: Themes of social sustainability in the literature on mining.

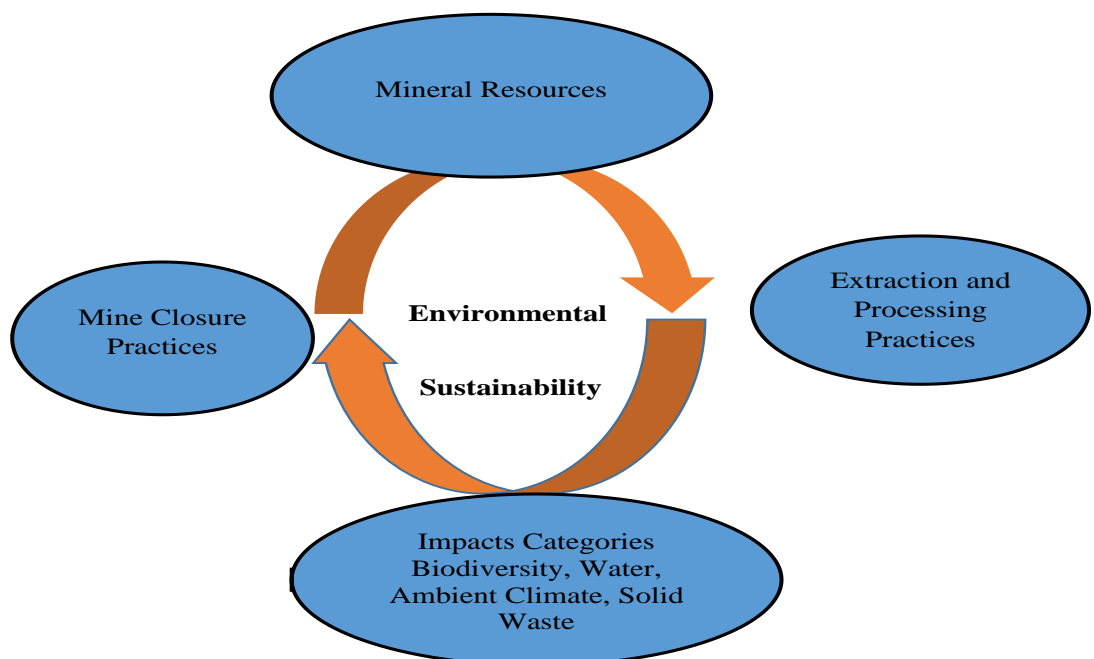
Themes	Definition	Sources
Community Social Investments (social infrastructure)	This refers to the investments of mining companies in the built environment and other infrastructure in local communities based on the expressed needs of stakeholders	(Rajaram et al., 2005; Segerstedt & Abrahamsson, 2019; Suopajarvi et al., 2016)
Collaborative Decision-Making, Stakeholder Engagement, and Access to Information	Constant dialogue and participatory decision making among stakeholders in mining communities, and access to information about mine impacts	(Segerstedt & Abrahamsson, 2019; Suopajarvi et al., 2016; Tiainen, 2016)
Local Employment and Skills Development	Generating and increasing job participation and investments in employable skills training	(Rajaram et al., 2005; Suopajarvi et al., 2016; Tiainen, 2016)
Relationship Proximity	This refers to the nature of the relationship between mines and local communities including an on-going engagement between companies and local people.	(Kemp, 2010; Solomon, Katz, & Lovel, 2008)
Quality of Life	This relates to the impacts on the standard of living in local mining communities such as rising housing prices and high cost of living	(Segerstedt & Abrahamsson, 2019; Solomon et al., 2008)
Health and Safety	Issues regarding clean and healthy environment and avoiding environmental degradation that affects local livelihoods	(Lapalme, 2003; Suopajarvi et al., 2016)
Community Resilience	This involves the ability of mining communities to exist, cope with new conditions, and thrive after mine closure	(Laurence, 2011; Rixen & Blangy, 2016; T Zvarivadza, 2018)

2.4.2 Environmental Sustainability in Mining

The concept of ‘environmental sustainability’ has received the most attention among the dimensions in the triple bottom line (Barkemeyer et al., 2014; G. Hilson, 2000). For instance, Barkemeyer et al. (2014) have observed that the disproportionate focus on environmental issues and operational practices crowded out the other aspects of

sustainability. Most studies on sustainability within extractive industries have focused on environmental issues, impacts, and frameworks, and the management of the inherent risks associated with the mining process (Mensah et al., 2015; Mudd, 2007a, 2010; Rösner & Van Schalkwyk, 2000). In many ways, it is the concerns about the environmental impacts that pushed mining companies to embrace sustainability as an all-encompassing concept (G. Hilson, 2012; McKenzie, 2004; Schaltegger, Hörisch, & Freeman, 2019; Vintró et al., 2014). Accordingly, K. Söderholm et al. (2015) identify such mining impacts to include “waste rocks, tailings, acid mine drainage, airborne dust and other contaminants, which are deposited on land and in the air and water” (p. 130). Further, Tost et al. (2018) regard water, biodiversity, and climate change as critically important to mining in the context of environmental sustainability (see Figure 2.1). Given this, the environmental sustainability practices in minerals extraction are designed and implemented around core impact parameters and mining development (Brueckner et al., 2013).

Figure 2.1: Mining and environmental sustainability landscape



Further, environmental sustainability involves practices in addressing mining impacts and contributes to ecological quality on a long-term basis (Tost et al., 2018; Vitró et al., 2014). These environmental sustainability practices include new technologies and resource efficiency processes, especially with large-scale or multinational mining companies (Barkemeyer et al., 2015b; Giurco & Cooper, 2012; Laurence, 2011; Silvestre, 2014). However, it is argued by Moran et al. (2014) and (Silvestre, 2014) that the available cleaner production technologies alone are inadequate to enhance sustainability performance of mining companies. Nevertheless, Silvestre (2014) notes that cleaner production and sustainability approaches are helping to improve extractive processes and reduce environmental impacts, but firms in underdeveloped mining regions have not fully embrace these paradigms. As such, ambient pollution, deforestation, chemical seepages, and loss of biodiversity due to mining activities remain critical challenges to environmental sustainability in developing countries (Mensah et al., 2015; Schueler, Kuemmerle, & Schröder, 2011; UNDP & UN Environment, 2018).

Moreover, environmental sustainability practices also involve strategies for managing impacts after mine closure due to the critical risks associated with long-term legacies. For instance, “rehabilitation of mined land and associated mine wastes is now a major legal requirement and legitimate community expectation – but the long-term success of engineered rehabilitation works is not guaranteed” (Mudd, 2010, p. 110). Additionally, legacy mining impacts including acid mine drainage, tailings, and waste rocks associated with abandoned mined lands is a challenge to environmental sustainability (Laurence, 2011; Worrall, Neil, Brereton, & Mulligan, 2009). Generally, mine closure land rehabilitation includes strategies for biodiversity restoration and ecosystem functioning relating to revegetation, species selection, and control of biological invasion, but this is dominated by

trial-and-error procedures (Gastauer et al., 2018). For example, the mechanism for species reintroduction is random while revegetation after mine closure is always far less than the original flora concentration and diversity.

Finally, the environmental sustainability practices of mining companies are driven by regulatory compliance and industry self-regulation (Vintró et al., 2014). Indeed, the uneven regulatory regimes in developing countries is a major driver for industry-wide collaboration leading to institutionalised rules and procedures for the mining sector (Dashwood, 2014). Yet, because sustainability practices of mining companies are largely influenced by regulations, the differences in environmental requirements across countries may induce specific responses based on the institutional context. For instance, regarding mine closure and rehabilitation, K. Söderholm et al. (2015, p. 141) indicate that “regulation also tends to vary from country to country depending on public policies and industry practices”. Against this backdrop, this study examines the environmental sustainability practices of large-scale mining companies in the context of Ghana’s regulatory milieu, institutional environment, and industry self-regulated initiatives.

2.4.3 Sustainability Practices in the Global Mining Sector

The concerns about environmental and social impacts of mining have brought sustainability into the mainstream discourse in both developing and developed countries (Mudd, 2007b; Vintró et al., 2014). Large-scale mining companies have embraced sustainability practices in response to stakeholder concerns about the harmful trajectories of their operations (Fitzpatrick, Fonseca, & McAllister, 2011). This might be related to the finite nature of gold resources, and the social and environmental consequences of mining operations during and after mine closure (Njeru & Kragt, 2015). For instance, in Australia, the mining industry

embracing sustainability seeks to secure a social license to operate, and therefore managers make a connection between the two concepts (Bice, 2014).

Mined land rehabilitation, solid chemical and mine wastes such as tailings and waste rock management are not just legally binding but expected by stakeholder groups in the Australian mining sector (Lokuwaduge & Heenetigala, 2017). Additionally, the mining industry in Canada has achieved significant successes in sustainability implementation due to joint governmental and corporate initiatives (G. Hilson, 2000). For instance, the Canadian sustainability policy involves maintaining and improving quality of life and the environment for current and future generations; respecting the needs of all resource users and accounting for these needs, and securing the participation of all stakeholders in decision-making.

The distribution and sharing of mining benefits with stakeholders, the meeting of community expectations, including local control and regulatory monitoring are sustainability practices recognised by companies and governments in developed countries with mineral sectors. What is interesting is the recognition by developed countries in the early 1990s about the necessity of sustainability practices in accounting for the deleterious effects of mining developments. Voluntary initiatives by large-scale companies supported by the industry associations, government policies, and legislations have been instrumental in maintaining the sustainability discourse within the landscapes of developed countries (G. Hilson, 2000; P. Söderholm & Svahn, 2015). However, sustainability is a newer concept (Setó-Pamies & Papaoikonomou, 2016), especially in developing economies. This helps to explain the wider and almost exclusive focus by United Nations agencies and studies on mineral-rich countries of South and Central America, Africa, China, and other developing nations.

The desire of mining companies to address their impacts through sustainability initiatives in developing nations is motivated by the necessity to manage reputation and secure a social license to operate (Esau & Malone, 2013; Prno & Slocombe, 2012). Additionally, companies have established a policy of annually publishing their progress on social and environmental issues through sustainability reports based on the Global Reporting Initiative framework (Fonseca et al., 2014). This is a multi-stakeholder non-profit organization providing global standards in sustainability reporting.

However, Moran et al. (2014) question whether such reporting demonstrates a genuine commitment to sustainability or if companies merely select issues where they have adequate strength while ignoring other major issues of concern to stakeholders. For instance, a study by Sorensen (2012) indicates that while South African mining companies espoused health and safety, environmental and social issues and human rights concerns were ignored within their sustainability practices, showing an inadequate grasp of the concept as emphasized in the global reporting initiative. Human rights performance indicators such as non-discrimination, freedom of association and collective bargaining that protects existing jobs, and protects the rights of indigenous peoples, and which reduces conflicts between host communities and mining companies, are consistent with social sustainability objectives.

In the mining sector of developing countries, the drivers of sustainability may be absent due to the lack of legal and institutional structures, which govern mineral extraction (Yakovleva, 2005) although some developing countries have legislative policies that hold companies responsible for the after-effects of their mining activities. For example, in 2015, established in South Africa under the National Environmental Management Laws Amendment Act (Act 25), are to ensure mining companies responsibility for mine closure including land rehabilitation and other mining impacts. Similarly, in response to the escalating risks

associated with the huge social and environmental impacts of mining in China, the Chinese government and stock exchanges have imposed CSR regulations and disclosure standards (Dong & Xu, 2016).

However, the extant literature notes the huge and growing sustainability challenges in resource-rich developing countries despite the establishment of various regulations and compliance requirements. This may relate to the challenging and non-enabling context of developing countries, which is often characterised by institutional voids and weak natural resource governance arrangements. For example, Tuokuu et al. (2018) indicate gaps and weaknesses in the regulatory enforcement mechanisms to operationalise compliance requirements in developing countries. Given this, examining how large-scale mining companies address their adverse impacts on social and environmental sustainability also requires understanding the weaknesses in the institutional arrangements in developing countries. Thus, institutional voids in weak and non-enabling contexts are explored in section 2.5 of this chapter.

Further, within the current institutional reality, the broader issue relates to the effects of stakeholder pressures on the adoption of practices by large-scale mining companies that translate into sustainability implementation in the context of the influence of organizational characteristics at the company and plant levels. Indeed, the conflicting stakeholder interests and rent-seeking in most developing countries undermine institutional quality and reduce the effects of pressures within their mining landscapes. In contrast, the institutional pressures in developed countries are adequate in improving the sustainability practices of mining companies (Lauwo, Otusanya, & Bakre, 2016). Therefore, this study examines how the sustainability practices of large-scale companies address mining impacts during and after

mine closure within an empirical domain lacking adequate institutional and enforcement mechanisms.

In Latin America, concerns such as poorly enforced environmental standards, insecure land tenure, conflicts over fiscal distribution, and economic insecurities present serious sustainability risks and threaten mining legitimacy (Helwege, 2015). Thus, there are growing calls by a community of stakeholders for a moratorium or a complete ban of mining in many developing countries, especially in places where the mining sector is too small to drive economic development. This raises the significance of company-led initiatives in addressing social and environmental sustainability challenges in the mining sector and therefore deserves close research scrutiny.

In reference to the mining sector in sub-Saharan Africa, where this study's empirical domain is located, sustainability concerns loom large due to the condition of most host communities. For instance, the exposure of mining communities in South Africa to toxic environmental hazards from mine waste and the vulnerability of mining towns to total collapse after mine closure have promoted sustainability and CSR into the centre of mining policies (Cronjé & Chenga, 2009). Additionally, there are increasing pressures on large-scale mining companies to respond to their social and environmental impacts. For instance, the mining sector in Malawi has embraced initiatives as a result of external pressure from civil society organizations and expectations from local communities (Mzembe & Meaton, 2014) but the effects of stakeholders on the practices of companies are unclear since the sustainability trajectory has not improved.

In summary, the social and environmental practices within the mining landscape of developing countries might involve both enforceable legal sustainability legislation and

industry self-regulation that go beyond local laws, but this is not clear yet. In many cases, sustainability initiatives designed and implemented by large-scale mining companies in concert with local stakeholders may help to overcome the institutional weaknesses and enforcements deficits in most developing countries. However, voluntary manifestations in sustainability practices in developing economies depending on the mineral sector would be inadequate without coercion.

2.4.4 Sustainability and CSR practices in Ghana

The aim of this section is to explore and review the literature on social and environmental sustainability practices in the mining sector in Ghana. Additionally, because social sustainability practices in the mining sector were largely framed within broader corporate social responsibility (CSR) policies (Essah & Andrews, 2016), this section will explore these concepts in Ghana. The literature indicates that CSR practices in developing countries are expressed as a company's social and environmental sustainability. For example, Hamann (2003) and Orlitzky et al. (2011) indicate that CSR was perceived as a path to social and environmental sustainability. In the same vein, considerable effort has been directed towards studying social sustainability within the context of CSR (Choi & Ng, 2011). Thus, this section presents broad conceptualization and implementation of sustainability and CSR within large-scale mining in Ghana.

Sustainability implementation within the mining industry in developing countries has received some research attention, particularly within the context of the mining environment in South America (Loayza & Rigolini, 2016; Viveros, 2016). In Africa, Ghana, with over a century of mining, is generally recognised as having a robust policy, environmental standards, and effective regulatory framework within the extractive sector (Standing &

Hilson, 2013). Therefore, this section presents an analytical review of the nature of sustainability implementation as a frame of reference based on the available literature.

Agyemang, Agyemang, Ansong, and Ansong (2017) assert that CSR is new within the country's institutional field but is gaining considerable traction, especially within the private sector in recent years. Although there is currently no single national policy that governs CSR (Amponsah-Tawiah & Dartey-Baah, 2011a), there is a patchwork of policies, laws, and practices that provide a framework for implementation (Oppong, 2016a). Companies, especially those in the telecommunication, mining, and banking sectors, have embraced the concept by striving to meet basic legal requirements (Agyemang et al., 2017). Oppong (2016a) further notes that CSR initiatives tend to focus on education, the environment, health, social entrepreneurship, and sports development.

These areas of CSR investments are usually undertaken by foreign-owned multinational corporations (Amponsah-Tawiah & Dartey-Baah, 2011a) whose strategies are designed to promote their reputation and contribute to social welfare. However, this reflects an inconsistent understanding of the idea of sustainability. Indeed, Mutti et al. (2012, p. 22) indicate that “in terms of performance, the general view is that CSR does not have a substantial impact on poverty reduction or environmental management, and therefore, CSR outcomes have a negligible contribution to a society's welfare.” Table 2.4 shows the domains for social and environmental sustainability, some of which go beyond the level of CSR or sustainability implementation in Ghana, as reported in the literature. For instance, while Mudd (2007) mentions energy consumption and pollutant emissions for developed countries such as Australia, Canada, and the United States, these are not captured in the sustainability data regarding resource intensity in Ghana. This might be due to the large use of hydro-power in Ghana, which limits greenhouse emissions. However, large-scale

companies voluntarily report on their energy consumption intensity (electricity use) to international reporting organisations such as the Global Reporting Initiative and ISO 14001. Table 2.4 further indicates that sustainability issues during the operational phase are also focal areas at the mine closure stage.

Within the mining sector in Ghana, CSR is expressed in the form of community development (Boon & Ababio, 2009; Yankson, 2010) which includes investments in social projects and alternative livelihood schemes such as snail farming, soap making, provision of social amenities like schools, health centres and boreholes. Social sustainability initiatives take the form of chemical spillage prevention, reforestation, and land rehabilitation (Oppong, 2016a) in relation to the minimum requirements under Ghana's Minerals and Mining Act, 2006 (Act 703). However, social sustainability, as a developing concept, is different from CSR because of its broader conceptual references. The over-emphasis on CSR implementation as self-regulatory initiatives in Ghana may account for some of the critical sustainability concerns. Particularly, Essah and Andrews (2016) refer to social sustainability implementation in Ghana as disjointed CSR activities that contravene the actual notion of sustainable practices. This is because CSR practices address physical projects in response to the operational impacts of mining without a policy to respond to mine closure social sustainability (tangible and intangible) concerns. Similarly, Andrews (2016) argues that voluntary CSR practices undermine social sustainability initiatives within the extractive industry in Ghana. The argument here is that, social sustainability has a broader meaning, which may involve voluntary initiatives, and regulatory compliance practices such as legal requirements for addressing mining-induced displacement and development agreements.

Generally, the influence of stakeholders is limited to their ability to confer a social license to operate depending on the quality and continuum of acceptance (Esau & Malone, 2013;

Prno & Slocombe, 2012). However, because multinational companies are driving the CSR agenda (Ross, 2017), the ability of stakeholders in a mining environment to pressure large-scale mining firms is limited. For example, multinational mining companies in Ghana have discretion on what would constitute their social sustainability because of their predatory practices including inappropriate collusion with tribal leaders against affected communities (Bush, 2009). Particularly, social conflicts around mining tend to pit multinational mining companies and the government against affected local communities and civil society organizations (Tetreault, 2020). As such, the institutional context of developing countries has a negative influence on managerial cognition regarding how managers make sense of their environment, which undermines the sustainable development of mining areas.

Overall, sustainability practices in Ghana are limited to land rehabilitation, impact mitigation, and community development. This review also emphasises the limitations of the traditional CSR approach to the sustainability of local communities. Specifically, the weak and non-enabling institutional environment undermining compliance monitoring and regulatory enforcement contribute to the current state of sustainability implementation in Ghana (Andrews, 2016). Thus, examining the social sustainability practices of multinational mining companies is better situated as a critical area of inquiry. The subsequent findings provide the grounding for exploring empirical and theoretical issues related to social sustainability.

Table 2.4: Domains for social and environmental sustainability practices

Mine Lifecycle	Environmental Sustainability	Social Sustainability
Operational Phase	<p>Biodiversity</p> <ul style="list-style-type: none"> • Fauna and Flora <p>Water</p> <ul style="list-style-type: none"> • Quality and Quantity <p>Ambient Climate</p> <ul style="list-style-type: none"> • Air pollution • Noise pollution <p>Tailings Storage Management</p> <ul style="list-style-type: none"> • Chemical pollution/seepages <p>Energy Intensity</p> <ul style="list-style-type: none"> • Emission/greenhouse gases 	<ul style="list-style-type: none"> • Cultural landscapes • Migration to mining communities • Outmigration from resettled communities • Relocation and Resettlement • Employment (direct/indirect) • Local participation/Stakeholder engagement • Compensation (Fair, prompt, and adequate)
Mine Closure Phase	<p>Lands/Biodiversity Restoration</p> <ul style="list-style-type: none"> • Vegetation regeneration potential • Animal species Richness/Diversity • Plant species richness/diversity • Habit diversity • Decreased forest land area <p>Water Bodies /Soil</p> <ul style="list-style-type: none"> • Destroyed or sedimented water course (surface water) • Underground water sources • Contaminated soil 	<p>Community Resilience</p> <ul style="list-style-type: none"> • Employment regeneration • Access to social services • Access to agricultural lands • Developing local capacities <p>Livelihood Diversification</p> <ul style="list-style-type: none"> • Alternative income generating activities

2.5 Institutional Voids and Sustainability in Developing Countries

Amaeshi et al. (2016) assert that it may be unavoidable to doubt the effectiveness of CSR in contexts characterised by inefficient markets, poor governance, and weak civil societies. Additionally, studies by Tuokuu et al. (2018) and Helwege (2015) in resource-rich developing countries of Africa and Latin America identify institutional voids such as gaps in monitoring and implementation mechanisms and stakeholder dissonance as marring the sustainability of local mining communities.

Further, Bebbington et al. (2018, p.1) posit that the “disappointing development outcomes in economies with substantial extractive activity have been explained in terms of the ‘poor quality’ or ‘weakness’ of institutions”. As such, the lack of effective institutions that support sustainability implementation and the combinatory weakness in various institutional arrangements constitute the hallmark of most resource-rich developing countries. Thus, the presence and implications of institutional voids may explain the challenging and non-enabling contexts for sustainability in developing countries (Amaeshi et al. 2016).

Despite this, Amaeshi et al. (2016) in their study on CSR practices of a company in Nigeria found that the firm utilises adaptive mechanisms based on normative values to engage in responsible practices despite operating in a weak institutional environment. Thus, while institutional voids are barriers to sustainability implementation, there is evidence to show that companies may have internal incentives to be socially responsible. For example, Johnson et al. (2019) suggest that CSR practices that internalise environmental and social costs or externalities allow companies to appropriately respond to governance deficits or institutional voids. As such, this study examines how large-scale mining companies address their social and environmental impacts in an empirical domain, described as challenging and non-enabling for sustainability implementation.

2.6 Sustainability Reporting Standards

According to H. S. Brown, de Jong, and Levy (2009), sustainability reporting, especially relating to CSR emerged over the past two decades as formal voluntary standards in obtaining accreditation and promoting industry self-regulation. Additionally, the growing awareness of the critical organizational role in sustainable development drives companies to report on their sustainability practices (Adusei, 2017; Ehnert, Parsa, Roper, Wagner, & Muller-Camen, 2016). Accordingly, Tregidga and Milne (2006) consider sustainability

reports as the principal mechanism by which companies demonstrate how they embed social and environmental issues into corporate discourses, including managerial sensemaking of sustainable development. While companies have long reported on their environmental impacts because of regulatory requirements (Tschopp & Nastanski, 2014), sustainability reporting on social issues is also becoming important to corporate managers (Bice, 2014). Indeed, H. S. Brown et al. (2009) posit that the widening of the scope in recent years to include social impact indicators is part of the most important trend in sustainability reporting.

The extractive industry is arguably the sector that has an entrenched sustainability reporting practice (Böhling, Murguía, & Godfrid, 2019) due to incessant criticisms and stakeholder pressures. For example, Fonseca et al. (2014) note the efforts by large-scale mining companies to publish their practices in addressing social and environmental challenges associated with the extractive process. As such, large-scale mining companies have signed up with many voluntary standards and codes in response to regulatory and stakeholder pressures.

The common sustainability reporting standards employed by large-scale mining companies are based on the Global Reporting Initiative (GRI), International Cyanide Management Code (ICMC), International Organization for Standardization (ISO14001), and the International Financial Corporation (IFC) performance standards. For instance, while reporting standards are still evolving, GRI emphasizes stakeholder involvement and provides industry and regional specific guidelines, including quantitative indicators for assessment (Tschopp & Nastanski, 2014). Similarly, the ICMC is also a voluntary programme for companies using cyanide in gold leaching, involving a multi-stakeholder process, third party audit for compliance certification and disclosure of results (Greenwald & Bateman, 2016). The code “focuses exclusively on the safe management of cyanide that is produced, transported, and

used for the recovery of gold, and on cyanidation mill tailings and leach solutions” (Akcil, 2010, p. 137). Particularly, a significant requirement for ICMC certification includes compliance with guidelines regarding cyanide detoxification before discharge into tailings storage facilities and the treatment of decanting water before releasing into the environment.

Further, ISO 14001 promotes environmental management and performance and provides objective measures for assessment (Balzarova & Castka, 2008; Psomas, Fotopoulos, & Kafetzopoulos, 2011). Accordingly, ISO 14001 was designed to help companies to identify and control environmental impacts associated with their activities, products and services, and provide stakeholders with a frame of reference to evaluate practices of firms (Delmas & Montes-Sancho, 2011). Table 2.5 shows the major voluntary reporting standards and the sustainability domain(s) in which they are mostly applied.

Table 2.5: Major sustainability reporting standards and the main domains applied

Reporting Standard	Application/Scope	Sources
GRI	TBL (Social, Environmental, and Economic)	(H. S. Brown et al., 2009; Hedberg & Von Malmborg, 2003; Milne & Gray, 2013)
ICMC	Environmental Sustainability	(Akcil, 2010; Greenwald & Bateman, 2016)
IFC Performance Standards	Social and Environmental Sustainability	(Aizawa, 2006; Conley & Williams, 2011)
ISO 14001	Environmental Sustainability	(Balzarova & Castka, 2008; Delmas & Montes-Sancho, 2011; Psomas et al., 2011)

Therefore, sustainability reporting is improving the social and environmental impact disclosures of large-scale mining companies beyond financial transparency. Finally, while voluntary sustainability standards have been criticized for their selective reporting bias (Moran et al., 2014; Sorensen, 2012), they still provide some important indicators for measuring mining companies' social and environmental performance.

2.7 Connecting Sustainability Practices and Sustainable Development

The concept of sustainable development is discussed across different disciplines with roots in the natural sciences but has gained currency within the fields of development and business (Tregidga & Milne, 2006). This study utilizes the much-quoted definition according to the World Commission on Environment and Development, which defines sustainable development as “Humanity has the ability to make development sustainable: to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 8). This suggests that sustainable development aims at achieving intra and inter-generational equity and the prevention of unnecessary transfer of development risks to future societies. Additionally, Olawumi and Chan (2018) suggest that sustainable development involves a balance between protecting the ecosystem and meeting human needs, which may be achieved by harmonizing social, environmental, and economic sustainability. The combination of social, environmental and economic aspects in holistic, sustainable development denotes the triple bottom-line or pillars of sustainability. As a result, sustainability and sustainable development are often used interchangeably (Ihlen & Roper, 2014) in the management literature.

Further, sustainable development is regarded as a collective societal process towards the vision of sustainability. For instance, according to Hector et al. (2014), sustainability is the

end-state resulting from the dynamic equilibrium between the triple bottom-line whereas sustainable development is the process to achieve a dynamic relationship in the dimensions of sustainability. This view is shared by Diesendorf (2000), and Olawumi and Chan (2018), which indicates the basic relationship between sustainability and sustainable development.

However, Hector et al. (2014) argue that the interchangeable use of sustainability and sustainable development is unhelpful, as it has contributed to a conflated discourse. According to them, the main difference in the underlying philosophical position is that sustainable development relates to the instrumental value attached to an ecosystem where humans are separate from other species while sustainability emphasizes the intrinsic value of nature in which humanity is an integral part.

Table 2. 6: A summary of social and environmental sustainability practices, initiatives, and outcomes reported in the literature.

Authors	Sustainability Practices, Initiatives, Policies, and Outcomes	Application/ Scope	Theory Used	Unit of Analysis, Perspective, and Research Context
Antwi et al. (2017)	Sustainability impacts on local environment and communities based on social, environmental, economic, and institutional indicators, the development of comprehensive assessment tool, and restoration measures in mine-damaged communities.	TBL	Not available	Field observation, stakeholder perspectives, expert consultation
Silvestre (2014)	Cleaner production (application of integrated preventive environmental strategy), technology, and sustainability.	Environmental	Not specified	Perspectives of key informants from selected firms and stakeholders in Brazil.

Authors	Sustainability Practices, Initiatives, Policies, and Outcomes	Application/ Scope	Theory Used	Unit of Analysis, Perspective, and Research Context
Vintró et al. (2014)	Environmental sustainability practices (reduction of greenhouse emissions, occupational safety, environmental restoration, impact mitigation).	Environmental	Not available	Perspectives of managers of mining companies
Suopajärvi et al. (2016)	Social sustainability practices relating to local participation in decision-making processes during mining operations, social justice, environmental impacts on livelihoods, social impacts issues of community viability after mine closure.	Social	Not available	Perspectives of residents of mine-affected communities and key stakeholder groups.
Dashwood (2014)	Influences on industry self-regulation and adoption of voluntary sustainability initiatives by large-scale mining companies.	Social and Environmental	Institutional approaches (Rational choice institutionalism, historical institutionalism, and 'new' institutionalism)	Perspectives of managers of large-scale mining companies
Andrews (2016)	CSR policies and practices in the context of institutional dynamics (domestic regulation and governance)	CSR	Not available	Perspectives of companies and stakeholders
Tiainen (2016)	Governance of socially sustainable mining, expectations and related themes	Social	Not specified	Thematic text and document analysis of government materials in Greenland
Mutti et al. (2012)	Stakeholder assessment of CSR practices towards sustainability (addressing social and environmental impacts) and development, conflict resolution.	CSR	Stakeholder theory	Perspectives of companies and stakeholders
Essah and Andrews (2016)	Mining companies' sustainability implementation (positive inheritance for future generations) and the expectations and perceptions of stakeholder groups of sustainable mining.	Social and Environmental	Political ecology approach	Perspectives of communities, companies and secondary sources
Fernandez-Feijoo, Romero, and Ruiz (2014)	The effect of stakeholder group pressures on transparency when reporting sustainability	CSR	Stakeholder theory	Data from companies based on GRI database

Boso, Afrane, and Inkoom (2017)	The drivers, strategies, and philosophies of multinational mining companies' CSR initiatives, which are underpinned by a sense of moral obligation.	CSR	Normative moral philosophies	Perspectives of selected case companies and host communities
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2.8 Conclusion

This chapter has reviewed the literature from the perspectives of sustainability and sustainable mining research. The first part of this chapter reviewed the literature on the broad sustainability dimensions while the second section focused on the sustainable mining paradox, sustainability and their manifestations in the global, developing countries, and the Ghanaian contexts. Specifically, the frame of reference was on sustainability policies and practices regarding social and environmental categories, the reporting standards based on industry-wide and institutionalised self-regulatory initiatives.

The systematic review has identified several gaps in the literature. First, although there are significant studies on environmental sustainability in mining, most of these that focus on the ecological impacts associated with the extractive process and not on the practices of companies in addressing specific impact. While studies on environmental sustainability practices are emerging, these focus on aspects of the mining phases and not on the implementation of sustainability initiatives throughout the mine lifecycle. Second, the review indicated the limited research on social sustainability issues in mining research. Particularly, related studies have examined aspects of social sustainability, such as voluntary CSR practices to foster local development or social impacts associated with mining activities. Thus, the social dimension of sustainability has received scant attention in previous empirical studies.

Third, previous research often focuses on a single dimension of sustainability, such as economic or environmental issues in mining, but few studies have considered both social and environmental sustainability implementation in the mining industry. Fourth, studies investigating aspects of environmental and social issues in Ghana have paid little attention to how institutional pressures, plural logic, and internal organizational factors drive or hinder sustainability implementation within the extractive sector of an important gold mining and exporting country. This is important because large-scale mining companies operating in developing countries are multinational in scope, with significant power and influence. Therefore, the internal characteristics of companies are critical to sustainability outcomes in a weak environment where businesses experience institutional complexity. Five, while the use of theories in sustainability research is gaining traction, only a few studies have focused on using multiple theoretical perspectives. As such, further research is needed to discuss and interpret empirical findings using theoretical perspectives. Accordingly, research scholars have suggested using multiple theories to develop a holistic sustainability framework because of the complex, intricate, and manifold issues in this area of inquiry.

Taken together, there is a paucity of research and how the sustainability practices of large-scale mining companies address social and environmental impacts throughout the mine lifecycle. Therefore, the goal of this study is to address these knowledge gaps in the literature and expand the theoretical contributions to the social and environmental sustainability areas based on the perspectives of research participants in Ghana's mining industry. In this regard, the next chapter provides a discussion of the adopted theories and presents the theoretical framework and research methodology employed in this study

Chapter 3

Research Methodology

3.1 Introduction

This section presents the research philosophy, methodology, approach to theory development, theoretical framework, research methods, and data analysis for this study. As mentioned in chapter 1, the development of research questions is based on the gaps identified in the literature. Specifically, there is scant knowledge about the sustainability practices of mining companies in addressing short and long-term social and environmental impacts. As such, the goal of this study is to examine the social and environmental sustainability practices of large-scale mining companies to address impacts throughout the mine lifecycle.

This research is exploratory and utilises a qualitative methodology as the most suitable and appropriate. Secondly, to investigate the perceptions of individuals on social and environmental sustainability implementation, a qualitative interviewing approach was adopted as the framework for data collection. Individual semi-structured interviews with purposely selected individuals including social sustainability (community affairs) and environmental managers, senior personnel of regulatory institutions, municipal assemblies, industry association and representatives from traditional councils constitute the main sources of data. Therefore, this chapter introduces the research philosophy, followed by the methodological choices, the approach to theory development, the theoretical framework, and the research methods. After this, the data collection approaches, selection of research participants, and data analysis are discussed. Finally, issues relating to research quality and ethical considerations are presented.

In this chapter, I described and justified my research philosophy, strategy, and qualitative approach. Also, I used a case study as my qualitative approach and described the design, the methods of data collection and analysis. Finally, I defined and described the procedures for ensuring the quality of this research.

3.2 Research Philosophy and Approach

Research philosophy is important to the discovery process and the choice of appropriate methodology (Holden & Lynch, 2004). It relates to ontology and epistemology, which influence the research process, theoretical perspectives, methodology, research questions, and data collection approaches (Holden & Lynch, 2004). The issue of how the social world can be studied raises questions that relate to ontology and epistemology. My research ontology is subjective because I believe that issues in the social world and their meaning are continually influenced by the perceptions of individuals in the context of this study. Consequently, this research was guided by ontological idealism which asserts that social reality is based on socially constructed meanings through human discourse and not as a single objective reality external to human experiences (Ormston et al., 2014).

Epistemology involves ways of knowing and the basis of knowledge while ontology refers to the nature of the world and what there is to know about social reality (Ormston et al., 2014; Scotland, 2012). Thus, my epistemology is interpretive as I try to understand the world through the subjective meanings of individual experiences that are negotiated socially and historically (Creswell & Poth, 2017). For example, an interpretive epistemology or research paradigm is “characterized by a need to understand the world as it is from a subjective point of view and seeks an explanation within the frame of reference of the participant rather than the objective observer of the action” (Ponelis, 2015, p. 538). As such,

interpretive epistemology contrasts with positivism, which posits understanding reality through abstraction and an objective reality (Thanh, 2015). Positivists perceive the only kind of sound knowledge to be one based on systematic observation and reductionist approach by simplifying and controlling variables (Halfpenny, 2014; Scotland, 2012). However, because the epistemology of this study focuses on the views, interpretations, and actions of research participants, I determined the interpretive paradigm to be the most suitable in understanding the social world.

This study is guided by the interpretive paradigm for several reasons. First, I investigate social and environmental sustainability implementation of large-scale mining companies, which necessarily involves the three concepts of interpretation, meaning, and understanding of managerial perceptions and worldviews along with that of stakeholders as social actors (Nordqvist, Hall, & Melin, 2009). Drawing from the experiences of social actors depend on their insights and explanations regarding how large-scale mining companies address their impacts through sustainability practices. For instance, discovering the experiences and perceptions of managers and senior officials of various organizations regarding social and environmental sustainability practices involves subjective judgements of reality. From this perspective, my research approach stems from the idea that understanding the complex realities of sustainability implementation must be interpreted in order to be comprehensible.

Second, corporate managers implement sustainability practices in an institutional context characterised by constant interactions with stakeholder pressures and resource governance systems at the policy and plant levels. In this regard, the interpretive research “seeks to reach understanding through interpretation of meanings assigned to, for instance, actions, events, processes, objects, and actors” Nordqvist et al. (2009, p. 298). Third, I interacted

with managers of companies and representatives of various stakeholder organizations in searching for multiple views, lived experiences, and their subjective sense of realities to construct a comprehensive understanding of social and environmental sustainability practices.

Finally, the interpretivist approach provides a larger lens or a frame of reference in guiding the researcher in the process of selecting suitable research methods, procedures, and research design that intersect with the study aims and system of inquiry. This is because the entire research process is determined by the relationships between the research philosophy, approach, and methodology associated with a social inquiry. Therefore, I used the interpretivist paradigm to drive the research process, philosophy, and the frames of interpretation. To this end, the nature of my philosophical worldview provides guidance to the research methodology, approaches, theoretical perspectives, data collection, and analytical method discussed in the following sections.

3.3 Methodological Choice: Qualitative

Research methodology refers to a general approach in studying or investigating an issue or topic. This study utilises an exploratory research approach because the purpose is to gain familiarity with an issue or achieve new insights (Kothari, 2004). While the research areas of social and environmental sustainability have received much research attention, there is scant knowledge about the implementation of sustainability practices in addressing social and environmental impacts throughout mining lifecycle in Ghana (Arthur et al., 2017). As such, the limited state of the literature on social and environmental sustainability practices of large-scale mining companies, especially in the context of a non-enabling institutional environment of a developing country makes an exploratory research suitable. Therefore, an

exploratory design sufficed in this research in terms of providing new insights and clarifying existing ideas within a previously unexplored area.

The interpretive approach of this study made a qualitative method the most appropriate because it helped to explore and gain insights into diverse issues in sustainability, which have social and public policy interest (Ritchie & Spencer, 2002). The use of a qualitative approach in this study was helpful in understanding the meanings different stakeholders in a mining environment give to the sustainability initiatives of large-scale mining companies due to its interpretive framework (Creswell & Poth, 2017). This approach is flexible, allowing researchers to gain expansive knowledge into issues by detailing the opinions of different actors (Creswell, Klassen, Plano Clark, & Smith, 2011). Accordingly, Creswell (2013) notes that a qualitative research is an approach for investigating and providing a contextualised understanding of human experiences and worldviews, and the interpretations individuals ascribe to a phenomenon and social constructs. It is, therefore, best suited as a method to explore sustainability practices while generating propositions for future explanatory studies (Creswell, 2013) within a complex institutional environment because of the interfaces among diverse actors with varying interests. Additionally, given that there already exists empirical research about the social and environmental challenges in mining, a qualitative approach was helpful in exploring the sustainability practices of large-scale companies in addressing the identified risks.

3.4 Research Approach – Abductive

Three common reasoning approaches to theory development in the social sciences including management research have been reported in the literature including deduction, induction and abduction (Kovács & Spens, 2007; Timmermans & Tavory, 2012). According to

Timmermans and Tavory (2012), the deduction begins with a rule and goes through a case to arrive at an observed result, which demonstrates or falsifies the rule, while inductive logic starts with a collection of given cases and proceeds to examine their implied results to develop an inference of an operative universal rule. In contrast to deductive and inductive logics, abductive according to Timmermans and Tavory (2012, p. 171) is:

The form of reasoning through which we perceive the phenomenon as related to other observations either in the sense that there is a cause and effect hidden from view, in the sense that the phenomenon is seen as similar to other phenomena already experienced and explained in other situations, or in the sense of creating new general descriptions.

The deductive approach is usually favoured in quantitative studies because of the logic that “once a hypothesis has been formed, deduction helps work out the hypothesis by providing a plausible generalization or causal chain” (Timmermans & Tavory, 2012, p. 171). In qualitative research, deduction “often means that data are analysed according to an existing theoretical framework” and this helps “researchers to attend to details nuances in the data that otherwise might be overlooked” (Kennedy & Thornburg, 2018, p. 50). In contrast, qualitative studies, which tends to use induction “means that patterns, concepts, and theories emerge from the data through the researchers’ interactions with the data without pre-supposing such outcomes a priori” (Kennedy & Thornburg, 2018).

Further, even though inductive and deductive logics of inquiry are commonly associated with qualitative research, abduction as a third reasoning approach is growing in importance (Kennedy & Thornburg, 2018; Kovács & Spens, 2005). Abduction, as a form of logical inference, was initiated and formulated by the philosopher Charles Peirce, which is based on the idea that there are no a priori hypothesis or presuppositions (Levin-Rozalis, 2004). Peirce introduced abduction as a non-deductive logical inference different from the already established and familiar notion of induction and deduction. Additionally, A. E. Lawson

(2010) posits that the process of discovery of new knowledge and the generation of hypothesis because of puzzling or surprising observations can be explained by abduction based on an inferential process involving reasoning to mentally derive causal claims from premises. Accordingly, researchers have employed abductive reasoning to look at all facets in a phenomenon, without prior suppositions to explain social realities (Levin-Rozalis, 2004). However, the idea of using abduction for discovery without any existing suppositions is quite confusing as explaining a surprising observation requires insights from a store of knowledge, which would allow for abducting to tentatively explain the new situation (A. E. Lawson, 2010). Therefore, the modern understanding of abduction is not so much on the idea of inventing hypothesis, but rather as one of adopting possible explanations for a phenomenon, which could be further investigated. As such, abduction differs from grounded theory as it considers presuppositions in providing the best possible explanation of known data. On the contrary, grounded theory makes generalised statements based on the evidence in a set of data. As such, grounded theory is based on an inductive approach to reasoning or theoretical development.

According to Thornberg (2012), abduction is about “discovering new concepts, ideas, or explanations by finding surprising events, which cannot be routinely explained by pre-existing knowledge” (p. 247). The abductive logic goes beyond the data and pre-existing theories and involves abducting a technical account using a researcher’s categories from individual experiences and subjective meanings (Blaikie, 2007). Additionally, Creswell and Poth (2017, p.8) suggest that qualitative research involves “data analysis that is both deductive and inductive and establishes patterns or themes”. Importantly, an abductive approach makes logical inferences to the best explanations, especially in the case of a surprising observation. Given this, the abductive analysis rest on researcher awareness and

familiarity with the theoretical field including the scope of theories and background and then poses creative constructs to explain phenomena (Kennedy & Thornburg, 2018; Timmermans & Tavory, 2012). Thus, an abductive approach to inquiry involves first describing meanings from participants' language, which was followed by the researcher's abducting a concise technical account from the participants' first ideas and meanings guided by pre-defined categories drawn from the literature. With this approach, I was open and sensitive to the data without rejecting existing concepts and theoretical constructions in order to either modify or extend the boundaries of existing ideas to gain new insights (Thornberg, 2012). A particular strength of abductive analysis lies in its ability to extend the initial theoretical propositions and expand the research beyond a deductive or inductive analysis to produce new theories (Meyer & Lunnay, 2013).

Moreover, based on the explorative-interpretivist nature, the abductive analytical approach is suitable for undertaking this qualitative research for several reasons. First, abduction involves an iterative interplay between both features of deductive and inductive logics, which drive data collection and analysis (Kennedy & Thornburg, 2018). For example, abduction "takes things one step farther than induction in not only drawing an inference based on observation, but deriving a feasible (and by some accounts most feasible or best) explanation for a phenomenon" (Woo, O'Boyle, & Spector, 2017, p. 257). In addition, like deduction, the abductive approach to reasoning also embraces existing theories and literature (Timmermans & Tavory, 2012). However, contrary to the inductive approach, which indicates engaging with the literature at the end of the research process, the abductive logic embraces existing scholarly theories at the outset and proceeds through every research phase (Timmermans & Tavory, 2012).

This study also starts with basic theories and conceptual framework, which provide guidance to the research process. Second, “the attraction of abductive analysis is that it elicits theoretical innovations precisely through a double engagement with existing theory and careful methodological steps” which is important for a qualitative research inquiry (Timmermans & Tavory, 2012, p. 181). Third, as this study investigates a less explored area regarding sustainability practices in mining, the use of other theories from the scholarly literature as required with the abductive approach suffices for this study. For instance, this study depends on multiple theories in the social science and management research – Stakeholder and Institutional theories – to guide the examination of social and environmental sustainability implementation within the mining industry in Ghana. Thus, the next section presents these theories and then develops a basic theoretical framework for this study.

3.5 Theoretical Framework

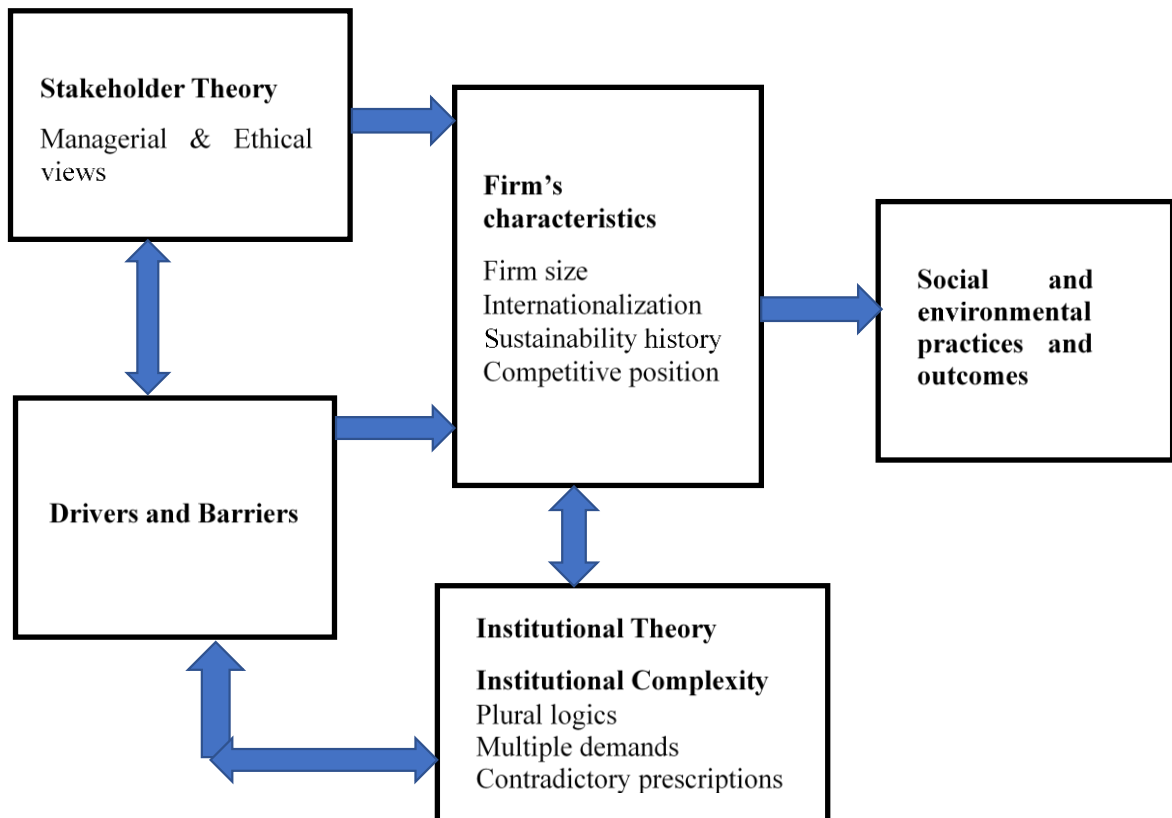
In this section, the theoretical framework is displayed, drawing on stakeholder theory and institutional theory regarding the implementation of social and environmental sustainability by large-scale mining companies. As suggested by Anfara and Mertz (2014), a theoretical framework affects almost all aspects of a qualitative study since it provides a frame of reference for seeing and making sense of what to do in the design and conduct of the study. Importantly, a theoretical framework comes from a researcher’s disciplinary orientation and the literature related to the issues under investigation (Rocco & Plakhotnik, 2009). Considering this, a theoretical framework provides guidance and direction to the research process and helps the researcher to identify, develop, and refine the research questions and methods. Therefore, the theoretical framework for this study is provided and involves the assumptions that guide the empirical findings and discussion.

Previous studies have used theoretical perspectives in explaining CSR and sustainability practices within extractive industries (Dashwood, 2014; de Villiers et al., 2014; Eweje, 2006b; Mzembe & Meaton, 2014). However, most studies have used a single theory rather than utilising multiple theoretical perspectives although “it is inadequate to use a single theory for a theoretical framework to explain organisational behaviours” (Fernando & Lawrence, 2014, p. 170). Indeed, Chen and Roberts (2010, p. 662) suggest employing “several theories to obtain a more coherent and complete understanding of an organization’s relationship to society” and the “usefulness of investigating a particular social occurrence through more than one theoretical point of view”. Generally, sustainability implementation relating to non-renewable resources is a complex undertaking because of the inherent paradox between the unavoidable depletion as against maintaining and promoting an ongoing availability of the same solid minerals. For example, Giurco and Cooper (2012, p. 6) note the “complexity of the minerals sustainability question” while Everingham (2012, p. 92) expressed that “less is known about how to manage the social impacts of mining in sustainable ways”. A similar argument has been made by Chang et al. (2017) on the growing use of multiple theories in examining sustainability as a highly complex concept. Following these arguments, this study employed two theories – institutional theory and stakeholder theory – to understand social and environmental sustainability implementation within large-scale mining.

Finally, Grant and Osanloo (2014) suggest the use of concept mapping to define theoretical ideas in boxes that displays clear linkages using arrows carrying explanatory legends to offer preliminary organization of knowledge. Consequently, an integrated framework (Figure 3.1) that depicts the constant communication processes and interfaces between internal

organizational characteristics and the external pressures from the institutional field is presented.

Figure 3.1: The basic theoretical framework based on stakeholder theory and institutional theory.



This figure demonstrates that large-scale mining companies embrace sustainability practices based on their perceptions of the stakeholder pressures within the organizational field, which may be influenced by the characteristics of the company. Stakeholder pressures within a mining context often emanate from governmental bodies which provide regulatory oversight and from competitive pressures within an industry where companies imitate practices that have been adopted by other firms within the same industry (mimetic isomorphism). Industry pressure leads to diffusion of sustainability practices where companies within the industry mimic the behaviour of others. In addition, local communities and activists like mining

NGOs impose normative pressure on companies within the sector to embrace sustainability practices that meet the long-term needs of their stakeholders.

Thus, the figure shows the interactions between the different elements within an institutional environment coercively or normatively pressure mining companies to adopt sustainability practices. However, institutional pressures occur within an environment influenced by firms' characteristics such as the level of internationalization, competitive position in the industry, firm size and past social and environmental records (Buysse & Verbeke, 2003; Delmas & Toffel, 2011; Orlitzky et al., 2011). A company's characteristics are deemed as influencing factors because they are expected to increase or reduce the effects of institutional pressures (Delmas & Toffel, 2004, 2011). For example, organizational size supposedly affects managers support for and reporting of sustainability practices (Orlitzky et al., 2011). Further, since the extant literature has established that mining in developing countries occur in weak and non-enabling institutional contexts (Ayelazuno & Mawuko-Yevugah, 2019; Helwege, 2015; Tuokuu et al., 2018), the figure suggests that companies confront plural and contradictory logics in such environments. Thus, sustainability practices and outcomes are influenced by the interactions between stakeholder pressures, drivers and barriers, institutional complexity, and organizational characteristics. Applying this framework within an empirical domain defined by inadequate governance and enforcement mechanisms magnified by weak institutional systems provide critical insights into companies' sustainability initiatives and their degree of implementation.

This integrative theoretical framework employed in this study reflects initial ideas based on the existing literature. Therefore, based on stakeholder and institutional theories and the empirical findings, the basic theoretical framework (see Figure 3.1) is employed to develop a new holistic sustainability framework in chapter 8. In the following section, each

theoretical perspective and the relationship with the sustainability practices of large-scale mining companies is discussed.

3.5.1 Institutional Theory

Brammer, Jackson, and Matten (2012) posit that institutional theory constitutes a conceptual lens by which the social responsibility of corporations may be understood with respect to its diversity and dynamics. In terms of diversity, institutional theory helps to understand the various institutional conditions and perceptions of both formal organisations including civil society bodies; business associations; and informal institutions such as local normative practices and traditions; and customary laws. Its dynamics express how and why sustainability practices assume different forms in different countries (Brammer et al., 2012).

Further, institutional theory clarifies how corporations adopt policies and structures due to institutional pressures, the internal reproduction of policies to address specific problems, and the effects of the organizational field on a corporation's policies and structures (Amran & Haniffa, 2011; Husted & Allen, 2006). It focuses on why corporations engage in behaviours that are considered legitimate and why normative demands are accepted despite their propensity to contradict economic goals or rational behaviour (Suddaby, 2010). In addition, McWilliams, Siegel, and Wright (2006) contend that institutions play roles in shaping how a corporation establishes consensus with respect to sustainability practices. As such, institutional theory “strongly emphasizes that organizations can incorporate institutionalized norms and rules to gain stability and enhance survival prospects” (Chen & Roberts, 2010, p. 653).

This study employs an institutional theory to provide clarity about how the institutional environment of large-scale mining companies exerts pressure on them to adopt and engage in sustainability practices through constraining or enabling processes such as penalties, incentives and rewards (Campbell, 2006; Carpenter & Feroz, 2001). A common institutional pressure within a corporation's environment results in a process where different companies develop homogenous features. DiMaggio and Powell (1983), refer to this process as isomorphism, which may be coercive, mimetic, and normative. According to Fernando and Lawrence (2014) coercive isomorphism relates to external pressure from powerful stakeholders to adopt or change institutional practices; mimetic involves corporations emulating each other's practices, whereas normative relates to pressures to adopt common patterns of behaviour and practices that emanate from common values. For example, mining NGOs, civil society organizations, traditional councils, and governmental agencies such as the Environmental Protection Agency and the Minerals Commission exert coercive pressures while mineworkers may influence companies to adopt normative practices common within the industry.

This study employs the institutional theory to understand the institutional dynamics that influence sustainability practices within the gold mining landscape because according to Dashwood (2014), a serious environmental mismanagement such as mine acid leakage on the part of one company negatively affects the reputation of the entire mining industry. Thus, institutional theory helps to examine the dynamics such as common practices of various mining companies and the need of individual firms to gain competitive advantage based on internal characteristics. Accordingly, Chen and Roberts (2010, p. 662) indicate that “institutional theory is considered a proper choice for studies that investigate a specific corporation structure, system, program, or practice that is commonly implemented by other

similar organizations as a part of normal business operations (such as the employer matching gift program)”. This is a key strength of this theory over other perspectives, which makes it appropriate to this study. Based on the above, institutional theory allowed me to examine the extent and influence of institutional pressure because of the weak governance and the lack of enforcement mechanisms within the empirical domain resulting from conflicting stakeholders’ interests and rent seeking.

Thus, this theory provides insights into why and how large-scale mining companies embrace and implement sustainability initiatives resulting from the pressures from the institutional environment while understanding local level dynamics within the landscape and the effects of firm’s internal pressures. Beyond this, gaining insights into social and environmental sustainability implementation in a mining environment of a developing country may require understanding the multiple, competing, and divergent logics. This is because a weak and non-enabling institutional context leads to complexities and paradoxes due to incompatible prescriptions and plural logics. Thus, the next section examines institutional complexity as a higher order perspective in institutional theory.

3.3.3.1 Institutional Complexity

Institutional theory describes societal logics as either complementary or antithetical (Besharov & Smith, 2014). Similarly, organizations confront contradictory norms, values, and requirements from multiple logics leading to institutional complexity (Ashby, Riad, & Davenport, 2019; Greenwood et al., 2011). For instance, while the internal environmental management practices of mining companies may be a genuine effort at addressing their impacts, studies suggest that managers are unwilling to allocate resources towards sustainability without external regulations (Hu, Wang, & Yang, 2019; Shum & Yam, 2011).

Additionally, mining countries globally have passed stringent environmental legislations to guide the operations of companies (K. Söderholm et al., 2015), but regulations might also limit flexibility and innovation.

However, because stringent environmental regulations increase the time, cost, and risks associated with operating mines (K. Söderholm et al., 2015), which may hamper foreign direct investments, the operations of large-scale mining companies remain largely unmonitored (Ayelazuno & Mawuko-Yevugah, 2019; Lindsay, 2012). Similarly, as mining companies increase production, grow in number and become larger, so are the corresponding social and environmental impacts (Tost et al., 2018). The above examples demonstrate the contradictory societal logics of attracting new mining investments as against enforcing environmental regulations, which might impede the sustainable competitiveness of a country due to the competing extractive landscapes within a region. As a result, regulatory agencies responsible for monitoring and enforcing environmental compliance standards face institutional complexity due to these multiple logics, which could lead to tensions among different organisations. For instance, the role of the institution responsible for promoting foreign direct investment may conflict with a regulatory agency in charge of environmental governance within a mining context.

Therefore, a company's attempt to maximise profit and minimise the environmental footprints can create paradoxical tensions (Ozanne et al., 2016) in the minds of corporate managers in ways that cannot be easily resolved. Similarly, the importance of the mining industry to the economies of many developing countries may lead to tensions and contradictions in the compliance monitoring and enforcement of the environmental policy and permit conditions by regulatory bodies. This situation is true in the mining industry of developing countries as observed by Helwege (2015) in Latin America and Tuokuu et al.

(2018) in Ghana. Accordingly, Ozanne et al. (2016) suggest that paradox theory as a developing approach provides a robust method to analyse and understand the divergent and interrelated institutional logics within organizations and even in a society.

Smith and Tracey (2016) provide the underlying assumptions of institutional complexity in the domains of source, nature, and the challenges and responses (Table 3.1). They also posit that these two assumptions can complement each other in providing greater insights for research, which justifies why we used these approaches in explicating the barriers to sustainable environmental practices within large-scale mining in Ghana.

Table 3.1: Underlying assumptions of institutional complexity

Domain	Institutional complexity
Sources of competing demands	Competing demands emerge from a plurality of logics at the field/societal level. Increased environmental plurality fosters growing experiences of competing demands in organizations
Nature of competing demands	Multiple logics can co-exist within an organization, although studies often simplify dynamics to focus on two logics. Multiple logics are often contradictory, but can also be complementary
Challenges and responses to competing demands	Competing logics foster challenges of external legitimacy and internal conflict that need to be resolved. Competing logics can be managed by implementing effective structures at the organizational and field level

Source: Adopted from Smith and Tracey (2016, p. 457).

3.5.2 Stakeholder Theory

Stakeholders are viewed as groups or categories of individuals who are affected by a corporation's activities and have therefore earned rights of consideration (R. A. Phillips, 2004), and who directly or indirectly affect or are affected by the operations

of a firm. Freeman, Rusconi, Signori, and Strudler (2012) perceive stakeholder theory as an overarching framework by which managers of corporations respond to their constituents and by which stakeholders pursue their legitimate interest. Stakeholder theory sees the meeting of individual expectations by companies as not originating from compensatory redistribution, but as a core management function. Accordingly, Steurer, Langer, Konrad, and Martinuzzi (2005) see this as having evolved from a perspective relating to the firm to one that addresses the whole complex stakeholder relationship. As such, this theory has significantly influenced sustainability and CSR research because of its encompassing perspective of a firm's interest groups beyond shareholders (Chang et al., 2017).

However, Jensen (2002), argues that the idea of a corporation having different stakeholders with legitimate claims leads to managerial confusion, conflict, and inefficiency because it focuses attention away from value maximization as a single objective to various interests. In addition, Stieb (2009) indicates that a theory that directs attention from stockholders who actually invest money to other stakeholder groups is open to abuse. This relates to the notion that different stakeholders might make competing claims that a corporation cannot possibly meet (Carroll, 1991). Similarly, Chen and Roberts (2010) indicate that the granting of legitimacy is subjectively based on the value standards of stakeholder groups, rather than common overriding societal interests or preferences. This applies to a mining environment, which has several stakeholder groups with different demands, values, and interest, requiring companies to pursue trade-offs. In contrast, a corporation's ability to respond to multiple stakeholders through its initiatives is imperative to its success (Brower & Mahajan, 2013; Chen & Roberts, 2010). Yet, the question remains about

the factors influence a corporation's actions where multiple but competing demands are in play.

Carroll (1991) suggests stakeholders' legitimacy and power as the bases for corporate decisions and rankings. A consideration of the power of stakeholders also depends on the threat and opportunities each stakeholder presents to corporations. For instance, recent scholarship suggests that local communities have become a particularly powerful stakeholder within the mining sector because of their power to confer a social license to operate and due to the need to prevent disruptions and other social risks that might threaten company survival (Owen & Kemp, 2013; Prno & Slocombe, 2012). In addition to power and legitimacy, the urgency of stakeholder claims is also critical. Mitchell, Agle, and Wood (1997a) define urgency as the degree to which stakeholder claims require immediate attention. Indeed, power, legitimacy, and urgency are observed by Farmaki (2019) to be the most pertinent criteria by which a corporation assesses demands and risks which might threaten its survival and operations. Accordingly, large-scale mining companies might consider which of its stakeholders have the urgency and power to disrupt its operations before prioritising its interventions (Mitchell et al., 1997a). Within mining contexts, Prno and Slocombe (2012) express that mining companies provide a concerted response to stakeholders on the basis of their power, legitimacy, and urgency of claims, which define this construct in the literature.

Moreover, scholars, including Yongvanich and Guthrie (2005) and Amran and Haniffa (2011) identify two strands of stakeholder theory – ethical stakeholder theory and managerial stakeholder theory. Ethical or normative stakeholder theory, on one hand, espouses fair and equitable treatment of all stakeholders irrespective

of their power or influence (Garcia-Castro, Ariño, & Canela, 2011; Reed, 2002; Valentinov & Hajdu, 2019). Managerial or instrumental stakeholder theory on the other hand considers the power and influence of different stakeholders and their ability to affect the long-term value and profit of a corporation in choosing its courses of action (Amran & Haniffa, 2011; Gilbert & Rasche, 2008). The two strands of stakeholder theory are employed in this study to understand whether the sustainability practices of large-scale mining companies are influenced by instrumental or ethical managerial cognition, especially during periods of uncertainty. This is important to understand because what influences mining companies to pay attention to stakeholders would determine the nature of firms' internal pressures relating to sustainable outcomes.

This theory is relevant to this study because it provides the focus on the interaction between companies and different interest groups while clarifying the effects of stakeholder salience on the initiatives and practices of companies. Additionally, stakeholder theory is arguably the most frequently used approach in sustainability research within management because it enlarges the scope to a broader social embeddedness of companies and its interrelationship with the social environment (Hörisch, Freeman, & Schaltegger, 2014). Given this, stakeholder theory helps to understand the motivations for promoting sustainability practices and provides critical insights into local issues enhancing or hampering mining companies' initiatives and performance, which might differ from official reporting.

3.5.3 Complementary Theoretical Perspectives

The motivations and justifications for selecting the two theories in this study are presented in Table 3.2. This study used both stakeholder and institutional theories because they are both regarded as system-oriented perspectives, which are “directly or indirectly related to each other and should be considered as complementary rather than competing with each other” (Fernando & Lawrence, 2014, p. 167). A common basic assumption underlying these two theories relates to explaining how firms ensure survival, growth, and provide important theoretical frameworks for examining social and environmental sustainability (Chen & Roberts, 2010).

Table 3.2: Justifications for selecting theoretical perspectives – A summary

Basis of Analysis	Stakeholder Theory	Institutional Theory
Definition	Stakeholder theory focuses on the relationships between organizations and its various stakeholders who constitute the environment, and recognizes that legitimacy is evaluated subjectively according to the value standards of stakeholder group (Chen & Roberts, 2010; Freeman et al., 2012; R. Phillips, Freeman, & Wicks, 2003)	Institutional theory provides a useful theoretical perspective that describes that organizations can incorporate institutionalized norms and rules to gain stability, legitimacy, resources, and survival (Brammer et al., 2012; Chen & Roberts, 2010; Husted & Allen, 2006)
Prior Application in Sustainability and CSR research	Stakeholder theory is widely used in management research to empirically investigate and explain social and environmental issues, and practices of firms. It provides a frame to examine social and environmental sustainability practices in the mining industry.	Widely used in social science research. This has also been used in empirical research regarding social and environmental issues. Its application in sustainability studies in mining has gained traction, hence holds enormous potential in this study.
Research Methods used	Content analysis, case studies, qualitative interviews or quantitative surveys can be applied.	This is used in content analysis, case studies, qualitative interviews or surveys.

Basis of Analysis	Stakeholder Theory	Institutional Theory
Criticisms	Cannot adequately address non-human stakeholder issues. Stakeholder pressures may be detrimental to societal values due to the self-interest of different groups, and therefore understanding stakeholder management does not address sustainable practices	Insufficient to explain the value system in society and the initial changes in societal expectations.
Relevance to this Thesis	Relevant as it explains why large-scale mining companies embrace sustainability practices. The managerial and ethical aspects of stakeholder theory help to understand what drives mining companies to adopt sustainability implementation in non-enabling institutional contexts.	Relevant because it examines how large-scale mining companies respond to institutional pressures regarding sustainability implementation. It is useful to understand the multiple and contradictory logics in a mining context, which may differ from sustainability reporting.

However, these theories have limitations. First, stakeholder theory is unable to account for duties to non-humans and other non-stakeholders such as the natural environment (Barnett, Henriques, & Husted, 2018; R. Phillips et al., 2003). For example, Barnett et al. (2018, p. 130) assert that “despite the deep embeddedness of stakeholder management in theory and practice, firms continue to overexploit natural resources and sustainability remains an elusive goal.” Similarly, stakeholder theory does not always involve positive pressures towards sustainability because “stakeholders may actually use their powerful hands to push firms in the opposite direction, driving out the greater good as they pursue their self-interest” (Barnett et al., 2018, p. 134). Thus, this limitation is especially important in an assessment of stakeholder pressures on large-scale mining companies towards environmental sustainability since factors like biodiversity (fauna and flora), water, and soil, are non-humans, which cannot make any demands. To address this theoretical limitation in the context of this study, a second theory, namely, institutional theory helps address this problem. For instance, pressures from external institutions such as NGOs, communities, and

especially from formal regulations and policies (technical standards, environmental permits and taxes) from governments trigger sustainability implementation (Hu et al., 2019). Thus, while plant and animal species cannot pressure mining companies to stop their destructive activities that affect them, institutions mandated to protect the environment may induce corporations to embrace responsible practices. Against this context, institutional theory examines both isomorphic pressures and plural institutional logics that influence the implementation of social and environmental sustainability.

Further, institutional theory also has some gaps in directly explaining the value system in society and the initial changes in societal expectations (Chen & Roberts, 2010). Chen and Roberts (2010) further suggest that institutional theory is insufficient to explain the dynamics of legitimacy, such as why firms might start caring about social and environmental issues or even embrace sustainability practices. As such, “other theories are needed to provide us with a more comprehensive understanding of this social occurrence” (Chen & Roberts, 2010, p. 657). However, because stakeholder theory can explain the value system of stakeholder groups and how that affects the expectation differences in society. Thus, stakeholder theory offers a direct description of why companies begin to implement certain practices, including social and environmental initiatives in mining. Consequently, drawing on both stakeholder theory and institutional theory is required to explain societal expectations based on the values of different groups and the pattern of established institutions, which represent the social value systems. The selection of research methods in this study is consistent with the theories adopted and the research approach, which are discussed in the following section.

3.6 Research Methods

This study adopts a case study-based approach, to explore multiple bounded systems through detailed data collection, and reports a case description and case-based themes (Creswell & Poth, 2017). Creswell, Hanson, Clark Plano, and Morales (2007) define case study research as:

A qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audio-visual material, and documents and reports) and reports a case description and case-based themes (p. 245).

This study met the criteria for a case study. According to R. K. Yin (2003), a case study is appropriate where the researcher: wants to answer how and why questions; does not need to manipulate or control the behaviour of participants, and focuses on contemporary issues. Despite this, a case study is also applicable to past events (Dul & Hak, 2007). The use of case studies in assessing sustainability is widely acknowledged in management research. For example, case study research strategy has been used by Hennchen (2015), Jamali and Mirshak (2007), and Raufflet, Cruz, and Bres (2014b) to assess the CSR initiatives of multinational corporations. It is a popular method for evaluation and organizational learning (Baskarada, 2014), which was appropriate to this study in terms of examining the sustainability initiatives of large-scale mining companies in addressing their impacts throughout the mine lifecycle.

Similarly, the case study method is useful in assessing sustainability practices, because according to R. K. Yin (2011), it is useful in documenting and analysing implementation processes and the outcomes of interventions. Further, Eisenhardt and Graebner (2007) observe that a major reason for the popularity and significance of the case study method

relates to its emphasis on developing constructs, measures, and testable theoretical propositions. The usefulness of a case study in both theory building and theory testing was relevant in this study.

3.6.1 Case Study Design

Having decided on a case study method for this study, the next step was about deciding on an appropriate research design. Research design defines propositions ahead of data collection, describes the plan for arriving at conclusions based on the initial questions of the study, and provides the criteria for interpreting findings (Rowley, 2002). R. K. Yin (2003) identified four types of case study designs which are single case (holistic) design, single case (embedded) design, multiple case (holistic) design, and multiple case (embedded) design. In case study research, the choice is usually between a single case study or multiple case study design based on whether the study aims at theoretical replication or provides different perspectives on an issue (Creswell et al., 2007; Creswell & Poth, 2017), based on an abductive reasoning approach.

A multiple case study design was adopted for this study because multiple cases offer an opportunity for analytical generalisations where the empirical results are compared to previously established theories (Polit & Beck, 2010). This choice was based on the assertions that “a single case study method can have its limitations, especially by having a thin sample in terms of respondents, as it can make our model not generalizable for all international contexts” (Amaeshi et al., 2016, p. 148). Thus, a multiple case study provides advantages such as robustness and theoretical replication. For instance, the greater the number of cases that show replication, the higher the confidence with which an established theory can be said to be accepted or refuted (Rowley, 2002). Once a multiple-case study is

employed, a decision needs to be made about whether it is a multiple-case holistic design or a multiple-case embedded design. A holistic design considers the case as one unit, while embedded designs identify a number of sub-units (Rowley, 2002). A unit of analysis, which may be an individual, an event, or an organization, a programme or organizational change, is usually the basis for a case. According to Rowley (2002), case selection should be guided by the research purpose, questions and theoretical context. Considering this, a holistic design was adopted for this research because while there were different key sub-units of analysis such as the selected case companies, regulatory agencies, mining communities among others, this study considered the different categories as a single unit and therefore analysed as a single research site.

3.6.2 Overview of the Research Process

In organizational studies, a multiple-case study design involves examining more than a case to understand the similarities and differences between cases (Baxter & Jack, 2008), which may allow for a multiplicity of methods to be applied. The research process had four separate phases: planning, data collection, data analysis, and reflection. The planning phase, which included a literature review and development of a theoretical framework from the literature, allowed for designing appropriate case study questions and protocols.

The literature review was an ongoing process throughout data collection and analysis, so that the theoretical framework could be revised or updated based on the meaning categories that emerge from the data. Additionally, the second phase included fieldwork activities and data collection, which was analysed to allow for writing a case report. The third phase involved data analysis, which refers to organizing and reducing data into meaning units based on the underlying patterns. In the final phase, the case report was given detailed reflection in the

context of the theoretical framework and the literature review, but this also involved observing anomalies and making an inference to the best explanation in order to modify or expand on existing concepts or draw new theoretical implications. However, there were overlaps between some of the phases because of the fluidity in the phases of qualitative research. The following sections provide a detailed description of the research process.

3.6.3 Case Selection

Case selection is critical to the research process and should be addressed because it affects the validity of a qualitative study (Curtis, Gesler, Smith, & Washburn, 2000). As suggested by Tellis (1997), case selection must be done in a way that optimises what can be learned within the time frame of a study. In addition, case selection should be determined by the research objectives, questions, propositions, and theoretical context (Rowley, 2002); and may also be informed by pragmatic considerations such as time, resources, expertise, and access but these lack methodological justification (Seawright & Gerring, 2008). Further, Baxter and Jack (2008) indicate that researchers asking whether they want to ‘analyse’ the individual, a programme, a process, or the difference between organizations can help to determine the cases. As such, the selection of cases in this study was informed by the need to have detailed and expansive information that could enrich or extend underlying theoretical constructions and offer an opportunity for triangulation and analytical generalization.

A purposive sampling technique was used in selecting research participants because the idea was to generate the greatest amount of information from individuals with an expansive knowledge of the issues being investigated (Flyvbjerg, 2006). In addition, Curtis et al. (2000) suggest that purposive sampling is suitable in qualitative studies where an existing body of theory exists and on which research questions may be derived. To include research

participants and key informants with in-depth knowledge of sustainability issues, I selected six managers from three large-scale mining companies (two from each case) who were responsible for environmental and social sustainability issues, as research participants. Due to the common sustainability practices, policies, regulatory environment, and the homogenised stakeholder expectations and perceptions in Ghana (Amoah and Eweje, 2020), the views of corporate managers in the interviews were similar without any major variations. As such, data saturation in depth and breadth was reached regarding the managerial perspective based on the data collected from six managers of the different large-scale mining companies. In addition, 12 key informants from stakeholder organizations and associations including the Traditional Councils, a non-governmental organizations (NGOs), Environmental Protection Agency, Municipal/District Assemblies, the Minerals Commission and the Ghana Chamber of Mines (see Table 3.3).

Table 3.3: Interview breakdown by selected case companies and stakeholder groups.

Institutional field	Participants	Number
Company A	Environmental and Community Affairs Managers	2
Company B	Environmental and Community Affairs Managers	2
Company C	Environmental and Community Affairs Managers	2
Environmental Protection Agency	Regional/Area Manager	2
Minerals Commission	Inspectorate Officers	2
Mining activists and Environmental pressure groups (NGOs and CSOs).	Program Managers of Wassa Association of Communities affected by Mining and Friends-of-the-Earth-Ghana	2
Local communities	Chiefs	3
District/Municipal assemblies	Planning Officers	2

Industry association (Chamber of Mines)	Senior Research Manager	1
Total		18

Moreover, criterion sampling was used for selecting the case companies. The first criterion for the selection of cases was the location. I wanted to select cases based on location in the four major mining regions of Ghana (see Figure 3.2), as indicated by Essah and Andrews (2016). Therefore, any case selected had at least a large-scale mine site in one of the above regions in order to understand stakeholder salience and institutional pressures at various local communities across the entire mining landscape. Additionally, the second criterion, which was the selection of multinational mining companies is justified because all the 12 active large-scale gold mines in Ghana are either wholly owned or have majority stakes by transnational companies (Chuhan-Pole et al., 2015).

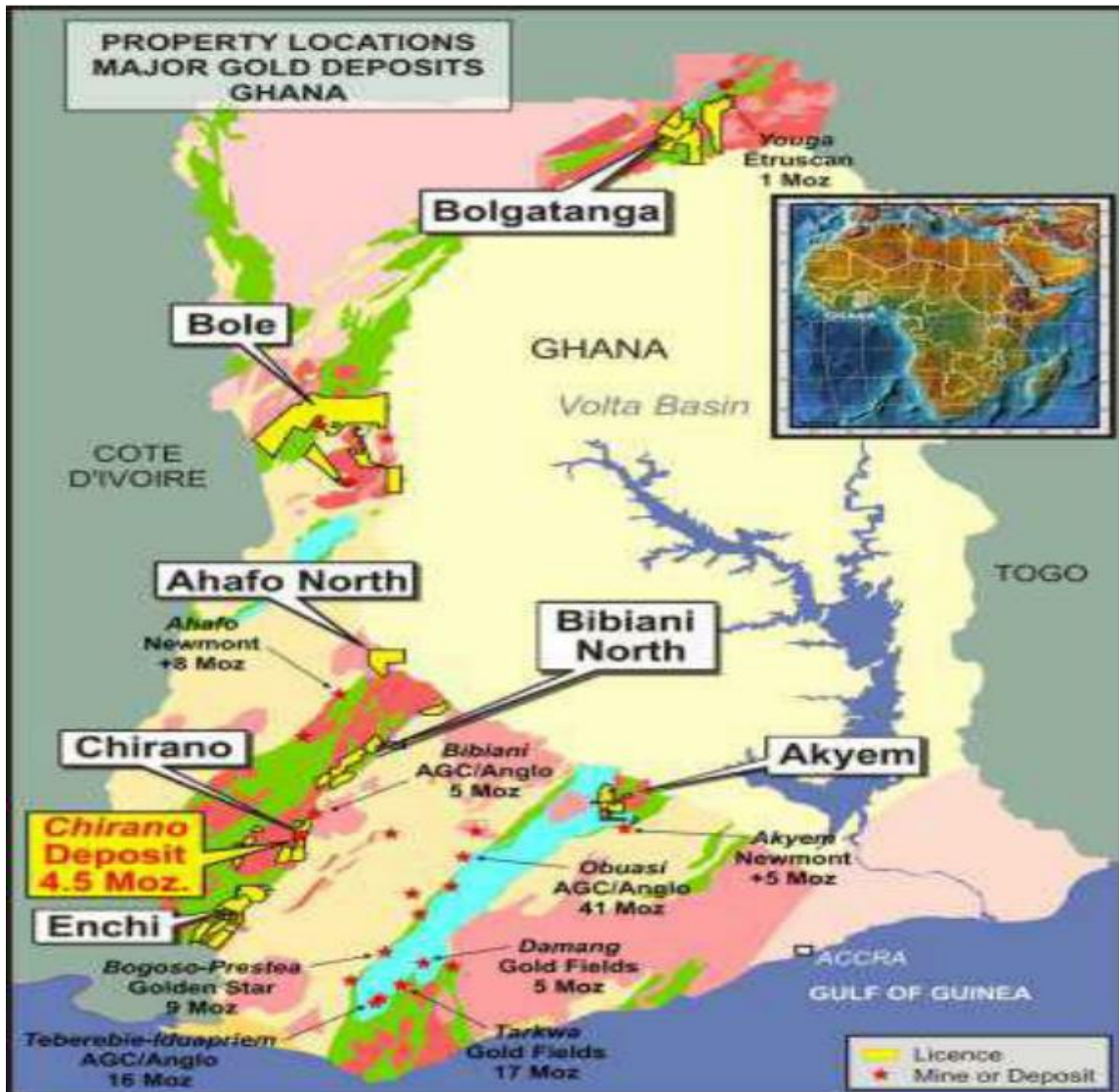
Therefore, the multinational companies sampled, which included AngloGold Ashanti, Gold Fields (Ghana) Ltd, and Asanko Ghana Gold, were listed among the largest mining firms involved in commercial production by the Chamber of Mines (Arko, 2013). Further, I selected multinational companies due to the requirements of the Organization for Economic Corporation and Development for such firms, including the promotion of social responsibility and sustainability. AngloGold Ashanti and Goldfields (Ghana) Ltd both have decades of mining history in Ghana and have experienced the different stages of the mine lifecycle including the pre-licensing/pre-operational, operational, and mine-closure/decommissioned phases. In contrast, Asanko Ghana Gold was concurrently involved in pre-operational and operational activities at different project sites. For example, at the time of the data collection, Asanko Ghana Gold was engaged in negotiations on

resettlement, compensations, and social agreement regarding development financing with a local community.

Moreover, the Chamber of Mines website indicates that AngloGold Ashanti and Gold Fields (Ghana) are among the three largest mining companies in the country, while Asanko Gold (Ghana) was awarded the prestigious company of the year award in 2017 and 2018. The mining company of the year award recognises performance in the area of social and environmental sustainability.

Also, I selected two main local governance institutions, which include the chieftaincy and the district assemblies, because these represent the interest of local communities during negotiations with mining companies (Lawer, Lukas, & Jørgensen, 2017). The Environmental Protection Agency and the Minerals Commission were selected as regulators since they are responsible for natural resource governance in Ghana. Finally, because of the role of NGOs in environmental and social mining advocacy (Dashwood, 2014), we selected the Friends-of-the-Earth (Ghana) and Wassa Association of Communities Affected by Mining (WACAM) due to their activism on sustainability issues. Particularly, WACAM is a community based on human rights and environmental mining advocacy NGO operating in local communities in Ghana.

Figure 3.2: Map of Ghana showing major gold mines, locations and study area.



Source: Arah (2015, p.3).

In the first week of August 2018, the selected case companies were contacted and informed through email that they were to be the focus of this research, and I later presented an invitation letter from my University indicating the purely academic nature of the study when I visited these offices. The managers of the selected case companies were then presented with documents outlining the objectives, method,

and tool of data collection, which was followed by a signed informed consent form, which allowed me to have access to specific staff for interviews.

3.6.4 Data Collection

Rowley (2002) suggests a case study protocol to provide guidance to data collection including an overview of the case study project (provided above), field procedures such as use of different sources of information, and access arrangements to these sources, and case study questions that the researcher must keep in mind. This is an important design aspect of case study because it affects reliability (R. K. Yin, 2003). The sources of information for the case study data collection usually include observations, interviews, audio-visual materials, documents and reports, archival records, and physical artefacts (Creswell et al., 2007; Rowley, 2002). In this study, the main sources of data were interviews, documents and archival materials. Consequently, the data collection was undertaken over a period of three months, from 16 August to 15 November 2018. The access arrangement first involved contacting the General Managers of the selected case companies for permission to interview their environmental and social sustainability managers. Additionally, documentation such as the annual sustainability reports, CSR and environmental policy documents were either directly accessed from the companies or through their websites.

Furthermore, the case study questions (see appendix 1), which were derived from the objectives of this study explored the initiatives or practices of the selected case companies in addressing the social and environmental impacts. Similarly, the questions examined how the companies were managing regulatory and other stakeholder pressures from the institutional environment. Further, based on a data collection protocol, the research questions consisted of broad theoretical areas developed from the literature review. These

areas covered social and environmental sustainability, stakeholder salience and analysis, institutional isomorphism, and conflicting stakeholder interests. Thus, interview questions based on the above sets of broad objectives provided guidance to the data collection process.

3.4.4.1 Interviews

Interviewing is the most commonly used method in qualitative research and usually focuses on meaning and experiences with respect to specific research participants (King & Horrocks, 2010). Interviews can be unstructured, focused with some structure (semi-structured) or highly structured like a questionnaire (Voss, Tsikriktsis, & Frohlich, 2002). Unstructured interviews have no fixed questions, and the researcher may use that flexibility to elicit as much information as needed while probing for more data based on the responses from the interviews. In semi-structured interviews, fixed questions are used, but they are open-ended so that interviewees have the leeway to provide answers based on their internal predispositions about what is important to say without undue restrictions. Structured interviews, however, have fixed questions with options from which the interviewee must make a choice.

In this study, a semi-structured interview (see appendix 1) approach was adopted for the multiple case study. In semi-structured interviews, the interviewer is able to refocus the questions, or probe for additional information, if something interesting or novel emerges from an interviewee (Baskarada, 2014). The purpose of this study was to collect data on the sustainability initiatives of the mining companies in addressing both proximate and long-term impacts; the practices in accounting for social and environmental sustainability; and the barriers facing the sustainability practices in the mining industry. The data on these were collected from research participants working for the selected case companies and those in

various stakeholder agencies who have interacted or have ongoing interactions with the mining companies in order to provide a comprehensive description and analysis.

3.4.4.2 Selection of Research Participants and Key-Informants

A concern with this study was to collect relevant data that reflect the issues under investigation – given that the selected case companies have several permanent employees, large settlement populations, and different stakeholder organizations. Sofaer (1999) notes that key informant interviews are one of the most common methods used in qualitative case study research. Additionally, Miles and Huberman (1994) argued that a cross-section of key informant is an important source of information in a qualitative study.

Moreover, Marshall (1996) indicates that key informants could provide the researcher quality data in a relatively short period of time, which would be prohibitively expensive and time-consuming to obtain through in-depth interviews with other members in a community. Considering this, the key informants were selected from 6 stakeholder organizations, which I identified through my contact with a community relations manager of a case company, the Minerals Commission, and the relevant stakeholders of mining as reported in the extant literature (see Essah & Andrews, 2016). These included traditional or tribal chiefs in three different mining companies in each region, programme managers of two NGOs, which were Friends-of the Earth-Ghana and Wassa Association of Communities Affected by Mining, two managers with the Environmental Protection Agency, the development planning officers of various municipal/district assemblies, regional inspectors of the Minerals Commission, and a senior officer of the industry association (Ghana Chamber of Mines). The criteria I used to draw up this list of key informants included the following: their knowledge of sustainability practices within the mining industry in Ghana; their willingness to participate

in the interviews; and their nominations by their organizations as research participants. These selected key informants represented a cross-section of the major stakeholder groups within and outside the mining communities.

The question as to how many interviews a researcher needs to conduct depends on theoretical and pragmatic reasons (Rowley, 2012). The theoretical reasons generally depend on the nature of the questions and the research strategy. However, Rowley (2002) advises that it is important to also consider pragmatic reasons such as the length of time interviewees are willing to make available for the interviews; the number of willing participants that can be found; time and resources for conducting interviews and analysis. It is also critical as far as feasible that people with different roles, experience, backgrounds, and any other differences that may impact the responses be included in the study (Rowley, 2012). Therefore, due to the constriction of time, resources, and the extreme difficulty in getting mining companies to agree to research into their sustainability practices, I was able to interview between 18 individuals for this study.

Participants selection considered who within the case organizations should be interviewed. Rowley (2012, p. 264) asserts that the first question “who is in a position to answer the research questions and provide the in-depth information and insights that the researcher seeks?”. As such, six research participants from three large-scale mining companies were selected because of their responsibilities for environmental or social sustainability (Table 3.2). These comprised of the environmental manager and the social sustainability manager from each of the three mining companies.

3.4.4.3 Conducting the Interviews

I began the interviews on 16 August 2018 after the selection of research participants, and the informed consent agreements were signed. I arranged a meeting with each of the respondents to introduce myself and then briefly explain why I was conducting this research and why it is relevant and may be of interest to them (Rowley, 2012). Each informant was then given a copy of the broad questions in the interview protocol, then I sought permission to record the interviews, after reminding them that everything would be treated confidentially (Rowley, 2012). This helped in building rapport and trust at the initial stage, which was critical to the interviewing process (Jacob & Furgerson, 2012). Further, some brief notes were taken as back-ups to the tape recordings but as much as possible, I tried to focus more on the interview itself while maintaining eye contacts.

The interview questions were broad and expansive to give scope to interviewees to express themselves at length and uninterrupted except where prompts were necessary to help interviewees from veering off in a non-useful direction (Jacob & Furgerson, 2012). Additionally, I used probing questions where necessary to collect additional in-depth data or to seek clarification to make sure that I understood the information the interviewee was providing. In the same vein, I wrote down probing questions that emerged out of the interviewee and explored further after the interviewee was done speaking, which avoided unnecessarily interruptions. Finally, each interview took between 33–85 minutes, after which I generated summaries.

3.4.4.4 Documents and Archival materials

Woodside and Wilson (2003) have observed that achieving a deeper understanding of the multiple perceived realities that occur in an organization over time requires the use of

multiple sources of data collection. Therefore, an analysis of documents provides useful additional information to the interviews and may help to counteract the biases of the interview. According to Bowen (2009), document analysis is a systematic procedure for reviewing both printed and electronic materials, which contain text and images recorded without the intervention of a researcher.

Documents help to identify aspects of reality outside the beliefs of research participants. Therefore, secondary data from printed, electronic, and archival sources were collected from the case and stakeholder organizations to help in triangulating the data from the interviews. Additionally, permission was sought from the management of the case and stakeholder organizations to gain access to their printed documents to gain further knowledge of sustainability practices within the mining industry. Electronic materials or digital data on the websites of relevant organizations were also accessed and evaluated. Relevant documents included annual sustainability reports, profile of the mining communities, environmental and CSR policy documentations, and the Chamber of Mines annual publications.

3.7 Data Analysis

Data analysis in a qualitative study refers to three concurrent flows of activities that involve data condensation, data display, and drawing and conclusions (Miles, Huberman, & Saldana, 2013). A thematic approach was employed to guide the data analysis. The thematic approach is a method for identifying and analysing patterns of meanings or themes (Clarke & Braun, 2014). It is a flexible tool which provides a rich and detailed account of coherent but distinctive themes. As suggested by Baxter and Jack (2008), a common mistake associated with case study analysis, which defeats their purpose, is the danger to treat each

data source and separately report the findings. Therefore, in conducting the data analysis, information from all the research participants, key informants, and documents and archival materials used were evaluated together to provide a comprehensive analysis of relevant issues to the objectives of the study.

After completing the scheduled interviews, audio recordings were transcribed verbatim into text form after I listened to them in preparation for further analysis, as suggested by Rowley (2012). In addition, the transcribed text was checked for grammatical errors, which were then corrected to improve readability. I listened to and transcribed many of the interview recordings soon after the process to have better reflections while the issues raised were still fresh in my memory and then made notes on major points. Further, I did 100% of the transcription of the interview, and then I re-checked for accuracy to the extent feasible. I did not send completed transcripts to interviewees for member checks as suggested by some authors because of the high possibility of losing their original voice in case they decided to edit significant portions of their statements. However, to enhance the credibility of findings, respondents were asked to verify interpretations as recorded by the researcher through further probing during the interviews based on the suggestions by Thomas (2006).

To undertake an in-depth analysis, an inductive thematic approach was used in generating coding categories directly from the data in the text, which was consistent with the abductive logic underpinning this study. However, as indicated by Braun and Clarke (2006), although this approach was data-driven, the process of coding was not completely free from my theoretical interest and the research objectives. Particularly, my theoretical interest related to stakeholder ability to pressure multinational mining companies and the instrumental and normative reasons underpinning the responses of corporate managers.

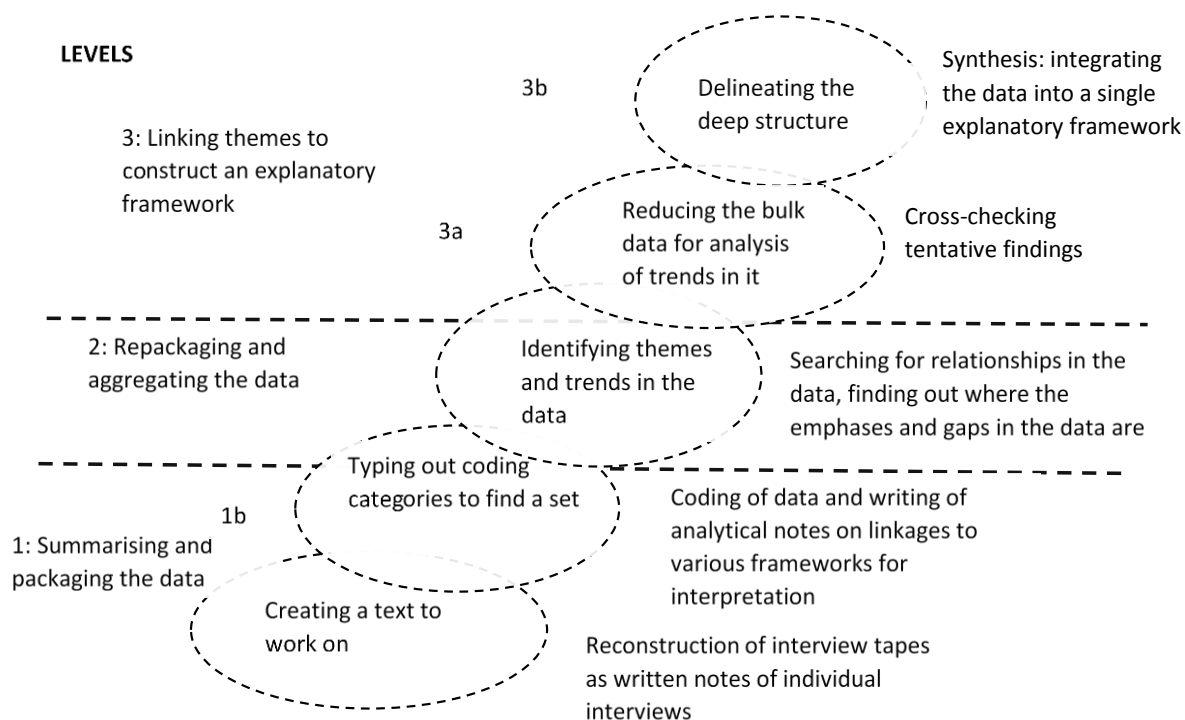
Moreover, to develop an explanatory framework from the multiple-case design, thematic analysis was conducted through reading and re-reading the data for themes related to the main issues relevant to my research objectives without engaging with literature at the early stages of analysis (Braun & Clarke, 2006). I employed the phases of thematic analysis as suggested by Elo and Kyngäs (2008), which involved familiarisation with the data, generating initial codes, identifying themes and trends in the overall data, reviewing themes, reducing the bulk of data by defining and refining the specifics of each theme, and producing the report by integrating the data into a single explanatory framework.

Vaismoradi, Turunen, and Bondas (2013) note that conducting an inductive coding includes writing notes and headlines on the margins of the written text, which helps in producing potential themes. Additionally, the categories were grouped into major headings within different strata so that each layer constituted a major category set in order to reduce the number of initial categories (Elo & Kyngäs, 2008). After the categorization, the next step was abstraction, which involved generating sub-categories of similar character and incidents and translating those into generic categories, which produced the main theme. In addition, before a single explanatory framework was developed, I re-examined the sub-categories and generic categories earlier identified and synthesized them before relevant theoretical propositions were made.

Similarly, I adhered to the directions provided by Gioia, Corley, & Hamilton (2013) for qualitative data analysis. This involved the first 1st-order analysis, which generated broad categories based on informant terms without filtering, resulting in volumes of initial themes. I then searched for similarities and differences in the 2nd-order analysis, which reduced the categories to manageable numbers and assigned with labels or descriptors. This second stage resulted in emerging themes related to both nascent and existing concepts, which have

theoretical references. Following this, the 1st-order terms and the 2nd-order themes provided a vivid representation from raw data to themes and the relationships to relevant literature. In drawing the major themes from the initial categories and concepts, I developed thematic networks to provide a map through organizing the basic themes into organizing themes and finally into global themes based on the objectives of this study (Attride-Stirling, 2001).

Finally, Microsoft excel was employed to organise data into a single interconnected form for analysis. Finally, in describing and interpreting data and theorizing meaning (development of theory), the frame of reference was on the socio-cultural contexts and the institutional environment that shape individual accounts and not on individual motivations. As such, I used a data analytical process adapted from Carney (1990) for an in-depth data analysis (Figure 3.3).

Figure 3.3: Ladder of analytical abstraction.

Source: Adapted from Carney (1990)

3.8 Research Rigour

To establish the research rigour in a qualitative study, four tests are widely accepted as imperative. These include construct, internal and external validities, and reliability (Rowley, 2002). This study employed the suggestions by Rowley (2002) to ensure the quality of this research. Consequently, construct validity refers to constructing operational measures for the concepts been investigated by exposing and reducing my biases through mapping questions for data collection to the research objectives. To optimise construct validity in this study, I used data triangulation by relying on multiple sources of information to construct reality, such as multiple interviews and documentations. The data triangulation

complemented method triangulation already indicated where different research techniques such as interviews and documents were used (Johnson, 1997). The triangulation of findings based on the interview data from stakeholder and managers was determined by the meaning units (similarities and differences), which constituted the emerging themes. Specifically, I analysed the data to reflect the stakeholder and managerial perspectives by presenting counterfactual arguments and opinions based on the findings.

Moreover, internal validity relates to the degree of confidence by which relationships between variables and sub-concepts can be established as distinguished from spurious relationships. Based on the abductive approach, I identified a list of rival explanations to explore the data creatively, which helped to explain the observed patterns other than the originally assumed cause. In addition, both data and method triangulation was employed, which helped to develop a better understanding of the issues and offer the basis to explain any observed relationships between sub-concepts (Johnson, 1997).

External validity in this research refers to the degree of confidence by which the findings of the case study are generalizable to theory. It is concerned with establishing the domain by which the findings can be established. As indicated earlier, this study aimed to achieve analytical or theoretical generalisability because I wanted to be able to compare and extend my findings to established theories (Eisenhart, 2009). Therefore, issues like whether this case study design is informed by existing theory and can therefore provide a framework for comparing the empirical findings of this study including a detailed description of the case study protocol were considered (Rowley, 2002).

Reliability refers to the consistency and stability with the analytical procedure – it relates to demonstrating that the operations of the study such as the data collection produced can be

replicated by the researcher or others to achieve the same results (Noble & Smith, 2015; Rowley, 2002). Reliability can be achieved by providing detailed documentation of data collection procedures and developing a case study database. However, despite the approaches in ensuring the quality and rigour of the methodology, there is a limitation related to respondents' position bias, which may have influenced them to over report past sustainability outcomes or present themselves as socially responsible companies engaged in sustainable mining (Amaeshi et al. 2016). Despite this, I ensured that the interviews data reflected different shades of opinions and satisfied the purposively selected sampling requirement of the companies and stakeholder groups (Amaeshi et al. 2016).

3.9 Ethical Considerations

This research was conducted in accordance with the Massey University's Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants. This was done because of the importance of ethical issues in social science research and as part of the approval process prior to data collection by Massey University. Accordingly, a discussion with my supervisor based on the guidance in the ethics application process, the data collection was judged to be low risk and did not require a full ethics review. However, while this was a low-risk study, the researcher was mindful of several ethical issues involving human participants such as informed consent, confidentiality, and anonymity of participating individuals and selected case companies.

The data collection process began with an explanation of the purpose of the study and the terms and condition of their participation. This was communicated to participants through emails and then presented in person (see appendix 3). Interviewees were given an information sheet (appendix 2) and asked to sign a consent form (appendix 4) before the

interview. Specifically, the information sheet contained the rights of participants including their voluntary consent, termination or withdrawal from the interview at any time, permission to be audio-recorded, obligation to observe confidentiality and anonymity, which were mentioned by researcher. This preceded the signing of the consent form, which demonstrated the voluntary participation and rights of participants to free, prior, and informed agreement and voluntary participation.

3.10 Conclusion

This chapter discussed two fundamental aspects of this study, which is the research methodology and the literature framework. The literature review stressed the relations between mining or extractive activities and social and environmental sustainability. However, there is a dearth of research on the social and environmental sustainability practices of large-scale mining companies in addressing impacts including the drivers for and barriers to sustainable implementation during the mine lifecycle in a challenging and non-enabling institutional context. The goal of this study is to reduce the knowledge gaps by empirically examining how large-scale mining companies in Ghana address the social and environmental impacts of their activities through their sustainability practices.

This chapter introduces a discussion of the philosophical foundation of the research process, including the methodology, approaches, and data analysis. Particularly, I took the view of the subjective perspective of social reality based on an interpretivist paradigm where research participants apply their views and insights to events and experience in different ways. An exploratory approach was found to be suitable because of the need to gain insights into an area of limited research. Consequently, a qualitative research method was chosen because an explorative-interpretive paradigm that seeks to understand social realities based

on individuals' interactions, actions, and reactions in a complex environment and explore issues within a continuum of human experience can be better situated within this approach. The adoption of an abductive approach was also described and justified as appropriate to this study. The next section presented theories within which an examination of sustainability practices in an institutional context may be situated. This resulted in the development of a theoretical framework based on stakeholder theory and institutional theory to guide the research methodology, particularly data collection and analysis, and subsequent discussion of the empirical findings of this study.

Afterwards, a multiple case study method was used to explore and examine the initiatives of large-scale mining companies in addressing the social and environmental impacts throughout mine lifecycle. This was an appropriate method to gain in-depth understanding of the organizational processes that inform sustainability practices in a complex institutional environment with multiple, divergent, and contradictory logics. The units of analysis in this study covered broader areas of companies' sustainability practices related to social and environmental issues. Additionally, the data collection approaches and protocols were justified. Multiple methods of data collection, such as interviews and documents, were used (method triangulation) while different data sources from interviews and documents helped in data triangulation. Participants were selected from within and outside the case organizations using a purposive sampling technique. Further, the data analysis process involved data coding into themes, finding relationships between variables, organising patterns into higher order sub-categories for abstraction through producing generic categories, and crosschecking the generated sub-categories, so they could be integrated into a single explanatory model to address the research questions. Finally, key tactics suggested

by (Rowley, 2002). were employed to ensure the quality of the qualitative research design by minimising threats to validity and reliability.

Chapter 4

Environmental Sustainability Practices in Addressing Mining Impacts

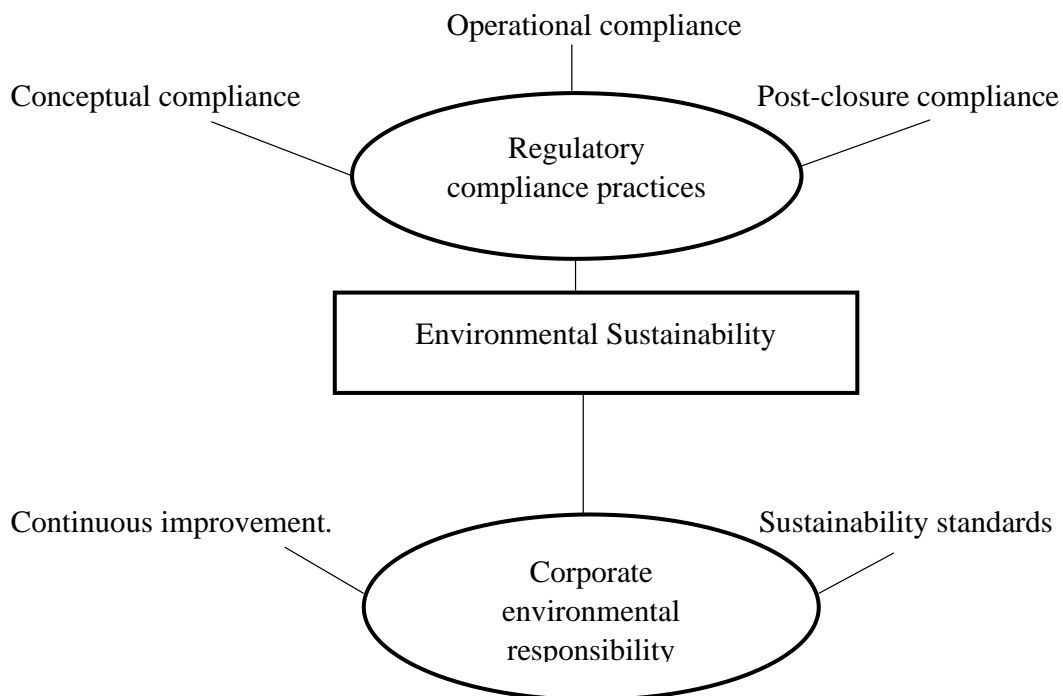
4.1 Introduction

This chapter reports on the responses to the question: *‘How do the sustainability initiatives of large-scale mining companies address their environmental impacts throughout the mine lifecycle?’* This is the first of four chapters that presents the findings from the empirical study. The purpose of this chapter is to present the findings on the data analysis regarding the environmental sustainability practices of selected large-scale mining companies because of the proximate and long-term risks associated with the extraction of solid minerals. As discussed previously, mining presents critical risks to environmental sustainability during the operational phase whilst the legacies of environmental impacts after mine closure remain major challenges in developing countries. Accordingly, K. Söderholm et al. (2015, p. 130), identified such mining impacts to include “waste rocks, tailings, acid mine drainage, airborne dust and other contaminants, which are deposited on land and in the air and water” (p. 130). To address these environmental impacts, large-scale mining companies are implementing sustainability initiatives throughout the mine lifecycle.

However, while mining companies are pushing a narrative of contributing to environmental sustainability in their operational domains, there is limited understanding of how they are addressing the proximate and long-term impacts associated with their activities. Therefore, this chapter examines the sustainability initiatives of large-scale mining companies in addressing the environmental impacts throughout the mine lifecycle in Ghana.

The main themes and sub-themes that emerged from the data are illustrated in thematic networks in two implementation categories. These are sustainability practices in compliance with environmental regulations and those based on self-regulatory initiatives. The thematic network in Figure 4.1 serves as the frame of reference to present the findings in this chapter. It shows the major themes regarding the drivers for environmental sustainability while the sub-themes indicate the mechanism by which large-scale companies address their impacts.

Figure 4.1: Major themes and sub-themes regarding environmental sustainability practices



4.2 Structure of Chapter

The remainder of this chapter is organised as follows. Section 4.3 describes and examines the environmental sustainability practices, and section 4.4 synthesizes the findings while 4.5 provides the conclusion in this chapter.

4.3 Environmental Sustainability Practices

Environmental sustainability concerns emerged in the 1960s resulting from increased ecological risks associated with poor resource management in the extractive industry. This section covers the sustainability practices or mechanisms of selected large-scale mining companies in addressing environmental impacts on water (quality and quantity), biodiversity, ambient climate (air and noise pollution) and soil quality. The data demonstrate that the major goal of the environmental sustainability practices of the selected case companies is impact mitigation, which involves two major mechanisms – *regulatory compliance practices and corporate environmental responsibility*. The data indicates that environmental sustainability practices cover the phases of mining development including the pre-operational, operational, and post-operational stages. The following sections elaborate on each of the organising themes related to the mechanisms for addressing environmental impacts (Figure 4.1). The table below (Table 4.1) provides a detailed summary of the environmental sustainability practices in addressing mining impacts throughout the mine lifecycle in Ghana.

Table 4.1: Environmental sustainability implementation in Ghana.

Environmental sustainability practices (ESP)	Strategy	Requirement	Objective
Regulatory compliance practices 1. Conceptual 2. Operational 3. Post-closure	Scoping report, Environmental impact assessment, Compliance monitoring Environmental management plan (EMP)	Environmental permit, mining license EMP certification Closure certification	Impact mitigation Impact prevention Land reclamation
Corporate environmental responsibility 1. Global sustainability standards 2. Continuous improvement	Sustainability reporting, environmental audits and certification Environmental charter/policy	Legitimation and social license Perceived ethical obligation	Standardization Ethical and strategic motivations

4.3.1 Regulatory Compliance Practices

Solid mineral extraction is a non-renewable activity with inherent impact on the environment, presenting challenges such as deforestation, pollution, loss of fauna and flora and harmful ecological exposures across the globe, particularly in developing countries. Therefore, mining countries have established various regulations to protect the environment and social processes from the impacts of the extractive sector. Accordingly, the findings indicate that the major regulations in Ghana guiding licensing, operational, and post-closure

activities include, but not limited to the Environmental Assessment Regulations, 1999 (L.I. 1652) and the Minerals and Mining Regulations, 2012 (L.I 2173).

In this regard, the environmental managers of the selected case companies interviewed in this study identified regulatory compliance as the basis of their policies and practices. The data indicate that the existing environmental and mining regulations and schedules to the permit requirements in Ghana drive environmental sustainability practices because of the increasingly punitive sanctions regime for non-compliance. Additionally, the data shows that large-scale mining companies' regulatory compliance practices aim at achieving conceptual, operational, and post-operational environmental performance. The data show that regulatory compliance requirements provide the foundation for environmental sustainability practices. For instance, the statement below reflects the views of the environmental managers of the selected case companies, which shows that the environmental sustainability practices in addressing impacts are driven by regulations regulatory compliance requirements.

The permits that are issued to the various companies comes with various conditions. We also as a company needs to put in place measures to address those conditions. Everything we do is geared towards environmental sustainability. Everything we do fit into that. In fact, the whole idea of the mining regulation is to ensure sustainability, to make sure that the generations yet unborn also come to meet whatever we have now. That is the whole idea. (Environmental Manager, Company A).

Additionally, the manager further explained that:

Talking of the environmental policy of a mining company, the first thing that everybody is interested in is the commitment to comply with the host country's legal and regulatory regime. This is explicitly stated. There is no ambiguity about that in the charter (Environmental Manager, Company A).

The data shows that the environmental sustainability practices in compliance with the country's regulations occur throughout the phases of mining development. Accordingly, the specific regulatory compliance practices or mechanisms are categorized into three sub-themes – *conceptual, operational, and post-closure environmental sustainability practices*, which, are described and examined in the following sections.

4.3.1.1 Conceptual Compliance Practices

In this study, conceptual or pre-licensing compliance practices refer to activities of mining companies directed toward securing an environmental permit and mining license before the start of extraction and beneficiation activities. It involves a life-cycle assessment, which applies sustainable thinking into the initial mining phase by considering the likely environmental impacts associated with the extractive process and suggesting mitigation measures. The data shows that conceptual compliance practices are based on the mandatory requirements of the Environmental Protection Agency, which involve any activity that has a potential impact on the environment. In this regard, the environmental sustainability practices or mechanisms at this stage involves conducting an initial scoping study and subsequent environmental impact assessment (EIA) based on all specified impact parameters. The EIA processes lead to the issuance of the terms of the reference by the regulator based on the proposed mitigation measures to address known and potential environmental impacts. For example, this statement below reflects the views of the selected regulatory agencies.

Large-scale mining is an environmental impact assessment mandatory project or undertaking. Therefore, a company referred to as proponent have to undertake a study that entails many processes from scoping reporting to environmental management plans. (Area Manager, EPA).

The environmental impact assessment process involves scoping that identifies relevant environmental issues relevant to the type of mining activity resulting in terms of reference for the company applying to undertake mining development. Additionally, the terms of reference from the scoping study and environmental impact assessment are important because of the different environmental compliance requirements for underground and surface mining activities. Given this, an Environmental Manager of company B involved in surface mining stated that:

The environmental impact assessment involves an evaluation of existing parameters relating to terrestrial condition, biodiversity including fauna and flora, water life, soil resources, and climatic conditions.

Similarly, a director at the Environmental Protection Agency identified the same parameters as required in the environmental impact assessment, but included social systems, human settlements, and the local economy as embedded in the environmental sustainability practices at the conceptual stage. The findings posit the significant of the conceptual environmental practices of large-scale mining companies as critical to constructing the baselines for monitoring and assessment during the operational and mine closure stages of the mine lifecycle as indicated in previous studies by Morrison-Saunders et al. (2016) and K. Söderholm et al. (2015). For instance, the director of the Environmental Protection Agency succinctly explained the requirements of the conceptual phase of the mining lifecycle.

Mining companies identify the likely environmental impacts of their operations...and then they spell out the mitigating measures or the measures they would take to either eliminate, minimize or manage the impacts. If they are acceptable, then they also develop provisional environmental management plan as well as decommissioning plan as a proposal. These help us to evaluate the report and if it is acceptable, then an environmental permit is issued.

Taken together, the environmental sustainability practices of large-scale mining companies at the conceptual or pre-operational stage depend on predictive impact assessment and the generation of impact mitigation proposals, which are anchored around the impact assessment process. Given this, the environmental impact assessment process as a conceptual or pre-licensing requirement demands the active participation of stakeholders prior to the issuance of a permit. However, apart from regulatory agencies, there is little participation and engagement by other stakeholders in pre-licensing decisions. This situation is further examined in the discussion chapter (chapter 8). While the practices at this stage are mostly conceptual, they satisfy an important requirement in the mining sector and are the mechanisms for addressing such impacts, including air pressure vibration, involuntary resettlement, and compensations for the loss of livelihoods. Thus, the next section examines the operational environmental compliance practices in the domains of water (quality and quantity), management of tailings storage facilities, biodiversity (fauna and flora), terrestrial condition (soil quality), and climatic ambience (air and noise pollution).

4.3.1.2 Operational Compliance

The operational compliance practices are the aspect widely recognized in the literature because it involves impact mitigation mechanisms to address the environmental consequences of mining activities. Thus, the data show two types of operational compliance practices – *Proactive* and *Residual operational practices*.

4.3.1.2.1 Proactive Operational Practices

In this study, proactive operational practices refer to mechanisms that involve anticipating likely environmental impacts and implementing preventive measures relating to proximate and long-term sustainability. The main objective of proactive operational compliance is impact prevention. Regarding the domain of water quality and quantity, environmental Managers of the selected case companies suggested the following methods in preventing risks and exposures. For example, the environmental managers of the selected case companies agree on this statement:

The evolved practice is the use of high-density polyethylene (HDPE) liner and clay to line the base of the tailings storage dams due to their very low permeability resulting in zero infiltration of chemicals into ground water (Environmental Manager, Company A).

Further, mining companies have introduced *water-processing plants* to allow the reuse of some wastewater and reduce water consumption intensity. Accordingly, the Environmental Manager of Company ‘B’ described this practice stating that:

One initiative is that we recirculate some of the water that we have already used so that we are not drawing more from the natural environment, and that is also a way to minimize the use of water.

Thus, this practice of water recycling is geared towards reducing the impacts of dewatering, which is an activity associated with maintaining a dry cloth for mining activities. As such, while dewatering reduces the water table and the cone of depression, which affects the quantity of water, water recycling and treatment ensures both quality and availability to surrounding mining communities. These environmental sustainability mechanisms, including the use of clay and HDPE and recycling address water consumption intensity of large-scale mining companies. Thus, proactive operational practices geared towards impact

prevention are increasingly critical to environmental sustainability, although the findings demonstrate that the existing regulations are tilted in the direction of mitigation. It is also recognised to be a critical part of mine closure strategies regarding ecological restoration. This is further examined in the discussion chapter (chapter 8). Additionally, the selected case companies are pursuing new methods and technologies, particularly around preventing infiltrations from their tailing's storage facilities into surface and ground water. For instance, the Environmental Manager of company 'C' described their proactive strategy this way:

I joined the mine in 2008, and up until 2010, we were having challenges with managing our water on the tailing storage facilities, but since we constructed three treatment plants, two at the south and one at the north site, this is no longer a major issue. Now, because of the water treatment and recycling processes in our mining activities, we do not have the challenges we had when I first joined the mine.

Further, a common practice for the selected case companies regarding proactive operational mechanisms involves *compliance monitoring strategy*, which includes methods of monitoring mining installations to either prevent or quickly mitigate environmental impacts using new engineering solutions. For example, an Environmental Manager of company B has this to say:

We have dam sumps dug around our TSFs [tailing storage facilities]. When we anticipate any potential seepage, we have dug a channel and we have a pump, which pumps decant water to the tailings storage facility, and we can only release that water if it comes through our treatment plant. Therefore, the initiative, [includes] a water treatment plant that treats our processed water before it goes out to the environment.

Thus, operational compliance practices for environmental sustainability are largely focused on addressing impacts on water, soil quality, and preventing fauna mortality associated with pollution of surface water in the surrounding ecosystem.

4.3.1.2.2 Residual Operational Practices

Residual operational practices include initiatives related to managing inherently unavoidable environmental impacts associated with mining activities. This type of practices by selected case companies is in line with the view that mining activities by their nature present certain environmental and social impacts, which can only be managed. The data analysis identified climatic ambience impacts (*air pollution* and *ambient noise*), and *accidental effluents* as unavoidable environmental impacts requiring a residual operational mechanism to address them as required by Environmental Impact Assessment Regulations. The Environmental Managers of the selected case companies affirmed this statement:

Ambient air pollution and mining activities are largely linked intrinsically to dust generation, even the mobile fleet, the vehicles alone have their own impacts on atmospheric dust, and most of the roads in these mining communities are feeder roads. We know that when we are dumping waste rocks, and we put them on top of each other, it comes with dust and noise generation. (Environmental Manager, Company B).

Therefore, the residual operational practices in this respect involve managing or mitigating environmental impacts that cannot be prevented. For example, the Environmental Manager of company A provided an example of a residual operational strategy stating that:

What we have done is to put in a global positioning system, which is an engineering control in the light vehicles that drive through the communities. This serves as a speed control mechanism, and once we check the speed levels of our vehicles, the issue of noise and dust are managed.

In a similar vein, the Environmental Manager of Company A mentioned the regular watering of the feeder roads in the local communities to mitigate air pollution from the activities of heavy-duty vehicles. The residual operational compliance practices are geared towards controlling the magnitude of noise and air pollution in compliance with the guidelines of the

Environmental Protection Agency. For instance, regulatory agencies using the baseline ambient noise and atmospheric dust levels in the mining area provides standards, which guide mining activities. Therefore, mining companies implement these initiatives to mitigate the impacts of the dust and noise generation associated with their operations. Further, regular monitoring, sample testing, and the construction of dam sumps are practices in addressing accidental effluents in tailings management and beneficiation processes.

4.3.1.3 Post-Closure Practices

The section reports the practices or mechanisms of case companies in addressing mine closure sustainability challenges. Post-closure compliance practices in this study refer to the strategies and initiatives directed toward mitigating the impacts of mining activities during and after mine decommissioning. The findings identified post-closure practices to include *land reclamation*, which involves *impact mitigation* and *afforestation/revegetation*. The post-closure mechanisms are mainly aimed at addressing environmental impacts on biodiversity (fauna and flora) and soil quality through land rehabilitation. This statement represents the views of the managers of the Environmental Protection Agency.

Once [companies] have been permitted, after 18 months, they are supposed to submit their environmental management plan [EMP]. There is a very important section in the EMP that talks about closure and reclamation. (Area Manager, EPA).

Table 4.2 provides some of the statements of research participants on post-closure requirements and practices.

Table 4.2: Practices of large-scale mining companies during the post-closure phase

Post-Closure practices	Interviewee Statements
Afforestation/Flora Restoration	<p>We have a liability estimate that shows how much it will take to close every facility that we have on the mine. When you are doing afforestation, you have to make sure that you mimic the natural environment of the area as much as possible. We are going to do progressive rehabilitation, which means that, as we mine, then we also close those areas already mined (Environmental Manager, company 'B')</p> <p>The local policy is that, you must use at least 40% of species. You cannot use only foreign species, so we did our reclamation based on this requirement (Environmental Manager, Company 'B').</p> <p>You stabilize it with leguminous plants to recharge and recycle the nitrogen fixing plants, then when it comes to the plants that existed...a minimum of 40% of the indigenous plants that were previously there should be planted, and this stock was taken during the EIA stage, so we know what existed at where. We have the vegetation maps of all that (Environmental Manager, company 'A').</p>
Impact Mitigation	<p>There are some of the activities such as water management, which is done during the operational phase but is tailored towards mine closure as you want to make sure that you do not alter the water chemistry.</p> <p>We have a pool of water at one section per the design of the tailings storage facility, so we have to drain the water and treat the discharge and then dry the system up, carpet it with our growth medium and it is good to go. Where there is the need to do phytoremediation, using plants to remove toxins from water or soil, it will be done (Environmental Manager, Company 'A').</p>
Reclamation Bond	<p>The LI 1652 mandates mining companies to post a reclamation bond, which is like a commitment fee in the equivalence of the disturbance that will be done. For example, if the total liability (environmental disturbance) that you will cause is say 1,000 dollars, then you are supposed to post a bond in the equivalent of 1,000 dollars. You must post a bond, which will be in cash and in the form of bank guarantees because you need money to work, but that is a commitment (Environmental Manager, company 'A').</p>

The statements in Table 4.2 represents the views of the environmental managers of the case companies. They show that while impact mitigation is largely an operational requirement, it is increasingly recognized as essential to effective post-closure land

reclamation. For example, the environmental managers of Company C noted the difficulty in cleaning polluted ground water. The mechanisms for impact prevention and mitigation during the operational phase are also directed towards mine closure land reclamation. This extends the framework for post-closure sustainability practices to include every phase of mining development, although this is often not reported in the literature. Further, the post-closure compliance practices based on the regulatory requirements require large-scale companies to backfill excavated pits, but this applies to surface mining. This also involves dewatering closed mined pits before backfilling. Other post-closure practices include the restoration of soil nutrients using plant growth medium to support agricultural activities. However, there is no compliance requirement for fauna return, and so the practices of mining companies in this regard are random and non-specified. For example, this statement reflects the views of the case companies and regulators.

We did not physically put animals there, we did not. Depending on the vegetation and how the place is, you have these animals, returning by themselves. We did not send grasscutter, snail, or whatever was there, no. We did not put animals there. Apart from planting, the animals come by themselves. That is why we call it the return of fauna (Environmental Manager, Company 'B').

Finally, with regards to flora restoration during the mine closure phase, there is a requirement for mining companies to reintroduce 40% of the original plant species. For instance, this statement represents the findings based on data from regulators and the case companies.

The local policy is that [we] must use at least 40% of plant species. You don't have to use only foreign species... When [we] are doing afforestation, [we] have to make sure that [we] mimic the natural environment of the area as much as possible because if [we] don't do that, it becomes difficult to meet the requirement. (Environmental Manager, Company B).

Taken together, the findings relating to regulatory compliance practices show that regulations largely drive the environmental sustainability practices of large-scale mining companies from activities before the start of mining to post-closure implementation. However, beyond the above sustainability practices related to regulatory compliance, the data indicates that large-scale mining companies have embraced environmental management system based on the institutionalised self-regulatory practices of the global mining industry as suggested by Dashwood (2014); Fonseca et al., (2014); and O’Faircheallaigh (2015). Therefore, the next section reports the second organising theme in Figure 4.1 regarding corporate environmental responsibility as a sustainability implementation pathway for the selected case companies.

4.3.2 Corporate Environmental Responsibility

Corporate environmental responsibility (CER) or corporate environmentalism refers to the recognition of the relevance of environmental issues to the operation of a company and the integration of ecological concerns into a company’s policy and practices. Corporate environmental responsibility assumes that full compliance with environmental regulations is no longer adequate to satisfy the expectations of stakeholders, and therefore mining companies are implementing beyond compliance initiatives to address existing and emerging sustainability risks. Accordingly, CER may reflect the internal cognitive pressure of a company based on ethically related expectations.

The basic themes associated with corporate environmental responsibility initiatives based on the data analysis include *global sustainability standards and continuous improvement*. These two themes inform various self-regulatory practices that contribute to environmental sustainability implementation of the selected case companies in Ghana.

4.3.2.1 Global Sustainability Standards

As suggested by the theoretical framework, a firm's level of internationalization and size may affect its adoption of environmental sustainability practices. As a result, large-scale mining companies globally, realising their responsibility towards society, have employed various pro-environmental measures that extend beyond regulatory compliance. In the same vein, the data shows that large-scale mining companies in Ghana employ many international standards such as the Global Reporting Initiative (GRI), the International Organization for Standardization (ISO14001), and the International Cyanide Management Code (ICMC) to promote international best practices. Such global standards involve adherence to codes and standards towards enhancing environmental sustainability. For example, a selected case company within its first two years of gold production is employing sustainability standards to guide and manage its environmental sustainability practices.

We are a baby mine, but we are currently on the trajectory of becoming ICMC certified. We have done the verification audit not long ago. We also have plans to be ISO 14001 certified in terms of the environmental aspect and occupational health and safety. (Environmental Manager, Company A).

Further, the remaining selected case companies that have been operating much longer are signatories to global sustainability standards and submit annual reports or go through environmental audits for re-certification. For instance, the environmental manager of case company A noted that while Global Reporting Initiative requires annual sustainability reporting International Cyanide Management Code and International Organization for Standardization engage in audits as a process for certification. A review of the documents of the selected case companies shows the annual publication of sustainability reports, which is publicly available on their corporate websites and constitute the basis of the industry

association's annual company of the year awards by the industry association (Ghana Chamber of Mines).

The findings further indicate that the application of global sustainability standards by the selected case companies in Ghana has the goal of achieving standardization across operational domains in the global mining sector. The data shows that the level of internationalization of the case companies influences their policies and practices in the mining sites in Ghana. The statement below reflects the views of the managers of the selected case companies and the regulators:

We have the global sustainability policy for [company name withheld], and we have the community relations policy which is site-specific. So, we have the sustainability policy, which is the broader [global] policy that has been developed and this cascades down to all the [mining] sites. We have that in place, and basically, it talks about our relationships with communities, our stakeholder engagements in terms of best environmental practice, safety standards and all that. (Environmental Manager, Company B).

Moreover, the specific environmental sustainability practices based on the various global sustainability standards include green sourcing, supply chain management, eco-efficiency, and clear production technologies and innovations. For instance, the large-scale mining companies reported that they have enhanced their sustainable supply chain management practices by only sourcing cyanide from producers that are certified by the International Cyanide Management Code. The following statements represent the views of the environmental managers of the selected case companies.

We have a cyanide management plan, which is a document that guides whatever we do. On the manufacturer's front, we are interested in the company that supplies us cyanide being certified by the International Cyanide Management Code [ICMC]. The ICMC standard requires them to conform to the United Nations guidance or requirement for shipment of dangerous chemicals.

This protects focal companies against upstream collaborating firms who partake in unethical and unsustainable behaviours. The implementation of global sustainability standards improves a company's environmental practices and management systems while securing legitimacy with both regulatory agencies and other external stakeholders. For instance, this finding agrees with a suggestion by Sajjad, Eweje, and Tappin (2015) that companies who seek out ethical connections with sustainable partners increase their brand loyalty, which in the mining industry may include gaining legitimacy and acceptance from the community of stakeholders.

Similarly, the companies indicated that using the International Cyanide Management Code guidelines in handling cyanide in their tailing storage facilities helps in maintaining a detoxified concentration to prevent fauna mortality and protect local communities. This is important to the companies because they know that implementing beyond regulatory strategies help to better handle concurrent reclamation pressures as part of mine closure. This indicates that selected case companies employ the ICMC as a proactive mechanism in addressing the common challenges with mineral processing and beneficiation observed by Fashola et al. (2016). Therefore, embracing and implementing voluntary corporate environmental responsibility based on global influences are intended to enhance sustainability practices throughout the mining lifecycle. The data also shows that selected case companies have incorporated practices based on international reporting standards and codes into their environmental management system.

Further, the Environmental Manager of company 'B' spoke about the significance of the Global Reporting Initiative (GRI) to their corporate environmental responsibility:

For environment, we are reporting on water use and then our water treatments plants. We report on chemical usage and waste generation – how much waste to dispose on site, those we send outside, and how much is hazardous and non-hazardous? When we are operating, we report on the amount of ore, electricity usage, etc. Once a company meet the GRI reporting standards, it gives you a very good outlook in the external environment.

This corporate environmental responsibility practices relating to sustainability reporting standards highlight efforts by mining companies to embrace proactive sustainability initiatives. This is consistent with the assertion of Merli, Preziosi, & Ippolito (2016). For instance, a mine manager commenting on the rationale behind subscribing to the ICMC states that:

We were previously using briquettes for transporting cyanide. We were bringing it here, and the boxes were burnt within the plant, but we said that we can be better by signing on to the International Cyanide Management Code.

The above statement is suggestive of improvement in the handling of dangerous chemicals like cyanide as a result of the standards required by ICMC. Overall, the practices of selected case companies in compliance with voluntary sustainability reporting standards are a response to internal organizational characteristics such as their level of internationalization and the effects of transnational influences, which is further examined in chapter 8.

4.3.2.2 Continuous Improvements

Continuous improvements in this study refer to the sustainable, innovative policy and practices of large-scale mining companies involving the introduction of new methods, technologies, and updates. All the selected case companies in this study reported continuous improvement as part of their environmental policy, which constitutes a voluntary initiative

to achieve sustainability. For instance, the Environmental Manager of company ‘A’ indicated that:

There are clear statements in the policy that commit the company to undertake [activities] based on the Environmental Assessment Regulation and the Minerals and Mining Act. However, there are also opportunities for continuous improvements like what you have in any good environmental policy.

Therefore, continuous improvement initiatives are increasingly becoming integral to the environmental management systems of companies based on a proactive approach to sustainability. As a result, continuous improvement is presented as beyond compliance initiative, demonstrating commitments to achieve environmental sustainability. Accordingly, the Environmental Manager of company ‘A’ puts it this way:

When it comes to water quality, depending on the area, if it has to do with management of water resources around the fuel farm, using an indicator like Total Petroleum Hydrocarbon (TPH) alone might not be enough. There might be the need to go further down. There are other hydrocarbon indicators... the more dangerous ones are what we call the aromatics such as polycyclic aromatic hydrocarbons (PAH). We are always looking for ways to enhance our environmental practices through enhanced risk assessments and practices.

The manager further explained the lack of regulatory standards to assess certain environmental impact indicators in Ghana and posited that their impact assessment and mitigation go beyond the requirements of industry regulators such as the EPA and the Minerals Commission.

In other jurisdictions, they have guidelines for the polycyclic aromatic hydrocarbon compounds. The Environmental Protection Agency, for example does not have a standard. I think it is adopted for Total Petroleum Hydrocarbon level in water and soil in Ghana. Therefore, it is important to go into all these areas in our monitoring and assessment. It is something that we at the company level, it will surprise you, we go beyond just what the regulator requires.

These comments bring attention to why different institutional environments with similar regulatory and monitoring enforcement regimes might still have different levels of corporate environmental performance. Additionally, corporate environmental responsibility practices are influenced by transferring and localising the knowledge acquired by selected case companies from other operational areas in Ghana. As such, internationalization as an internal characteristic of multinational firms is further examined in chapter 8, especially regarding the suggested holistic framework for sustainability implementation (section 8.6). Moreover, the findings on the utilisation of global standards and mechanisms for continuous improvement relates to a study by Gao et al. (2019) regarding the effects of institutional pressures on corporate environmental responsibility suggests that selected case companies facing regulatory pressure might embrace perceived ethical obligation. As such, practices based on continuous improvements may be related to the nature of a company's internal characteristics as proposed in the theoretical framework.

4.4 Synthesis

This section provides a synthesis of the findings in this chapter by clarifying the relationship between regulatory compliance practices and corporate environmental responsibility initiatives in addressing the impacts of minerals extraction in Ghana. Legal or regulatory compliance is the key driver shaping the environmental practices of large-scale mining companies. Consequently, the regulatory compliance practices or mechanisms of selected case companies are aimed at environmental impact mitigation and prevention prior to closure while land reclamation practices at the post-closure stage address flora restoration, water and soil quality.

Additionally, regulatory evolution based on legislative amendments and specified compliance standards, predictive impact assessments, and proactive interventions is addressing existing environmental effects and emerging concerns. Similarly, regulatory processes involving Environmental Protection Agency permits, mining license, environmental management plan certification and closure agreements require compliance to established environmental impact assessment parameters (Morrison-Saunders et al., 2016). Key sustainable environmental impact mitigation practices cover tailings storage management (waste treatment and seepage prevention), monitoring and testing, water recycling, and engineering control (ambient noise and air pollution reduction).

Further, to respond to internal and external stakeholder pressure, selected case companies have embraced corporate environmental responsibility practices based on international standards and continuous improvement. For instance, most of the companies are signatories to ISO 14001, International Cyanide Management Code, and the Global Reporting Initiative guidelines, which are supposed to promote higher environmental management standards based on global best practices. However, using global standards and having certification is not necessarily suggestive of effective sustainability mechanisms for addressing environmental impacts in developing countries.

This finding is significant because the selected case companies operating in Ghana are multinationals, which might confirm that internal organizational characteristics such as level of internationalization, size, and history of sustainability implementation shape firms' environmental management practices (Buysse & Verbeke, 2003; Delmas & Toffel, 2011; Orlitzky et al., 2011). Consequently, the selected case companies claim to be employing or are in the process of incorporating practices such as supply chain management, green sourcing, and circular economy (water recycling) into their environmental management

systems. This might suggest that selected case companies are striving to embrace beyond compliance practices in the form of their corporate environmental responsibility practices. Given this, research participants, including regulators, municipal assemblies, and even tribal chiefs, acknowledged some improvements in the environmental management practices of large-scale mining companies. For example, the regulatory agencies noted reductions in the frequency of hazards, accidents, and chemical infiltrations into ground water, as this was a frequent occurrence in the past.

Importantly, because the selected case companies experience similar regulatory pressures based on the Environmental Impact Assessment and the requirements of the Mining and Minerals Act, there were no major differences in their environmental sustainability practices. For example, all the case companies used the same methods, such as clay liner in preventing seepages from their tailing's storage facilities. Selected case companies have dug dump sumps around the facilities to monitor water quality, detect percolation of wastewater, and they engage in concurrent land rehabilitation as a mine closure mechanism.

4.5 Conclusion

This chapter examined the first research questions: *'How do the sustainability initiatives of large-scale mining companies address their environmental impacts throughout the mine lifecycle?'* First, this chapter shows that in terms of a mine's environmental footprints, the key assessment parameters include climatic ambience, terrestrial condition, biodiversity, and effects on human settlement and the local economy. Regarding the environmental sustainability practices, this chapter reported themes including *regulatory compliance practices and corporate environmental responsibility*. Specifically, the findings show that although environmental sustainability practices are based on regulatory compliance,

corporate managers claim to be embracing international standards to improve on their mechanisms for addressing impacts. Further, the large-scale mining companies have common environmental sustainability policies and practices due to isomorphic factors relating to institutional pressures and internal organizational characteristics.

However, the disproportionate emphasis on regulatory compliance as the foundation for environmental sustainability practices may be inadequate. For instance, despite the relatively robust environmental policy in Ghana, there are still gaps in the implementation mechanisms compared to international best practices (Armah et al., 2011; Ayee et al., 2011). Therefore, selected case companies have also embraced self-regulatory practices based on global extractive industry initiatives to promote corporate environmental responsibility. Particularly, the findings show that corporate environmental responsibility implementation is manifested through practices based on *sustainability standards* and *continuous improvement*. As a result, selected case companies are implementing initiatives including green sourcing, supply chain management, water treatment and recycling to reduce their resource intensity, and new technologies such as the use of HDPE, clay liner, and water recycling to promote sustainable mining.

Taken together, the findings show the dynamics of environmental sustainability practices during mining development as a complex interaction between regulatory compliance and corporate environmental responsibility. Additionally, current mitigation practices cover the spectrum of known and emerging environmental impacts based on predictive assessments as part of conceptual compliance practices. While the central goal of regulatory compliance practices based on the environmental impact assessment process is impact mitigation (Morrison-Saunders et al., 2016). the companies are implementing proactive initiatives including green sourcing and concurrent rehabilitation to enhance environmental

sustainability after mine closure. The next chapter further explores the ecological domain by focusing on the barriers to environmental sustainability implementation of selected case companies.

Chapter 5

Barriers to Environmental Sustainability Implementation

5.1 Introduction

This chapter investigates the barriers to environmental sustainability implementation in Ghana. This is significant because despite the improved production techniques, new technologies, and cleaner extractive processes of multinational mining companies, environmental challenges including ambient pollution, chemical seepages from mine tailings, and destruction of biodiversity remain critical risks to environmental sustainability. Additionally, while there is past research on environmental issues in large-scale mining, empirical studies on the barriers to sustainability implementation remain scarce in Ghana. Thus, this study examines the barriers to environmental sustainability implementation within a challenging and weak institutional environment.

5.2 Structure of Chapter

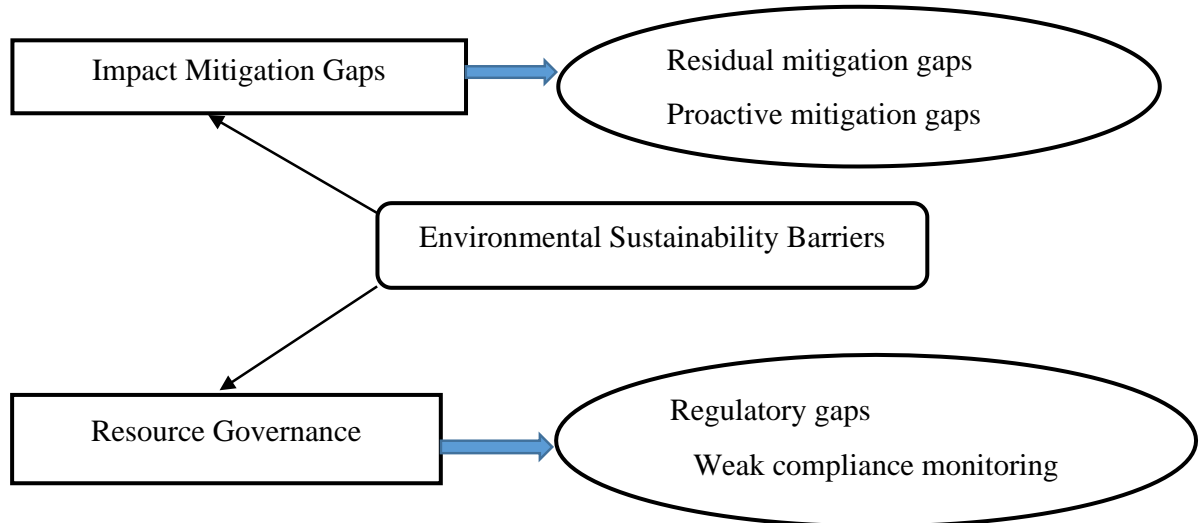
The remainder of this chapter is organised as follows. Section 5.3 examines the barriers to the environmental sustainability practices of large-scale mining companies in Ghana, section 5.4 synthesizes the empirical findings, and section 5.5 provides the conclusion to this chapter.

5.3 Barriers to Environmental Sustainability

This section reports the barriers facing the sustainable impact mitigation practices of large-scale mining companies. As earlier indicated, the mining industry presents critical sustainability risks due to continuous environmental impacts associated with mineral

extraction (Idemudia, 2011; Moran et al., 2014). Therefore, as discussed in section 4.3, the environmental sustainability practices aim at addressing the ecological impact parameters, including water and soil quality, biodiversity and terrestrial conditions, ambient air and pollution prevention. However, during the interviews, the selected case companies and the other stakeholder groups identified major themes regarding the barriers to environmental sustainability categorised as *resource governance* and *impact mitigation gaps* (Figure 5.1). Also, as demonstrated in Figure 5.1, the two major or organizing themes are further categorised into sub-themes – *residual and proactive mitigation gaps*, and *regulatory and compliance monitoring weaknesses*. These themes and sub-themes are explored in detail in the next section.

Figure 5.1: Barriers to environmental sustainability implementation.



5.3.1 Resource Governance Gaps

According to Graham, Amos, and Plumptre (2003) governance refers to the interactions among various structures, processes and traditions, which distributes power and duties and determines the levels of participation of a community of stakeholders. It includes

regulations, monitoring, enforcement mechanisms, norms, societal expectations, and standards (Van Alstine, Manyindo, Smith, Dixon, & AmanigaRuhanga, 2014). Particularly, resource governance is increasingly recognised as important to the implementation of sustainability policies and initiatives (de la Torre-Castro, 2012). This broader perspective on governance has permeated the field of environmental management, especially within the mining sector. As such, resource governance as it relates to environmental sustainability includes a set of regulatory and non-regulatory frameworks, policies, and arrangements regarding the extraction and beneficiation of mineral resources. Accordingly, two basic themes emerged from the resource governance gaps – *regulatory gaps* and *weak compliance monitoring* (See Figure 5.1).

5.3.1.1 Regulatory gaps

Regulatory gaps constitute a major challenge in the environmental impact mitigation practices of large-scale mining companies in Ghana. The critical environmental sustainability risks of mining and the increasing societal awareness make legislation and compliance regulations inevitable in every country with a major extractive industry. Additionally, the findings demonstrate that regulatory gaps (Figure 5.1) relate to the *conflicting standards* and *nominal guidelines* within the Environmental Assessment Regulations and the Mining and Minerals Act.

5.3.1.1.1 Conflicting Standards

Conflicting standards refer to different regulators having contradictory standards for measuring regulatory compliance in the same environmental impact parameter. The environmental managers reported regulatory inconsistencies in their environmental

assessment and reporting on certain impact indicators such as blasting air overpressure because of the lack of common standards. Findings suggest that conflicting assessment standards within regulatory institutions undermine the effectiveness of environmental sustainability implementation and the managerial decision-making process.

For example, blasting-air overpressure and ground vibration are the measured indicators for assessing our level of compliance with respect to blasting. The Environmental Protection Agency and the Minerals Commission has their own standards. You have the Environmental Protection Agency having a higher standard for one, and the Minerals Commission also quoting a lower standard for the same parameter. These standards are supposed to be based on empirical facts, and they should serve a purpose. (Environmental Manager, Company A).

The challenge is about different regulators having similar functions, but conflicting standards for measuring regulatory compliance in the same environmental impact parameter. The companies reported regulatory inconsistencies in their environmental assessment and reporting on certain impact indicators because of the lack of common standards.

5.3.1.1.2 Nominal Guidelines

While there is a regulatory evolution in the minerals and mining law, 2012 (L.I 2173) through legislative amendments, gaps remain in the environmental assessment regulations. This is significant because most of the new mining development in Ghana are surface operations, which is usually responsible for the environmental risks to biodiversity in host communities. For example, the environmental assessment regulations (L.I, 1652), which is the legislative instrument guiding environmental permit was established in 1999 and has not progressed to cover emerging challenges after two decades. The data show that some regulatory compliance standards are largely nominal guidelines, which are advisory and therefore, a breach by a company is not enforceable under the existing regulations. This

situation potentially influences managerial cognition in terms of the resources to commit to addressing mining impacts. For example, a director in a regulating agency indicated that they are in the process of progressing certain environmental guidelines into standards to enhance compliance enforcement.

We are required to develop standards. Currently, what we have are environmental quality guidelines. We are working hard to convert our guidelines into standards. Times have changed, but because the standards were not worked on to make them effective, they remain guidelines. It is not too compulsive for the companies to adhere to them. You cannot hold them too much against guidelines. (Area Manager, EPA).

Similarly, the EPA manager further addressed the impact of a lack of clear compliance standards beyond the existing environmental quality guidelines indicating that:

When somebody complains that a mining company is making noise, what is the basis of you [regulator] judging that noise? So, there should be a standard there. That is what we have lacked, we have not moved too fast with it. Therefore, standards must be put in place, which can help in monitoring and streamlining the operations of the mining companies (Area Manager, EPA).

Moreover, while there is a regulatory evolution in the minerals and mining law through legislative amendments, there remain gaps in the environmental assessment regulations. This is significant because most of the new mining development in Ghana are surface operations, which is usually responsible for the environmental risks to biodiversity and host communities. For example, the environmental assessment regulations (L.I, 1652), which is the legislative instrument guiding environmental permit was established in 1999 and has not progressed to cover emerging challenges after two decades. This finding differs from what has been established in the literature, which suggests robust regulations, but weak implementation. Thus, while implementation gaps were identified as a barrier, there were

also issues with the existing regulatory requirements as well. Further, the data shows that regulators are aware of the gaps in existing regulations but have failed to get parliament to pass new legislation to address emerging sustainability risks. The best explanation for this situation may relate to divergent logics and plural demands. This idea is further examined in the discussion chapter (chapter 8) in section 8.3.

Further, an environmental permit is the fundamental requirement for large-scale mining companies to get a license to mine in Ghana. For instance, while a director in a regulatory agency indicated that the law has been effective, he also made this observation: “I think we need to review for current and emerging issues. We need to look at it. We need to amend it”. He was referring to emerging environmental challenges like the mechanism for the disposal of hazardous materials like dumb heavy-duty tyres. According to an official of the Environmental Protection Agency, the current practice is for mining companies to bury the unusable tyres into large pits, which takes hundreds of years to decompose. A proposed Hazardous Waste Act to help in the efficient disposal of dangerous chemicals and mining equipment has not yet been legislated by parliament.

The management of hazardous chemicals is key because mining companies handle [dangerous] chemicals and even their usage, we have realized is an issue now. You know the dumb truck tyres, they are very heavy-duty tyres, and so disposal is a challenge. (Area Manager, EPA).

5.3.1.2 Weak Compliance Monitoring

Weak compliance monitoring (Figure 5.1) refers to challenges associated with the supervisory and implementation activities of regulatory institutions in the mining industry. While Ghana has sound environmental and mining regulations, ensuring compliance with existing laws depend on the effectiveness of the monitoring and enforcement mechanisms,

as legislation by itself does not lead to efficiency in corporate performance. The data suggest that poorly enforced environmental standards due to the lack of effective monitoring constitute a barrier to effective sustainability practices by mining companies. This finding reflects the views of regulators, civil society organizations, and the district assemblies involved in this study. The findings show that regulatory institutions are severely under-resourced, especially relating to staff and logistical shortages, which hinder effective monitoring and enforcement activities (Table 5.1). While these gaps are known by decision makers, no steps have been taken to address these concerns.

Table 5.1: Respondents views on resource governance gaps

Weak Compliance Monitoring	Interviewee Statements
Resources Gaps	<p>We have one office taking care of 10 districts, so you can imagine. How would they take care of 10 districts with one car? It is very difficult, and it is not just mining that they are monitoring (Senior Inspector, Minerals Commission).</p> <p>I recommend the resourcing of the institutions because the laws are very good and comprehensive. Therefore, I think it is about resourcing of the institutions that is key to effective monitoring and enforcement. If you give directives and you cannot even follow up to enforce it, you better do not give it (Area Manager, EPA).</p>
Implementation Gaps	<p>There is evidence to indicate that the implementation of the regulations is not very effective (Programmes Manager, FOE-Ghana).</p> <p>We need to improve the capacity of the agency for monitoring. This is the only aspect that should be worked on (Regional Manager, EPA).</p>

Resource gaps involve personnel and logistics shortages, which negatively affect the effectiveness of regulatory institutions (Appiah & Osman, 2014). Particularly, regulatory institutions such as the EPA and the Minerals Commission suffer operational challenges in terms of the institutional capacity for effective monitoring. Table 5.1 shows the issue of

inadequate personnel and logistics to monitor mining operations and address issues arising from non-compliance. Therefore, the regulators generally see the effectiveness gaps in their compliance monitoring functions as relating to lack of both human and logistical resources. This view relates to the assertion by Elbra (2017) that developing countries, including Ghana, have a legacy of poor resource governance, leading to adverse sustainability challenges. Further, the regulators acknowledged that the gaps in their compliance monitoring function may be hindering regulatory compliance to environmental sustainability standards. For example, there was a single environmental officer at the Minerals Commission responsible for compliance monitoring and enforcement in an administrative region with companies whose activities impact the environment. As a result, regulators depend on the self-monitoring and reporting of environmental risks by the companies themselves.

However, the mining companies, industry association, and the mining communities did not directly observe a compliance monitoring gap. This may be explained by the lack of direct and active involvement of local communities and the municipal assemblies regarding environmental assessment processes and therefore may have little idea about the effectiveness or otherwise of the current compliance monitoring regime. This idea was previously observed in the literature (Bawole, 2013; Schoneveld & German, 2014), and will be further examined in chapter 8. Indeed, the data suggests that beyond the companies, only the regulators are actively involved in environmental issues. As a result, this hinders environmental sustainability implementation because a pressing concern in developing countries is making mining companies accountable to local communities and not just regulators.

Generally, pressures from other stakeholders such as environmental pressure groups including CSOs and NGOs, involve influencing mining regulations and policies. Their level of engagement is with regulators but little direct interactions with the case companies. Additionally, community pressure on environmental issues is reactive and only happens after a major harmful environmental incident. Environmental compliance monitoring is broadly perceived as a complex process reserved only for the technical professionals in the mining companies and regulatory institutions and thus beyond the competence of other stakeholders.

5.3.2 Residual Mitigation Gaps

Residual mitigation gaps relate to the ongoing environmental impacts associated with mining activities, which pose challenges to the mitigation strategies of mining companies. It refers to the unavoidable impacts associated with mining development, which can only be mitigated but not prevented. The common ones identified by the mining companies, district assemblies, civil society organizations (CSOs), and the traditional council include *legacy impacts* and *ambient pollution (air and noise)*.

5.3.2.1 Legacy Impacts

The legacy impacts are previous incidence of chemical seepages from tailing storage facilities and the challenges with managing the mine pits and waste dams. The data on legacy impacts show that the anomie created by the structural adjustment program resulted in the lack of compliance regulations for mining companies prior to the passage of the Environmental Assessment Regulations in 1999. Accordingly, most legacy impacts include chemical pollution from minerals extraction and beneficiation activities leading to

contaminated underground water. For example, the Environmental Manager of company 'B' explained it this way:

The challenge that we normally face has to do with the legacies that we have as a company. Being with the department, some of the issues had to do with seepages at the time, from our installations...With our legacies, whatever we do, we will still not comply because the place is messed-up already, but the point is, what are we doing to minimize it?

The manager emphasized that the company has been working for several decades even before the EPA was established in 1994 and the subsequent passage of the environmental assessment regulation in 1999. Therefore, prior to the EPA coming in to streamline mining activities and environmental impacts, there was already a long history of chemical infiltrations, destruction of biodiversity and pollution. For example, an environmental manager in company A spoke about the dangers of failing to prevent seepages from mining installations (TSFs) noting that, "if you don't get it right and it gets into the ground water, managing it is a tall order". Further, the statement below reflects the views of the companies, regulators, and the environmental pressure organisations.

The problem of rock waste and open pits from past mining projects that have not been dewatered and backfilled is still visible in the communities. These things are dangers to the health and safety of the people. These are the environmental hazards we keep complaining about. (Programmes Manager, WACAM).

Thus, there is a common opinion between the case companies, regulators, civil society organisations and other stakeholders about how legacy impacts hinder the environmental sustainability practices in local communities.

5.3.2.2 *Ambient Pollution*

Ambient pollution is associated with dust and noise generation due to the activities of mining companies, including movements of heavy-duty trucks on the feeder roads and dumping of waste rocks. Particularly, the data indicates that air pollution is significant because of the harmful consequences on the health of host communities, including upper respiratory infections and other airborne diseases. Accordingly, the Environmental Manager of company A stated that: “Ambient air pollution and mining activities are intrinsically linked to dust generation”.

The interviews with the traditional councils and the district assemblies also identified pollution from dust as a major environmental impact which has not been addressed by residual mitigation mechanisms such as watering and speed control. For instance, a traditional chief in a host community stated that “I told them we don’t want any project apart from the tarring of the roads because we have inhaled dust for a long time, and you know it can give us lung related diseases”. This shows that the residual sustainability practices of large-scale have been unable to prevent certain environmental impacts. These findings converge with an earlier observation that, “noise pollution is naturally due to the operations themselves and the transportation of the products; depending on the proximity to local communities, it can be a major environmental hazard” (Evangelinos & Oku, 2006, p. 263). As such, ambient air and noise pollution allocate responsibility to multinational mining to implement residual strategies.

The data shows that the common residual mitigation mechanisms by the mining companies are regular watering of feeder roads and engineering techniques for speed

control. However, these residual impact mitigation strategies only provide temporal solutions and are inadequate to address the complaints and impacts in the local communities. Given this, these findings relate to the assertion that “firms pursuing a reactive environmental strategy would probably not even have addressed environmental issues” (Buysse & Verbeke, 2003, p. 463). Thus, the limited capacity to address so called unavoidable impacts using residual impact mitigation methods presents a barrier to the effectiveness of environmental sustainability implementation.

5.3.3 Proactive Mitigation Gaps

As earlier indicated, a barrier to environmental sustainability implementation involves gaps in impact mitigation practices because of difficulties in managing certain environmental impacts after exposure. However, the purpose of proactive mitigation practices involves adapting production processes in order to prevent or reduce the levels of environmental impacts and the associated costs and liabilities. As such, the significance of proactive mitigation strategies was the reason for the establishment of an environmental rating disclosure mechanism as a step to ensure compliance with various regulations in Ghana. Accordingly, proactive mitigation strategies include preserving and conserving water quality and quantity as they relate to the prevention of chemical seepages and ambient pollution. The data analysis reveals *accidental exposure* as the basic theme regarding proactive mitigation gaps.

5.3.3.1 Accidental Exposure

The data suggest that chemical leakages and exposures were regular environmental impacts of mining in Ghana but are increasingly regarded as an occasional incidence. Nevertheless, accidental exposures may lead to displacement and involuntary relocation, disrupt the livelihoods of local communities due to contamination of soils and rivers and impose considerable risks to human health. The data demonstrates that there have been some improvements in the proactive practices of multinational mining companies in compliance with the Environmental Assessment Regulations (L.I. 1652), but the risks from accidents remain a major barrier to the sustainability of local communities. For instance, the traditional chief of community C made the following observation:

We have had that [environmental accidents] before, but they are now properly managed. There was a cyanide spillage, but as soon as they detected it, they saw dead fishes and they realized that maybe something had gone wrong. The night it happened, the company brought in the EPA [Environmental Protection Agency] and a team from Accra and Takoradi. They also supplied the community with potable water for about a month, so there was no casualty. It happened this year [2018].

In relation to this, an official of the Chamber of Mines, which is the industry association also perceives proactive impact mitigation gaps as resulting from accidental environmental incidents. He explained that:

It could also be a genuine case where mining operations may go wrong, and there would be a discharge into the environment. The mine is enjoined by law to take the requisite residual actions to try to repair the damage that has been caused to the environment.

The above comments indicate that mining companies have a gap in their proactive impact mitigation systems to prevent seepages and other contaminations from their tailings storage

facilities. Yet, while case companies are expediting their responses to accidents, the occasional incidence of chemical exposures suggests a gap because the current policy in the mining industry in Ghana is impact prevention. For instance, the programmes manager Friends-of-the-Earth has this to say, “What we have realized is that there is a huge capacity gap in terms of the treatment and disposal of waste by the mining companies”. Therefore, environmental accidents remain a challenge to proactive mitigation practices because managing hazardous chemical infiltration is extremely difficult and involve higher costs and liabilities. Interestingly, regulators seem to accept the inevitability of accidental environmental impacts. For example, an Environmental Protection Agency director said the following:

We accept that from time to time there can be infractions and accidents. If we investigate and we know that, this is deliberate, the company would have to face the consequences. However, if this is inadvertent or something the company could not avoid, that is fine. We help them to correct those. (Acting Regional Director, EPA).

In practice, it is difficult for regulators to prove criminal intents or that an accidental exposure was deliberate. Therefore, this is determined by the timeframe within which a company reports an environmental incident to regulators. For instance, if a company fails to inform regulators about a hazardous environmental impact from its activities or unduly delays in reporting, that may be deemed as a deliberate attempt to conceal relevant information. Therefore, the practice is that companies promptly report environmental impacts resulting from the failure of their proactive mitigation systems as accidents.

Overall, the data suggest that while local communities, civil society organizations, and the municipal assemblies perceive accidental exposures as evidence of the failures of the

proactive mitigation practices, regulators and selected case companies define this as an unavoidable externality associated with the complex extractive process.

5.4 Synthesis

This section presents a synthesis of the major findings in this chapter by highlighting how various barriers hinder environmental sustainability implementation of large-scale mining companies. The study identified the major barriers to environmental sustainability practices of large-scale mining companies to include *resource governance gaps and impact mitigation gaps*. These barriers are connected in a constant relationship suggesting that addressing them may require a holistic approach that recognizes the reciprocal and interactive processes. For example, addressing regulatory gaps without improving mechanisms for effective compliance monitoring and enforcement may be inadequate to achieve environmental sustainability in mining.

First, resource governance as a key barrier to environmental sustainability implementation relates to conflicting standards and nominal guidelines. For example, the two main regulatory institutions of mining activities in Ghana have different standards for air pressure vibration in their environmental impact assessments. As a result, conflicting standards suggest that impact environmental parameters are merely indicative and not based on empirical evaluation. Additionally, the failure for regulatory bodies to develop compliance standards from advisory environmental guidelines suggests a gap in resource governance in Ghana.

Additionally, regulatory gaps might contribute to residual mitigation gaps, especially as they relate to legacy impacts and ambient air and noise pollution. For example, the anomie in

resource governance during Ghana's economic recovery programme in the 1980s led to an upsurge in environmental impacts prior to the introduction of the Environmental Assessment Regulations. As such, while legacy impacts associated with rampant chemical seepages continue to pose unacceptable risks to mining communities, current remediation has proven inadequate. Thus, legacy impacts have received little attention both in the environmental sustainability practices of large-scale mining companies.

Further, climatic ambience, including noise and air pollution remains a concern mostly because of dust from waste rocks, ore blasting, and vehicular movements. Similarly, accidental exposures in the forms of chemical spillages or infiltrations of decant water into the environment is an ongoing sustainability risk to biodiversity and water quality. However, the mechanism for managing accidental exposures largely depends on the capacity and willingness of mining companies to share in-time data with regulators. This arrangement is based on regulators' severe shortages of inspectors and testing laboratories. Related to this barrier, is the ineffective compliance monitoring regime of industry regulators, which is a direct outcome of resource governance gaps. Generally, a system of compliance monitoring and enforcement is perhaps the most critical for the success of environmental sustainability implementation in extractive industries (Tuokuu et al., 2018). Particularly, the major barrier with environmental sustainability in developing countries relates to the lack of monitoring and enforcement of existing regulations (Helwege, 2015; Tuokuu et al., 2018). Thus, weak compliance monitoring relating to capacity and implementation gaps undermine the development of effective mechanisms in ensuring compliance with environmental regulations.

5.5 Conclusion

This chapter investigated the second research question regarding the barriers to environmental sustainability implementation in Ghana. This chapter reported two major environmental sustainability barriers located in institutional weakness and gaps in the mitigation practices of large-scale mining companies. These include resource governance (regulatory and compliance monitoring gaps) and impact mitigation gaps (residual and proactive). While the mining industry in Ghana has some stringent regulatory requirements, there are areas of inconsistencies relating to key environmental assessment parameters. There are gaps in existing standards and guidelines, and compliance monitoring and enforcement mechanism, which dilutes the effectiveness of the mining and environmental laws.

Additionally, gaps in the residual mitigation practices, particularly relating to the management of legacy environmental impacts and ambient air and noise pollution remain significant barriers (Evangelinos & Oku, 2006; Worrall et al., 2009). Further, proactive mitigation gaps involving accidental exposures constitute a significant barrier to environmental sustainability during the operational and post-mining phases. For example, spillages of processed water and cyanide, which are common with surface mining pollute ground water, posing a serious challenge to post-mine rehabilitation (Laurence, 2006; Mhlongo & Amponsah-Dacosta, 2016). There are also incidents where mining disturbs the aquifer resulting in open pits that pose dangers to residents and may negatively affect water availability in local communities.

Moreover, the findings show that the mechanism for environmental monitoring and compliance largely depends on engagements between regulators and companies without any

significant involvement of other stakeholder groups like local communities. This has implications for stakeholder theory because in both the policy and implementation domains, regulatory pressure is what generates proactive and residual responses. This is consistent with the findings of Ayee et al. (2011) about the effect of a centralized mining policy, which in this case means that major stakeholder groups such as local communities and NGOs are excluded from decisions and the processes regarding environmental sustainability. This also agrees with a previous finding that activists in Ghana have little opportunity to engage directly with mining companies to effect changes in their operational strategies and practices (A. Hilson, Hilson, & Dauda, 2019). Therefore, stakeholder groups, including local institutions such as traditional authorities, district assemblies, and community-based organizations, hardly engage in environmental compliance processes. Community pressure is reactive and only comes in the form of complaints, reports, demonstration, and sabotage after a serious case of environmental damage from the mining activities. The next chapter shifts attention to the corporate sustainability practices in addressing the social impacts of large-scale mining activities.

Chapter 6

Social Sustainability Mechanisms in Addressing Mining Impacts

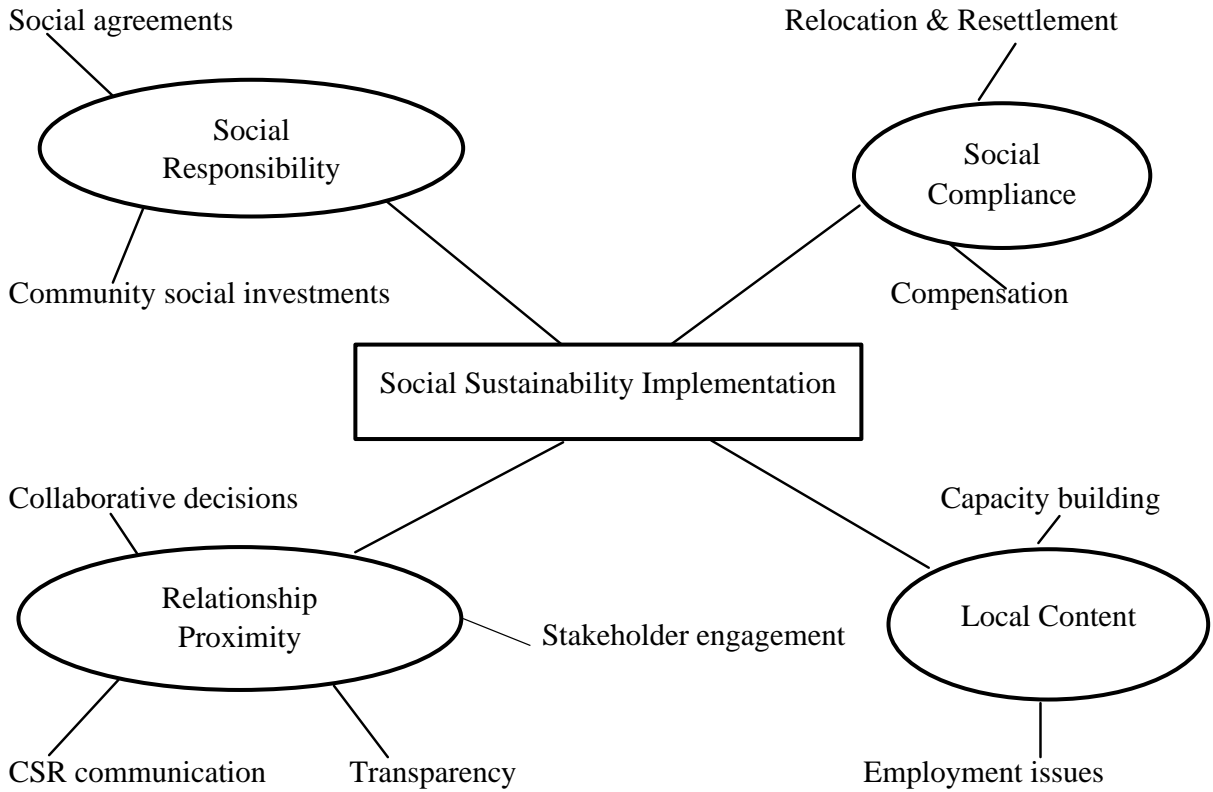
6.1 Introduction

This chapter examines how the social sustainability initiatives of large-scale mining companies address their impacts throughout the mine lifecycle. As earlier indicated, mining raises concerns due to social impacts such as involuntary displacement, exposure of people to blasting and hazards, land tenure challenges, and erosion of cultural heritage in local communities. In the past, large-scale mining companies addressed these social impacts through voluntary corporate social responsibility initiatives, but there is a growing attempt to embrace broader mechanism involving impact mitigation, local development, and encourage stakeholder participation in the mine value chain. Despite this, there is a dearth of empirical mining research regarding the social sustainability mechanisms of large-scale mining companies in addressing their impacts (Segerstedt & Abrahamsson, 2019; Suopajärvi et al., 2016).

In the context of mining, Segerstedt and Abrahamsson (2019) indicate limited research on how mining companies respond to social impacts in local communities. Therefore, this section reports the social sustainability practices in addressing their impacts during and after mining operations based on the interviews with research participants. The four themes relating to social sustainability practices in this study are represented in the thematic networks in Figure.6.1 – *Social Responsibility*, *Social Compliance*, *Local Content*, and *Relationship Proximity*. The thematic networks show the major themes and sub-categories,

which indicate the mechanism by which large-scale companies are addressing their social impacts.

Figure 6.1: Major and basic themes regarding social sustainability mechanisms.



6.2 Structure of Chapter

The remainder of this chapter is organised as follows. Section 6.3 describes and examines the social sustainability practices in addressing social impacts, and section 6.4 provides a synthesis of the findings while section 6.5 presents the conclusion in this chapter.

6.3 Social Sustainability Practices of Mining Companies

As already noted, social sustainability practices include themes such as reductions in poverty, improvements in human health, education and gender equity, affordable and accessible housing, security, and community resilience (Hutchins & Sutherland, 2008; Lapalme, 2003; Segerstedt & Abrahamsson, 2019). Additionally, while social sustainability includes achieving long-term net benefits to society, addressing the social impacts of mining during the operational phase is also critical. The data demonstrate that the sustainability practices of companies in addressing impacts during mining activities involve four organising themes – *social responsibility*, *social compliance*, *local content*, and *stakeholder management*. The following section elaborates on each of these themes (Figure 6.1).

6.3.1 Social Responsibility

Social responsibility emerged as an organizing theme in the social sustainability practices of large-scale mining companies in Ghana. It refers to voluntary and negotiated agreements between large-scale mining companies and local communities regarding impact mitigation and social investments. Social responsibility practices are a common strategy for mining companies to obtain a social license to operate. Thus, social license was found to be a driver of social responsibility practices of large-scale mining companies and is further explored in the next section. This section reports on the basic or sub-themes relating to corporate social responsibility practices based on the interviews of research participants. These include *social agreements* and *community social investments* as displayed in Figure 6.1

6.3.1.1 Social Agreement

Social agreement refers to negotiated development objectives between large-scale mining companies and stakeholder groups, especially those within host communities. This includes commitments by the mining companies to provide basic social facilities such as water and sanitation projects, health and educational infrastructure, alternative economic activities and skills training to mine-affected people. Additionally, the findings demonstrate that social agreements are negotiated between community Affairs Managers of local representatives, including traditional chiefs and the district or municipal assemblies. Social agreement differs from traditional self-regulatory corporate social responsibility initiatives in the areas of monitoring, reporting, and accountability. It involves joint decisions by parties to the agreement, participatory monitoring of community projects and a legal mechanism to ensure accountability if a party default or reneges on its obligations. The purpose of social agreements is to contribute to social development and/or mitigate the social impacts associated with the presence of a mine in a community. For instance, a community affairs manager of company ‘A’ mentioned this when talking about their social agreement: “These are mitigation measures that we have put in place, and then those we think as a responsibility to give back to the communities”. He further explained the rationale for establishing social agreements with the communities in which the company operates, stating that:

We formally established a committee where we focused our attention on by establishing a sustainable relationship with the communities such that we can bring our concerns to a roundtable for discussion, and so we designed what we call relationship or social agreements.

Thus, as observed by (Hayk, 2019), despite the largely voluntary nature of corporate social responsibility, community development agreements between a company and stakeholders institutionalize the relationship and empower local actors to play an important role in

localizing corporate social responsibility in Ghana. The data indicate that large-scale mining companies involved in this study either have signed social agreements with local communities or were in the process of concluding one. Similarly, the community affairs manager of mining company ‘B’ stated that, “Our CSR program is in two folds. One as a mitigating measure to the impacts we have caused to the communities, and then the other is giving back to the society”. As represented in Figure 6.2, the mitigation measures are discussed during environmental impact assessment (EIA) forums, which are later negotiated and signed into a binding. The signed documents largely cover agreements on local employment, social infrastructure, including education and health, and community development financing (see Figure 6.2). For example, every large-scale mining company in Ghana have a social agreement with their stakeholders to offer all unskilled and low-skilled jobs to only members from their host communities (see A. Hilson et al., 2019).

The financing scheme commits a percentage of the gold produced each year into a fund to finance projects negotiated in the social agreements. Accordingly, while the social agreements for community development financing have different names, they have a similar objective within the mining industry. For example, a representative of the traditional council of local community X, which was negotiating their social agreement with an operating large-scale mining company, puts it this way:

The company and the community have established an SRF [Social Responsibility Fund] committee, which is currently working on our bargaining agreements, which once we complete the process, it is going to help the community. We are working on an agreement that for every ounce of gold produced, the communities will be paid Dollars.

Similarly, a community affairs manager of company ‘C’ mentioned that they have agreed to contribute a Dollar per every ounce of gold produced and 1.5% of their

pre-tax profit into a financing scheme. Thus, this finding shows that the common practices regarding community social agreements within the industry are influenced by common institutional pressures (See Figure 6.2). For instance, in terms of normative pressures, the data collection shows the movement of employees across companies who transfer introduce similar practices in their new positions. In the same vein, the industry association encourages common practices across companies through imitation in cases where a new initiative receives wider stakeholder acceptance (mimetic isomorphism). Thus, this study suggests that social agreements as a social responsibility strategy are institutionally isomorphic.

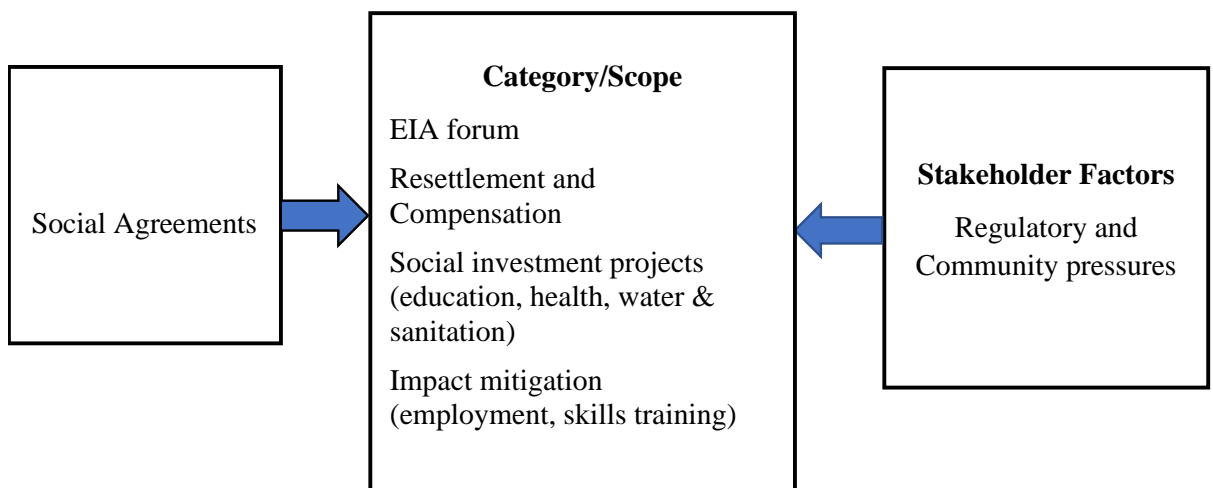
Further, social agreements are increasingly serving as a mechanism to control what managers call excessive stakeholder demands that put huge burdens on corporate finances. This finding agrees with an observation by Osei-Kojo and Andrews (2018) posits that high community expectations undermine CSR in Ghana. Therefore, the stability agreements prevent stakeholders from insisting on demands outside the terms of references in the signed document. Social agreements depend largely on the CSR proposals of the companies during the pre-operational phase and have a goal to moderate the pressures relating to the changing needs and demands of stakeholders during the operational period. For instance, a senior official of the Chamber of Mines interviewed states that:

We came from a point where the agreement between these communities and the mining company were just verbal... Overtime, we realized that either the communities were expecting too much from the companies or the companies were also over-promising.

In relation to this, stakeholders interviewed indicated that any demands outside the social agreements often receive a negative response from the companies. For example, a tribal chief of a local community ‘Y’ reflecting on the social engagement stated that:

If a project cannot be financed by the trust fund (established through social agreement), we write letters to the management of the company and if they accept to do it, then good, but otherwise, there is nothing we can do. I know that people send requests for projects to the management, and while they will not say directly to you that they are not going to undertake it, you never get any positive feedback from them.

Figure 6.2: Social agreement categories and drivers



6.3.1.2 Community Social Investment

Community social investment refers to the outcomes of social agreements regarding tangible social provisions. Community social investment is based on the traditional corporate social responsibility strategy where companies voluntarily contribute to the welfare of stakeholders

beyond that required by law and union contracts. This type of CSR is self-regulatory and relates to a widely used expression among the companies interviewed. For example, the Community Affairs Managers of the three companies interviewed that social investment is “our way to give back to society”. Therefore, unlike other CSR initiatives directed towards social impact mitigation, community social investment projects are perceived to be more forward-thinking and represent the development contributions of mining companies. For instance, a senior official of the Chamber of Mines, which is the industry association had this to say, “Companies are moving away from it (CSR) being a responsibility to an investment with the view that it is going to sustain the community even when the mine is no longer in operation”.

The CSR financing document signed between the companies and the mining communities within their broader social agreements strategy largely goes into community social investments. While community social investments are presented as long-term community development, they also address short-to-medium-term needs in host communities. For example, The Newmont Ahafo Development Foundation (NADeF) fact sheet shows that the company has invested US\$6 million since 2008 into community development and a further US\$ 1.7 million into an endowment fund for social responsibility activities after mine closure. Additionally, the foundation has accrued GHC 41 million [US\$ 8 million] between 2008 – 2014, which is used to finance both short to long-term community development projects. This relates to an earlier finding by Owusu-Ansah, Adu-Gyamfi, Brenya, Sarpong, & Damtar (2015).

Moreover, the findings indicate that large-scale mining companies in consultation with relevant stakeholders have each established autonomous, community-owned bodies with active participatory governance structures comprising of representatives from the

companies, affected communities, and other government agencies. Beyond these organized groups, the companies also regularly engage with local governing authorities, traditional rulers, and community members in deciding on the community social investment projects to implement each year. For instance, a development planner who is also a member of the community social investment financing committee highlighted their active participation in identifying priority needs in affected communities by stating this:

The municipal assembly organizes community forums, and we discuss with the inhabitants so that their felt needs are incorporated into the medium-term development plan. Therefore, anytime the company or the community trust fund intends on embarking on any projects, they consider our plan and select some of these projects from it.

In the same vein, a manager in company ‘C’ made a similar observation that, “These community social investment projects are all based on the needs assessments that we do as part of the socio-economic interventions in our communities”. These bodies including Newmont Ahafo Development Fund, AngloGold Ashanti Community Trust Fund, Goldfields Community Foundation, and Asanko-Gold Social Responsibility Forum are legal entities with a board of directors and committees, which manage the community social initiatives listed in Table 6.1, and exercise considerable discretion over which stakeholder needs are met in any given year. The empirical data shows the following community social investment initiatives of mining companies including their objectives and the motivating factors as represented in Table 6.1

Table 6.1: The community social investment initiatives, financing strategy, drivers, and objectives.

CSI initiatives	Examples of Financing Strategy	Common Drivers	Objectives
Cultural heritage (Festivals & chieftaincy support, etc.)	Newmont Ahafo Development Foundation (NADeF).		
Education and youth development (Scholarships, schools,	A Dollar of every ounce of gold and 1% of the Ahafo Mine's annual net profits	Social License	Direct mining contribution to development and welfare.
Capacity building (Skills and apprenticeship training)	AGA Community Trust Fund \$2 per ounce of gold produced	Tax incentive	
Health services & promotion (Clinics, health education & training, etc.)	Goldfields Community Foundation. A Dollar per every ounce of gold produced and 1.5% pre-tax profits	Stability agreements	Developing local capacities for participation in mine value chain.
Infrastructure (Roads and maintenance, etc.)	Asanko Social Responsibility Forum (SRF) \$2 per ounce of gold produced	Industry competition	
Economic & livelihood support (SME support, credit union, skills training)		Social reporting	
Social amenities (water & sanitation facilities, etc.)			

The table above (Table 6.1) indicates that the community social investment projects of the companies include providing education and health facilities like schools and clinics, social amenities such as water and sanitation, and physical infrastructures such as roads and community centres. Others include direct support like scholarships, teaching and nursing motivation, and cultural and heritage assistance like supporting festivals, funerals, the building of chief palaces, as found in a study by Ofori & Ofori (2019). This finding coincides with an assertion by Chou (2014) that these community social investments are largely

ineffective without the government's active role in offering maintenance support, personnel, and salaries. In this vein, mining companies avoid recurrent expenditure and depends on the government to assume all other responsibilities associated with running an educational or health facility. Based on this, ineffective institutional partnerships between mining companies and the government undermine the sustainability of corporate social investment projects.

Overall, the data suggest two broad motivators for corporate involvement in community social investments, which include *moral obligation* (giving back to society) and *strategic consideration* (social license activities). However, the strategic consideration further evolves into four specific sub-themes, including *social license*, *tax exemptions*, *social reporting*, and *stability agreements*. The following section covers these strategic motivators in detail.

6.3.1.2.1 Social License

A social license, as suggested earlier relates to the efforts of companies to meet the expectations of stakeholders and obtain social legitimacy. However, getting a legal license alone is not enough because while the State have pre-emptive rights over all mineral resources, private individuals and families own lands and must be convinced to grant acceptance through various social investments and compliance practices. This sub-theme emerged in the interviews and the CSR documents of the mining companies as a motivator for the community social investments. For instance, a manager in a mining company 'B' commenting on their social investment projects in the communities made this observation:

There is no law in Ghana that obliges mining companies to undertake CSR initiatives aside the stability agreements and the community trust fund linked to our social license. If you do these things well, you also get that conducive atmosphere to operate.

This comment is consistent with the observation (see Owen & Kemp, 2013; Prno & Slocombe, 2012) that mining companies have embraced a policy of contributing to the needs of stakeholder, especially local communities because of the need to prevent disruptions and other social risks that might threaten company survival. This also converges with an observation that host communities are key to the sustainability policies and practices of companies because of their proximity to the mine, sensitivity to the impacts and capacity to influence the outcomes of a mining project (see Prno & Slocombe, 2012). Therefore, if managers of firms perceive host communities as having the salience to affect their activities, it affects the willingness of the companies to engage in community social investment projects. Therefore, social license ensures corporate sustainability in mining, as suggested by Parsons et al. (2014), when companies engage in social investments in ways that contribute to community development.

6.3.1.2.2 Stability Agreements

According to Tienhaara (2006), the increased competition for foreign direct investment in developing countries has resulted in governments of such countries offering a certain form of legal protection (stability agreement) to investors. Stability agreements refer to transaction contracts between large-scale mining companies and the government of Ghana providing, among other things, for the implementation of a scheme pursuant to Section 231 of the Companies Code. It provides a predictable fiscal regime against possible changes in tax rates, law, and policy for 15 years and often used by the government as an incentive to attract foreign direct investments in the mining sector. To secure such legal protection

against possible changes in regulations and mining terms, requires a commitment by a company to invest a minimum of 500 million US Dollars into their operations in Ghana during the execution of the agreement.

The benefits to the companies include getting a reduction in corporate tax and royalty rates and retaining up to 80% of their export proceeds in foreign currencies offshore. For example, the parliament of Ghana ratified a stability agreement in 2018 between the government of Ghana and AngloGold Ashanti granting stability terms and tax concessions to the company. Additionally, another mining company, Gold Fields concluded a similar agreement with the Ghanaian government in 2016. The purpose is to protect the investment of the companies because of the risks of mining and the large capital required in developing new mines without any guarantee of returns or profits. While such an agreement faces many stakeholder challenges because of the idea that it serves the interest of mining companies, it also provides some obligation for them to undertake CSR in host communities. For instance, the data shows that the stability agreement signed between the government of Ghana and AngloGold Ashanti in 2004 required the company to invest 1% of annual post-tax profits into a Trust Fund to support development activities in host communities. However, a new agreement in 2018 has new terms of reference for the company and is the basis for the community trust fund established by the company that finances its social investments projects.

In line with this, a manager in mining company ‘B’ stated that, “We pay 2% per ounce of every gold produced to the community through the community trust fund”. Therefore, while the mining companies through the implementation of community social investment projects, the financing scheme follows an agreement enshrined in a legislative instrument. As such, this study finds that social responsibility practices of large-scale mining companies in Ghana are not only voluntary but are also in compliance with a regulatory requirement in stability

agreements. This finding expands on the existing ideas around social responsibility and further examined in chapter 8 (section 8.4). While stability agreements commit large-scale mining companies to embrace community social investment initiatives, all firms with or without such an agreement may deduct their social expenditures from their statutory tax obligations. This driver is explored in the next section.

6.3.1.2.3 Tax Incentive

The data shows that CSR activities by mining companies are not direct costs to them because the existing minerals and mining law allows them to get tax deductions from the country's tax authority for their social investments. For instance, a senior officer of the Chamber of Mines (industry association), has this to say:

Corporate social investments are tax deductible, but not all of them. It depends on what is allowed by the Ghana Revenue Authority [GRA]. At the beginning of the year, you go into an agreement with the GRA to say that these are what you want to do, and they would allow you to deduct that as part of your expenditure.

Therefore, because companies can deduct their community social investments as part of their expenditure from their total tax obligations, it becomes an incentive to the companies. Similarly, a project manager of a civil society organization commenting on this tax incentive made the following assertion:

These are all cost to the State because when they undertake social responsibility projects, they add it to their costs, which is deducted from whatever benefits we could have gotten as a country.

The observation is that, although getting incentives such as a tax exemption encourages community social investments; these are costs because the companies deduct the expenses

from their annual statutory payments to the government. Despite this, the ability to transfer the cost of community social investments to the government by deducting them as an expenditure from their tax obligation is a motivator to large-scale mining companies' social sustainability implementation.

6.3.1.2.4 Industry Competition

Industry competition is a motivator for mining companies' community social investment projects. This relates to factors such as corporate imitation, employee poaching, and the activities of the industry association. First, corporate imitation involves companies replicating community social investment practices of others in the industry because of the benefits of having a social license. For example, a manager at company 'C' talking about their community social investment financing scheme stated that". The formula for doing that is quite common in Ghana now, but our company started it". Another manager in company 'B' observed that:

We have the community trust fund, and that is you pay 2% per ounce of every gold produced to the community through the community trust fund. The Newmont Ahafo Development Fund by Newmont is the same as the community trust fund that we have here.

Second, there is a practice where a mining company may employ staff with high-demand skills from their competitors with the hope of helping to establish similar initiatives. This finding relates to the role of internal drivers in enhancing sustainability implementation (see Bonn & Fisher, 2011). For example, most of the corporate managers interviewed were previously working with other companies within the same industry before they were offered better terms of employment by their current employers. For instance, the Community Affairs

Manager of company 'A' recounted his experience from working with other mining companies by stating that:

I was brought in to establish the community affairs department with the sole responsibility of dealing with the communities, the district assemblies, and the regional ministries. I have worked with company [XX], later joined company [XY] for about 2^{1/2} years as the community affairs superintendent, and then joined community [XZ] as the community affairs manager.

The data indicates that the mining companies have developed homogenous CSR practices due to employee mobility across companies within the industry. Third, the industry association (Ghana Chamber of Mines) encourages mining companies to adopt practices perceive as successful by other companies. For instance, the officer interviewed at the Chamber of Mines indicated that, “mining companies are encouraged to go into that kind of agreement with their communities to help with the development of the communities at the back of their projects”.

6.3.1.2.5 Social Reporting

This refers to the practice of measuring, disclosing, and accounting for the social and environmental impacts arising from the activities of companies through the submission of reports. Large-scale mining companies have embraced social reporting in response to stakeholders' demands and expectations. Based on the findings, the mining companies interviewed in this study report on their social responsibility projects to the Global Reporting Initiative (GRI), International Standards Organization (ISO) 14001, and the Minerals Commission. The data shows that social reporting aligns with the strategic objectives of companies to improve their CSR communication and promote social accountability and corporate reputation. For instance, a manager in company 'C' stated that:

We report on our social responsibility to the GRI monthly. Therefore, all the information I am giving you about our projects when you log on to that platform, you should be able to see all the projects we are doing.

Another manager in company ‘A’ mentioned that the company submit social reports to the Chamber of Mines stating that:

They give corporate social investment award every year. They look across the industry, and they say you are the best in corporate social investment. I just submitted our slot this morning to the Chamber.

Generally, regulators in Ghana do not require the submission of social reports except on social compliance issues. However, the Environmental Protection Agency conducts an annual environmental assessment rating known as AKOBEN, which involves a portion of the companies’ performance on CSR. As a result, monthly reports to the Minerals Commission currently have a social paragraph. The purpose of the social reporting is for mining companies to present evidence of their socially responsible practices to regulators and other stakeholders.

6.3.2 Social Compliance

This section covers social compliance as an organizing theme (Figure 6.1) relating to the social sustainability practices of large-scale mining companies in Ghana. Social compliance refers to business conformance to a standard set of societal expectations relating to rules of accountability established in relevant mining regulations. The data shows that the Environmental Assessment Regulations, 1999 (L.I. 1652) and the Minerals and Mining Regulations, 2012 (L.I 2173) require mining companies to meet certain minimum code of conduct as part of their permit and licensing processes. The major sub-themes related to social compliance are *resettlement* and *compensation*, as illustrated in Figure 6.1.

6.3.2.1 Community Resettlement

The findings demonstrate that the Minerals and Mining Regulation, 2012 (LI 2175) provides guidelines on compensation and resettlement that aims at addressing the social impacts on local communities within the area of mining development. The mining regulation compels mining companies to create 500 meters buffer and resettle communities within that restricted zone. The idea is to prevent impacts such as collapsed buildings due to air-pressure vibrations, ambient air and noise pollution, and exposure of people to traffic accidents from the movements of mining equipment and machinery.

During the data collection, one of the large-scale mining companies was negotiating involuntary resettlement of community ‘X’. The other companies have completed resettlement years ago and had no ongoing or plan to embark on new relocation and resettlement activities because identifying and acquiring suitable land for resettlement is getting complex and difficult. This view overlaps with a study by Owen & Kemp (2015) regarding mining-induced relocation and resettlement in Ghana. For instance, a manager of company ‘C’ suggested that the company is not eager to engage in new resettlement and the traditional leaderships are increasingly against relocation because of land tenure and scarcity issues.

Land in general in this area is scarce, so we are very particular not to engage in a lot of resettlement. We do not know if we must take them off the traditional area altogether, which will be a problem, and the chiefs are also not eager to have you resettled them because land is scarce.

This view shows a change in the internal decision-making in the mining industry where corporate managers in Ghana were previously much more inclined to engage in relocation and resettlement (G. Hilson & Yakovleva, 2007). Additionally, beyond local communities

wanting to stay on their land because of cultural and ancestral affinities (Auty, 1998), they are much more concerned about land scarcity and economic difficulties after resettlement. For example, the manager indicated that chiefs are asking companies not to embark on new resettlement activities because the communities get poorer in the long term after receiving their compensations. He paraphrased the statement of a chief stating that, “If your operations are getting closer, please find an alternative. You will take the land and give us all the money we ask for, but we will be poorer after a few years”.

Furthermore, resettlement activities and the associated compensations are increasingly getting much expensive for mining companies. For example, the Community Affairs Manager of company ‘A’ speaking about acquiring a new land outside the traditional area for resettlement stated that. “The amount involved in acquiring a land, about 150-acre land for resettlement is huge”. Therefore, unless extremely necessary, especially where an existing community is located within the 500-metre buffer zone as required by law, the mining companies are reluctant to engage in new resettlement activities. The exception involves cases where the benefits from newly discovered mineral deposits justify additional investments in resettlement activities. However, the data indicates that local communities without previous resettlement experience seemed eager for resettlement. For example, the traditional council of community ‘X’ was motivated to engage in this resettlement because of the associated compensations and benefits such as new housing units and cash payments. For instance, a traditional chief of a community who was involved in resettlement negotiations with company ‘A’ puts it this way:

The whole [X] community will be relocated and part of community [Y]. We just attended the first full meeting about the relocation. I am happy about this resettlement because the company will build good houses that will be better than what we are living in here.

The finding also suggests that although both the companies and communities agree on the need for resettlement in new mining development, the traditional chiefs have contrasting or even conflicting interest with the rest of the community members and the companies. This conflicting interest relates to compensations and other direct benefits associated with involuntary resettlement. For instance, a manager of company ‘A’ observed that a tribal chief insisted on being relocated and resettled on lands that belonged to the traditional area, but which was deemed unsuitable for resettlement by various feasibility studies. The manager intimated that:

His [chief] thought was that if he should push for this resettlement to go into the very land that belongs to the community, all the monies accrued to it will come to him, and so he started inciting the people. The traditional council knows that they will earn a fortune if they are put there, but many of the community members know that they could not stay in that area.

In relation to the above statement, the chief of the community stated his displeasure about the resettlement negotiations pointing to lingering tensions and conflicting interests. For instance, a chief who is a member of the resettlement negotiation committee said that:

The company wants to decide for the community in terms of where they want us to resettle, but the traditional council and the community are saying it is not for the company do decide for us. The company is trying to resettle the community on a land outside the boundaries of the traditional area and therefore the traditional council is against it, and this is a point of disagreement now.

While this observation hinges on the refusal by the traditional leadership regarding resettlement on land belonging to a different customary jurisdiction due to concerns of loss of power and heritage (see Apoh, Wissing, Treasure, & Fardin, 2017), compensations appear to be an equal consideration. As a result, current practices suggest little opportunities for the sustainable resettlement of potentially displaced communities, as suggested by Moomen,

Dewan, & Corner (2016). Thus, the social compliance practices relating to resettlement point to divergent and contrasting interests between different actors that are often antithetic to the social sustainability of local communities.

6.3.2.2 Compensation

Compensation as a sub-theme of social compliance practices is a requirement under the Minerals and Mining Legislations, 2012 (LI 2175). This regulation requires mining companies to negotiate and pay fair, prompt, and adequate compensation for crops and any structure on lands given on concession for mining, but not for the land itself. The interviews with the non-governmental organisation groups suggest that there are concerns with current approaches to compensations in Ghana. For instance, a programme officer of the Wassa Association of Communities Affected by Mining stated that:

The issue of compensation of those whose activities have been affected; there are concerns about compensation payments and even resettling people have brought about numerous issues, and there are cases that we are currently working on and with people who are not satisfied with how compensations are been handled.

The data further shows that there is a concern about compensation in almost every local community having a mining presence in Ghana, which is further discussed in chapter 8 (section 8.4). This is quite surprising because the regulators approve the resettlement and compensation plan of companies before the final negotiation with the communities. For example, a manager in company ‘A’ speaking about their compensation and resettlement plans stated that, “We have had a detailed discussion with the Environmental Protection Agency and have submitted a detailed resettlement action plan to them, and they have accepted it”. Therefore, before a permit is granted, a mining company must provide regulators with quantitative details of the affected people, the economic trees such as cash

and food crops, and relocation benefits. However, beyond the companies meeting these social compliance issues with regulators, there are disagreements on the adequacy of compensation amounts and late payments. For instance, a senior officer at the industry association (Chamber of Mines) interviewed asserted that:

People are displaced from their settlements, so you need to resettle them in terms of where they are going to live or in terms of their economic activities as well, and usually, people would not be happy about the amount of money you pay to them as compensation.

Thus, this study has observed compensation practices as a lingering and conflicting issue in local communities, which undermine social sustainability implementation.

6.3.3 Local Content

Local content was mentioned by all research participants as an innovative mechanism by which large-scale mining companies are expected to contribute to community resilience through involving local stakeholders in the mine value chain. For example, the industry regulators and association suggested that local content practices are more likely to address many social sustainability challenges associated with mining in host communities.

The data shows that this sub-theme targets both short and long-term social sustainability of local communities. There are local content agreements between the mining companies and local communities, which currently constitute a key social sustainability initiative within Ghana's institutional environment. For instance, a regional director of the Environmental Protection Agency posited that "Those issues relating to employment and other things, what come into mind that is very important is the local content". Additionally, a senior officer

speaking for the industry association (Chamber of Mines) was much more succinct in his comment about the centrality of local content within the mining industry, stating that:

The Chamber is big on local content and Ghana is big on local content. Therefore, local contents are all around making sure that our people can take advantage of opportunities within the value chain in mining... People should take advantage of opportunities within the mining value chain because that is the surest way that we develop.

Further, the data indicate that local content practices aim at addressing *unemployment issues* and *develop local capacities* (Table 6.2) to compete for mining and non-mining contracts within and outside the local communities. This is because unemployment is a major social impact of mining and a key source of tension between companies and local communities. For example, a senior officer in the Chamber of Mines indicated that “the situation around unemployment creates lots of tensions in mining communities”. As such, the challenge with unemployment as evidenced by the massive layoffs (41% of staff) by large-scale mining companies in 2014 (see Essah & Andrews, 2016) makes local content initiatives an important mechanism in addressing the social impacts of solid minerals extraction. As such, local content is a practice in which host communities are encouraged and supported to directly engage in the mining value chain through benefit sharing. The rationale and practice of local content based on the views of selected case companies, industry association, municipal assemblies, and local communities are consistent with the following statements by Östensson (2017, p. 506), which states that:

Local content policies in the context of extractive industries have attracted increased interest in recent years. Partly, it is certainly also the result of a realization on the part of policy makers of the potential development effects from local content policies. Thus, recent regulations are moving towards a stronger emphasis on local content, and most countries with a significant extractive industry have included local content in their legislation or as a condition in exploitation contracts.

Table 6.2: Local content for the social sustainability of mining communities.

Impact category	Strategy	Process	Outcomes
Local employment	<ul style="list-style-type: none"> All unskilled and semi-skilled employment for members of affected communities 	<ul style="list-style-type: none"> Community control over local employment Increase transparency 	<ul style="list-style-type: none"> Reduced community agitations and tensions Employment of community members
Local capacity building	<ul style="list-style-type: none"> Selection of participants from each affected community 	<ul style="list-style-type: none"> Vocational training 	<ul style="list-style-type: none"> Livelihood skills

6.3.3.1 Local unemployment

To address local unemployment, the local content policy requires given all unskilled and low-skilled employment to job seekers within affected mining communities. For instance, a manager in charge of social responsibility in company ‘B’ explained it this way:

We have a local content policy in place and what it seeks to address is that it tries to make sure that semi-skilled and unskilled labour goes to the local communities...We have the local content policy in place such that communities within the catchment area, when there are jobs, get them.

This practice is a common practice across the mining industry, although the labour law allows every Ghanaian to work anywhere within the country. In implementing this policy on employment, mining companies have promoted *transparency* and *community control* over local employment decisions (Table 6.2). These two outcomes are increasingly addressing community agitations and calming tensions associated with unemployment. For instance, a manager in company ‘C’ indicated that their local content policy, particularly as

it relates to given community control over unskilled and semi-skilled employment in the company and their sub-contractors are addressing the unemployment challenge in their operational areas. He stated that:

We have put in place in 2016 a community employment committee made up of representative of every host community. Whenever they are any vacancy...we just give it to them. That is why agitations have come down. That is the way we have been able to go around unemployment as a challenge.

This suggests that adopting a policy of community control over direct employment have changed perceptions of unfairness in the recruitment processes of mining companies. The traditional council represented by a chief and the leadership of the youth group are especially engaged with the established employment committees to ensure that those been employed under the local content policy are accepted as natives in the affected mining communities. The local content on employment also indicates transparency, which has calmed local agitations and provided adequate information to the communities about the limits of direct employment with a mining company. For instance, a manager of company 'C' mentions changes in employment procedure and a deliberate effort to engage relevant stakeholders, including arguing that:

If you had come here two years ago, that [employment issues] would have been my number one comment, not because we were not doing it, but the way we were doing it was not appreciated by the communities. We have a comprehensive community employment policy and procedure, which is something the company brags about.

6.3.3.2 Developing Local Capacities

Building local skills and capacities have the same aim of addressing unemployment by encouraging local participation in economic processes within or outside a mining

community. Skills training is particularly important in host communities who lose their farmlands to mining development because farming is their main source of livelihood and therefore lacks skills to engage in other economic activities. For instance, a chief speaking about the skills training provided by a mining company in his community stated that “They trained them in batches and awarded them with certificates in plumbing, electrical technician, and other employable skills to help the people”. Additionally, a manager in company ‘C’ asserted the objective of this local content policy by intimating that:

In terms of even employment, one of the things we are looking at is that we have an engineering training centre in place where we are training people in all these engineering, auto-electrician, welding, and all that.

Taken together, local content addresses mining induced unemployment, loss of farmlands, and lack of livelihood skills in local communities and is a key sustainable social impact mitigation practice during the operational phases (Table 6.2). Thus, local content practices as a major mechanism for social sustainability are further examined in chapter 8 (section 8.4). However, despite the local content practices, the selected case companies are facing some implementation challenges. For example, an interview with a representative of the industry association revealed the following:

People are not willing to go down that route or travel down that road and [provide regular supplies to the mines]. For example, when you give a contract to a local [businessman or businesswoman], the first thing they do is to buy a vehicle, and they don’t have the penchant to [reinvest their profits] back into the business to expand it. Once we see money, we move into luxurious life-style instead of investing in the business. (Senior Official, Chamber of Mines).

The above statement supports the observation by Agyei, Sarpong, & Anin (2013) that supply chain challenges including local quality products of domestic firms, unreliable lead times, lack of local companies of international standards, among

others prevent the utilization of indigenous businesses in the mine value chain processes (Agyei, Sarpong, & Anin, 2013).

6.3.4 Relationship Proximity

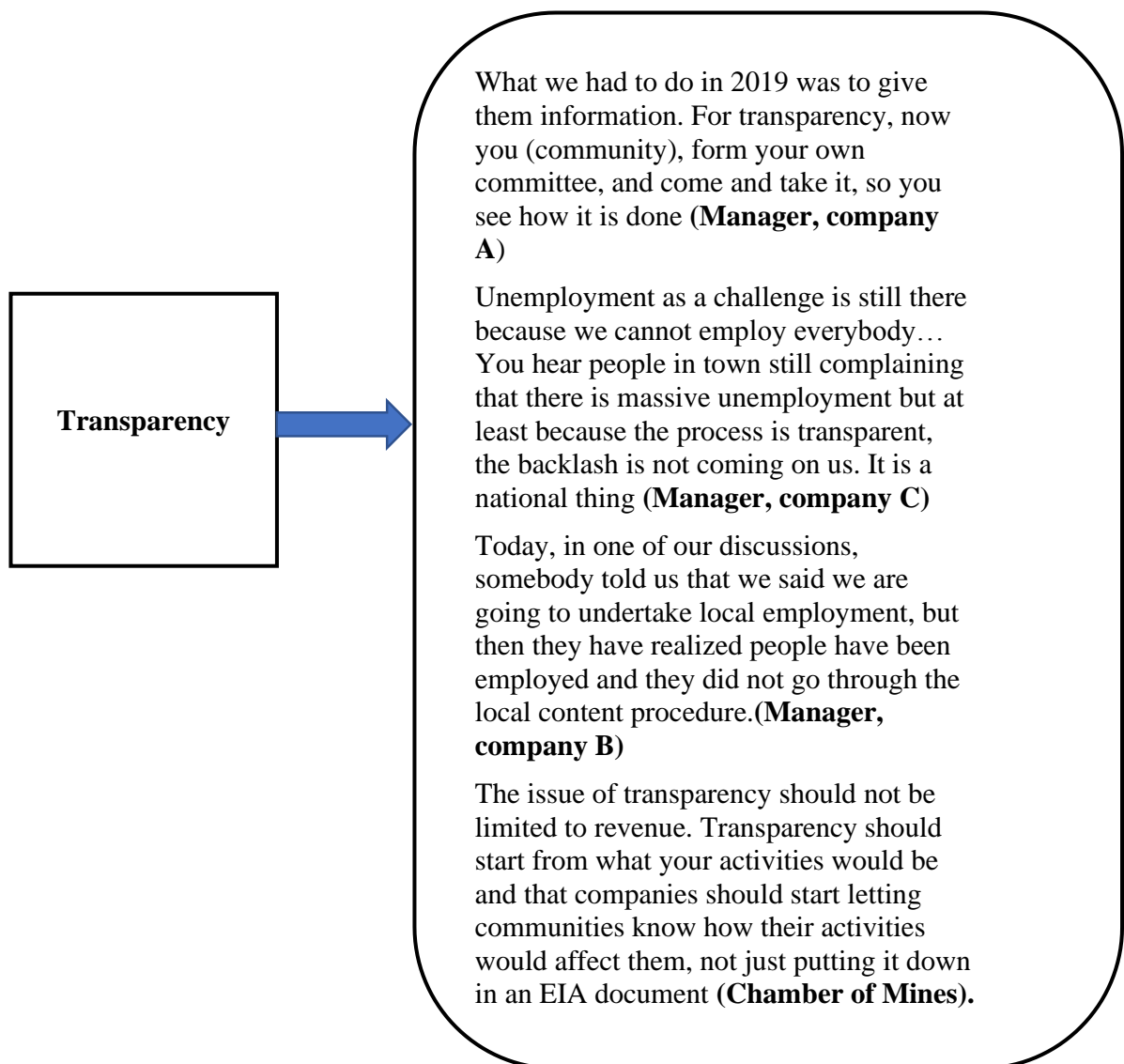
Relationship proximity in this study refers to the process of forming, monitoring, and maintaining constructive interactions with various stakeholders by influencing their expectations and perceptions. Developing relationship proximity helps in coordinating stakeholder expectations and bridges the gap between the companies and host communities due to the inherent differences in values, culture, and patterns of behaviour. For instance, a community affairs manager in company ‘B’ observed that “You have to manage them because they are stakeholders, they have an interest, and they have power, so you have to meet them half-way”. The basic or sub-themes relating to relationship proximity (see Figure 6.1) that emerged from the data include *transparency, collaborative decisions, cross-cultural partnerships, and stakeholder engagement*.

6.3.4.1 Transparency

This basic theme describes the extent to which a company allows stakeholders to observe its internal and external actions through greater openness. Transparency has the objective of building trust between a company and its stakeholders resulting in responsibility and ethics. The data show that mining companies promote transparency through stakeholder participation and greater information sharing. This covers employment issues, compensation negotiation, community development partnerships, and financial transparency initiatives. For example, to ensure full disclosure beyond financial transparency, large-scale mining companies in Ghana have signed up to the Extractive Industries Transparency

Initiative (EITI). The aim is to promote corporate transparency as a strategy for effective stakeholder management. The figure (Figure 6.3) covers some of the statements of interviewees relating to transparency as a basic theme of relationship proximity.

Figure 6.3: Transparency and disclosure regarding relationship proximity.



The assertions from the interviewee (Figure 6.3) suggest that large-scale mining companies’

stakeholder management practices include promoting transparency and disclosures with stakeholders and in affected communities. Additionally, the increasing transparency in the process involving local employment has considerably reduced the tensions between large-scale mining companies and local communities. Importantly, the data shows that local communities are keen on transparency in their engagements with mining companies and would raise concerns where they believe the company has failed to follow due transparent processes. Beyond employment, the local communities, regulators, and other stakeholders demand for transparency in the companies' engagements. However, the data shows that while regulators demand for full disclosure and transparency on environmental issues, local communities are largely concerned about the process regarding social sustainability issues including resettlement, compensation, and community development agreements.

6.3.4.2 Collaborative Decisions

Collaborative decision (Figure 6.1) refers to a multi-stakeholder partnership in decision-making. This strategy in developing relationship proximity involves a deliberate corporate policy of engaging stakeholders on both social compliance and voluntary activities. Stakeholders demand increased community participation in decision-making as a key requirement for sustainable development. The data indicates that the common practices across the mining landscape mostly relate to tripartite decisions involving the government, industry, and communities. It further suggests that collaboration decisions between companies and stakeholders enable them to engage in an interactive process, close gaps, and strengthen the relationships.

The data show that collaborative decisions are stronger for social compliance issues such as resettlement, land access and compensation where various committees and boards have a

mandate to negotiate and decide on specific outcomes. For instance, a programs manager in a mining pressure group stated that “I believe it is necessary that the people who are affected are part of the decision-making process and that is very important”. Similarly, collaborative decisions are required as part of the initial stages (EIA process) of mining development. Accordingly, a regional director of the Environmental Protection Agency explained that: “That is why we are organizing the public hearing, so they should participate. There should be open gathering for everybody to come and say what they want to say”. Thus, the selected case companies encourage local participation from different stakeholder groups usually through community forums, consultative assemblies, and various committees.

However, key decisions on mine licensing, environmental permits, royalty payments, and project implementation of projects involve very little collaborative decisions at the plant level. This presents a barrier to social sustainability implementation, which is further examined in chapter 8. As a result, mining contracts and permit largely occur bilaterally between companies and governments, as suggested by Triscritti (2013). However, as observed by Suopajarvi et al. (2016), these findings show that local communities should have an equal impact on the major decisions around mining beyond agreements between regulators and companies in order to enhance sustainable mining.

6.3.4.3 Cross-cultural Partnerships

Cross-cultural partnerships (see Figure 6.1) refer to the process of recognizing different perspectives and building understanding between contrasting cultures and ways of behaviour in local communities. This approach to stakeholder management is critical to developing cross-cultural understanding through complex interactions between companies and the traditional institutions in local communities. This type of engagements with the traditions,

practices, and cultures of host communities aim at preventing tensions and conflicts due to differences in institutional norms. The selected case companies in this study have cultural heritage as a key pillar of their social sustainability framework. In line with this, the Manager responsible for stakeholder engagement in company 'B' said the following:

We have the culture and heritage aspects, which look at supporting community festivals and building palaces for traditional councils, etc. The traditional things that people have attachments for or belongingness to, we try as much as possible not to disturb sacred sites.

A traditional authority or chief in a mining community confirmed corporate respect for customary beliefs and practices including protecting burial sites in their present settlement. Therefore, mining companies are increasingly focused on been culturally sensitive while achieving cultural proximity through a deliberate policy to foster understanding with chiefs and community elders who are the custodian of customary practices. For example, a traditional authority or chief in Community 'Z' explained this when the company started a new construction, stating that, “we moved in to say that we cherish the dead and we must know where our mothers and fathers are buried, and they readily agreed, demarcated the area, and fenced it to preserve the place”.

However, this chief acknowledged that previous community resettlement 20 years ago has resulted in a loss of cultural heritage and disconnection from their ancestors, as they cannot trace the cemeteries of their dead relatives. This overlaps with the assertion that mining impact on cultural heritage and artefacts was little known in Ghana (see Apoh et al., 2017). This is also consistent with a previous findings by A. Hilson et al. (2019) in that, while community resettlement requires consideration of social and cultural issues to enhance the possibility of success, this was largely missing in past resettlements activities. Given this,

corporate managers are showing increasing awareness about the significance of cultural artefacts, symbols, and practices in improving company-community understandings.

Moreover, building cross-cultural partnerships as a corporate strategy has resulted in mining companies having to change their internal policies in order to satisfy customary expectations. As previously noted, senior management at the plant level could not make cash donations (see Kemp & Owen, 2013), as this was against corporate policy. For instance, a manager at company 'C' referring to cash donation to support local festivals stated that:

Some years ago, we did not have a policy governing that, so we were not allowed to make cash donations and even present drinks. Gradually, we prevailed upon the company's policy makers to allow the presentation of drinks and other food items because we went to a few functions, and we were chased away because we brought gifts without cash.

Therefore, mining companies focusing on cultural sensitivity and proximity through a deliberate policy to foster understanding with chiefs, queen mothers, and community advance social sustainability. Consistent with a suggestion by Apoh et al. (2017), cultural heritage is an expression of the identity of a group of people who are alive, dead, or yet to be born rather than of individuals. Direct donations during funerals, festivals, and community durbars include the presentations of cash and imported alcoholic drinks for libations. However, cross-cultural partnership does not mean that the companies are always responding to demands that serve the interests of the traditional council. For instance, a local chief in a community Y vented his frustration about the unwillingness of present management of the mine to support some of their customary rituals. He stated that:

The issue about our rituals and ceremonies are important to us, so it is worrying that the company is ignoring things we have practised for many years... It was after the company stopped supporting the rituals, which we believe resulted in the dwindling fortunes of the mine.

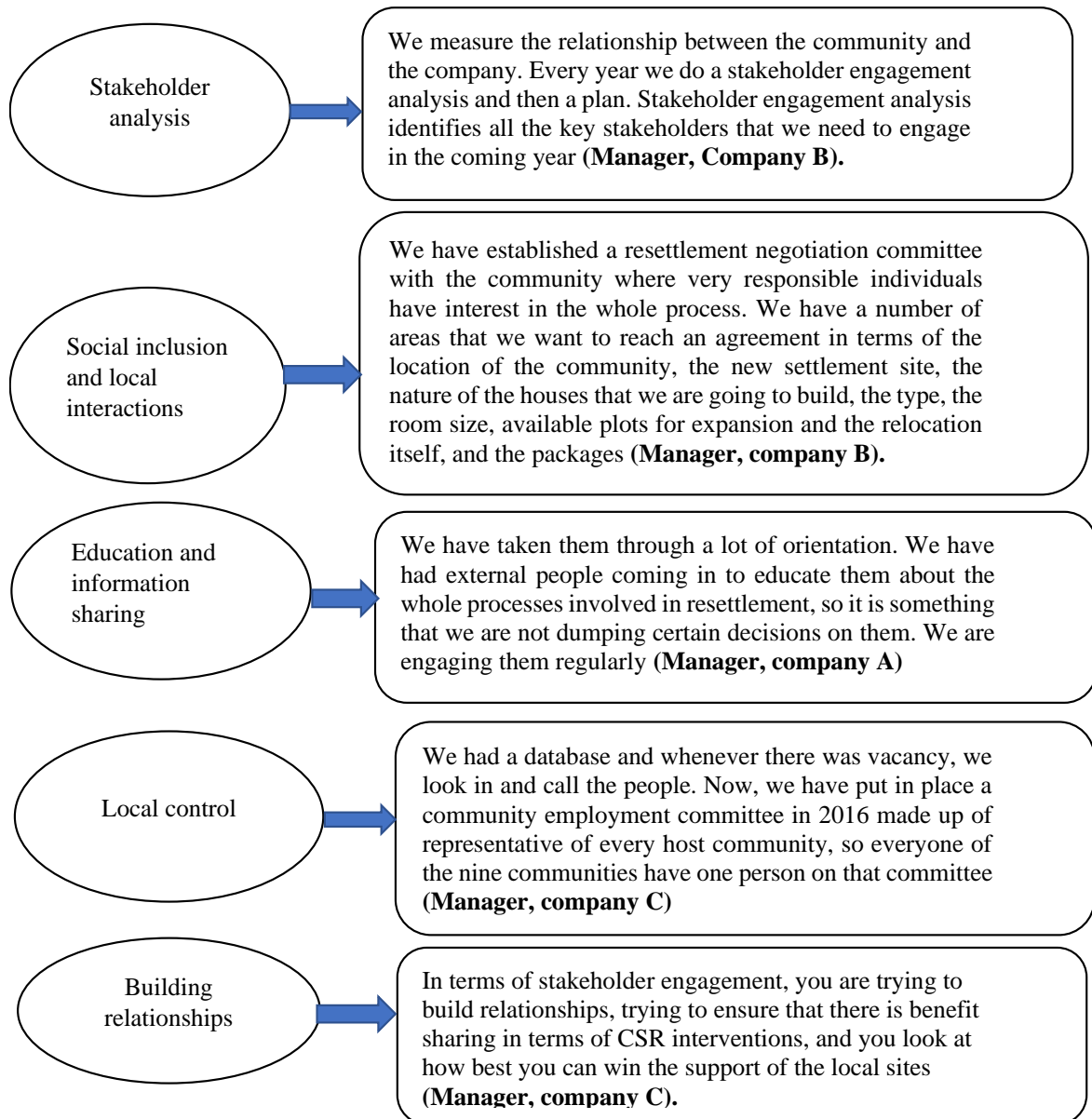
This comment relates to the company previously supporting customary visits to company lands in the form of cash, drinks, and catering to their place to perform traditional rituals. Despite this, the data illustrate that these cross-cultural practices are largely at the behest of the traditional authorities who appear to be the direct beneficiaries of partnership at the plant level.

6.3.4.4 Stakeholder Engagement

Stakeholder engagement (Figure 6.1) refers to a process by which an organization or a company communicates, develops relationships, and involves individuals or groups who can affect or is affected by its decisions. This has become an important part of the corporate strategy because of the constant tensions between mining companies and stakeholders. Consequently, the companies involved in this study have managers with responsibility for stakeholder engagement who organise public forums and community consultations on local issues.

The empirical data shows that stakeholder engagement occurs throughout the mining lifecycle from the pre-operational to the post-closure phase. Accordingly, Figure 6.4 demonstrates that stakeholder engagement is manifested in stakeholder analysis, social inclusion and local interactions, education and information sharing, local control, and relationship building.

Figure 6.4: Scope of stakeholder engagement practices.



The comments in Figure 6.4 relates to an annual corporate engagement that identifies potential stakeholder challenges and risks and builds multi-stakeholder partnerships. It relates to building a profile of different stakeholder groups and individuals with significant influence in the local communities and analysing their levels of risks to the operations of the companies. This lends credence to a study by Triscritti (2013)

in Peru, which suggests that strengthening company-community relations can prevent conflicts and contributes to sustainability. For example, a leader of a youth group might have a level of influence limited to the boundaries of a host community while a Member of Parliament of a constituency that includes local mining communities might have wider influence transcending the local area to national institutions and power structure.

Further, stakeholder engagement as a CSR strategy involves constant communication and consultations with the communities, including the traditional council and the district assembly on statutory compliance issues. For example, the Minerals and Mining Act, 2012 (L. I 2173) encourages negotiations between companies and stakeholders on issues of resettlement and compensations. However, despite these levels of engagements, the findings are consistent with a study by Osei-Kojo and Andrews (2018), who identified social exclusion and non-participation of relevant stakeholders, as a challenge in Ghana. This also relates to a study by Lawer et al. (2017) indicates that the chiefs with their traditional councils and the district assemblies, which negotiate compensations on behalf of local communities have pronounced self-interest that conflicts with that of affected people. Similarly, social exclusion and limited participation appear to emanate from established procedures of mining companies.

Moreover, the comments by the managers on resettlement activities show attempts towards social inclusion and interactions regarding social compliance activities. However, the data indicate that resettlement issue is a source of constant tension between companies and communities requiring regular communication and engagement between parties. For example, to address this lingering community

concern, the CSR policy document of a multinational mining company (Asanko Gold) operating in Ghana states that, “We work closely with landowners prior to commencing activities on the ground and negotiate fair compensation for such activities where appropriate”. In this regard, a process of education and information sharing to assist individuals to make informed decisions are integral to effective stakeholder engagement. In a similar vein, large-scale mining companies are encouraging local control over processes that intersect with local interests.

The argument is that an improvement in the relationships between companies and stakeholders through a voluntary process of engagement is addressing the unemployment challenge, which is key to the social sustainability of local communities. Additionally, the findings indicate that stakeholder engagement involves diverse interest groups and not just members of an established committee or those having direct stakes in a company, as suggested by Dobeles, Westberg, Steel, & Flowers (2014). Mining companies are organizing much more inclusive forums to engage community members in the quest to develop positive relationships. Overall, stakeholder engagement is a management strategy in developing relationships with mining communities in ways that secures a social license, reduce miscommunications and misunderstandings, and address local demands.

6.4 Synthesis

This section synthesizes the findings in this chapter by highlighting the relationships among various sustainability practices in addressing the social impacts of mining in Ghana. With the widely reported social impacts of mining activities on local communities, the selected case companies promote initiatives such as *social*

responsibility, social compliance, local content, and relationship proximity to promote social sustainability. Additionally, stakeholder and institutional pressures drive these practices, which relate to a spectrum of social, economic, and cultural processes beyond those previously observed in the literature.

The findings show that while social sustainability initiatives draw the most interest by different stakeholder groups in the mining environment, it has a lesser focus within the regulatory community. Additionally, there has been a progression of social sustainability practices to embrace broader themes (Segerstedt & Abrahamsson, 2019; Solomon et al., 2008; Tiainen, Sairinen, & Novikov, 2014). Consequently, the findings provide a broader framework in defining social sustainability implementation beyond those established in previous mining research in Ghana (Antwi et al., 2017; Arko, 2013; Essah & Andrews, 2016). Similarly, this study indicates that while social sustainability implementation largely occurs within a self-regulatory domain, some practices intersect with regulatory references. This contrasts with the idea that social sustainability or CSR practices are voluntary (Andrews, 2016; Malik, 2015). For example, the social sustainability practices referred to as CSR in Ghana (Essah & Andrews, 2016), include social compliance practices and social agreements that draw from mining regulations. Further, while the selected case companies' social investments involve key areas identified by Oppong (2016b), these only represent the tangible dimensions of social responsibility. The empirical findings show other practices based on intangible managerial strategies, including promoting transparency, cross-cultural understanding, stakeholder engagement, and collaborative decision-making.

Moreover, the social compliance issues within the mining industry remain a source of tension between stakeholders and large-scale companies. To address this, corporate managers have adopted relationship proximity strategies that depend on the engagement with traditional chiefs and the municipal authorities. However, the findings show that local institutions and community representatives have pronounced self-interests, which are parallel to affected people (Bush, 2009; Schoneveld & German, 2014). As such, while large-scale mining companies have established various committees that provide some local control over major decisions (Osei-Kojo & Andrews, 2018), affected people in local communities often lack the opportunity to actively engage in social responsibility processes (Bawole, 2013; Essah & Andrews, 2016).

Finally, there are differences in stakeholder pressures between communities with a history of mining and those experiencing new mining projects. For example, while new mining communities embrace resettlement in anticipation of compensations, those already resettled resist any such activity due to the net social and economic cost to them (Adam, Owen, & Kemp, 2015). Similarly, although social sustainability implementation largely in a self-regulatory context, strategic drivers, including social license, stability agreements, tax incentives, social reporting, and industry competition, have homogenized corporate practices across the industry. For instance, selected case companies have common social agreements, community social investments, local content policy, and stakeholder management strategies. Thus, this has implications for institutional theory and stakeholder theory, especially relating to the role of mimetic and normative pressures on social sustainability implementation in a non-enabling mining environment.

6.5 Conclusion

This chapter investigated the third research question regarding the sustainability initiatives of large-scale mining companies address their social impacts throughout the mine lifecycle. The chapter reported four key social sustainability practices in addressing the social impacts of mining during and after mine closure – *social responsibility, social compliance, local content, and relationship proximity*. First, the social responsibility practices of selected case companies in Ghana consist of *community social investments* and *social agreements*. While community social investment is a voluntary strategy driven by ethical and strategic considerations, social agreements draw from accountability and trade-offs. For instance, corporate managers sign social agreements to both contribute to local development and manage the changing stakeholder pressures and competitive intensity in the mining industry. Community social investment, on the other hand, is a forward-thinking approach, which marks a new paradigm in CSR driven by *social license, stability agreements, tax incentive, and industry competition*. For example, stability agreements multinational mining companies and the government of Ghana compel managers to invest in the development of local communities in line with license agreements and transaction contracts. Overall, CSR is a social license activity, which aims at addressing community tensions, respond to stakeholder expectations, and contribute to community development.

Second, social compliance practices largely respond to *resettlement* and *compensation* activities prior to the production phase. For instance, the minerals and mining law mandates a company to resettle any local community within a 500 meters buffer zone of a production plant. Resettlement and compensations involve complex

negotiations between the companies and communities because of the fluidity of the land tenure arrangement within the customary law system in Ghana. As a result, issues emerging from community resettlement involve rent seeking and conflict of interests due to the role of chiefs and traditional councils as custodians of the land on behalf of the living, the ancestors, and the unborn.

Third, local content practices have short and long-term objectives of addressing unemployment and the capacity of local communities to participate in the mine value chain. Particularly, a common goal of addressing the socio-economic collapse of host communities after mine closure drives local content practices in Ghana. Finally, the relationship proximity practices involving *stakeholder engagement, transparency and disclosure, collaborative decisions, and cross-cultural partnerships*. This aims to develop multi-stakeholder partnerships for social sustainability and relates to the following assumptions. First, the basic assumption is that mining companies seek to develop relationships with stakeholders and build trust in corporate transparency and disclosure (Herremans, Nazari, & Mahmoudian, 2016). Second, the assumption of collaborative decisions involves an interactive process leading to mutual rights and obligations. Third, the assumption of cross-cultural partnership shapes corporate behaviour due to the recognition of the differences in norms, values, and institutional cultures.

Taken together, this chapter has reported on the social sustainability practices of selected case companies in addressing impacts in host communities throughout the mine lifecycle. While the risks to social sustainability are significant, the selected case companies have responded by embracing strategies beyond the disproportionate

focus on CSR practices. The next chapter further presents the findings on the drivers for and barriers to social sustainability implementation in Ghana.

Chapter 7

Drivers for and Barriers to Social Sustainability Implementation

7.1 Introduction

This chapter reports on the findings regarding the research question ‘*What are the drivers and barriers to social sustainability practices in Ghana?*’ While social sustainability practices occur largely in a self-regulatory context, the changing institutional environment resulting from the social impacts of mining activities during and after mine closure are leading to a broader scope of implementation. Yet, the literature suggests that an institutional context influence the policies and actions of companies, often in response to regulatory pressures. In contrast, companies may embrace and implement responsible practices even in weak and non-enabling institutional context because of internal organizational incentives. This means that the lack of strong institutional arrangements in a mining environment does not suggest that companies might engage in irresponsible practices and ignore their commitments to sustainability.

Despite these arguments in institutional theory, the scant research on social sustainability indicates that the drivers and barriers in this domain have not been adequately explored (Dempsey et al., 2011; Eizenberg & Jabareen, 2017). As a result, there is scant information on the drivers and barriers to social sustainability implementation in developing countries, including Ghana. Further, because there are ongoing social impacts of mining, the barriers hindering the social sustainability responses of large-scale companies require close research scrutiny. This chapter examines the drivers for, and the barriers to social sustainability practices of large-scale mining companies are Ghana.

7.2 Structure of Chapter

The remainder of this chapter is organised as follows. Section 7.3 describes the drivers, while section 7.4 presents the barriers to the social sustainability implementation of large-scale mining companies in Ghana. Finally, section 7.5 synthesizes the findings while section 7.6 provides the conclusion to this chapter.

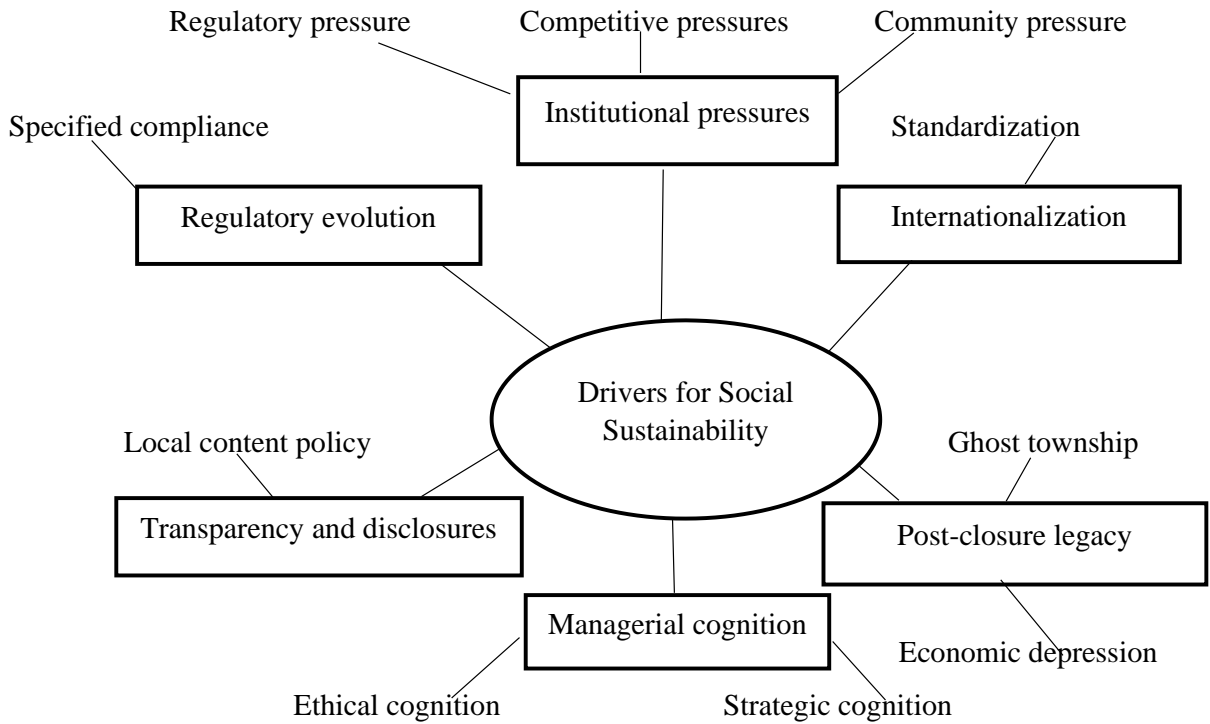
7.3 Drivers for Social Sustainability Implementation

This section reports on the drivers of social sustainability practices within the large-scale mining industry in Ghana. As earlier suggested, large-scale mining companies have traditionally focused on CSR practices, which generally take the form of community development initiatives in developing countries (Essah & Andrews, 2016; Eweje, 2006b). However, there is an increasing recognition that the existing business strategy of using CSR initiatives to address the development needs of local communities are inadequate and may rather lead to dependencies (Essah & Andrews, 2016). For example, studies mention the unequal and uneven distribution of mining benefits (Bebbington, Hinojosa, Bebbington, Burneo, & Warnars, 2008; Standing & Hilson, 2013), which hinder the promotion of social sustainability regarding inter and intra-generational equity. Given this, large-scale mining companies are embracing social sustainability implementation. Yet, the drivers for social sustainability implementation is not fully understood. Therefore, the first section of this chapter examines the social sustainability practices of large-scale mining companies in a challenging and non-enabling institutional context.

The organizing themes relating to the drivers for social sustainability implementation include *regulatory evolution*, *institutional pressures*, *internationalization*,

transparency, post-closure legacy, and managerial cognition. These are represented on the thematic networks below (Figure 7.1).

Figure 7.1: Drivers for social sustainability implementation in Ghana.



7.3.1 Regulatory Evolution

Regulatory evolution emerged as an organizing or major theme from the interview data regarding the drivers for social sustainability practices. It refers to the progression of regulatory and policy frameworks on social compliance issues leading to specified requirements. The progression of minerals and mining regulations in Ghana is the result of the amendments in existing laws and the passage of new legislative instruments regarding emerging social sustainability challenges. The findings show that regulatory evolution is based on the progressions from generalized to specified compliance requirements, especially regarding compensation and resettlement activities. Accordingly, *specified compliance*

emerged as the basic or sub-theme of regulatory evolution. For instance, an Environmental Protection Agency (EPA) director interviewed explained that resettlement activities in the 1990s resulted in a deterioration in the socio-economic conditions of affected communities due to weak regulations and institutional apathy regarding the negative impacts. The environmental assessment processes in the 1999 regulation (L.I, 1652) catered for compensation and resettlement, but this lacked specified compliance requirements.

However, the 2012 Minerals and Mining Act (L.I 2173) has specific regulations on compensation and resettlement activities. For instance, an EPA director stated that “we now have a specific legislative instrument for resettlement and compensation, which hitherto was diffused”. He further noted the evolution in the regulatory framework guiding mining development including resettlement and compensation, stating that:

The mining and minerals act, which used to be PNDC law 528 was promulgated in the 1980s, amended by Act 703 in 2006, and then amended again in 2010, and again in 2012. Therefore, that is how the law governing mining has progressed, and with the passing of Act 703 in 2006, 6 legislative instruments have been established under that Act.

Similarly, many developing countries have experienced an evolution in their regulatory frameworks guiding mining development. Thus, the findings on regulatory evolution as a driver for social sustainability implementation bring focus to a growing trend within many resource rich countries around the globe. For example, Indonesia has experienced a profound regulatory evolution in their mining laws regarding CSR with a clear intent to ensure greater benefits for the population (Devi & Prayogo, 2013). Additionally, the findings align with previous observations that mining-induced displacement and resettlement continuously pose significant risks to mining communities (see Adam et al., 2015). However, while local communities with a history of mining have expressed a general

disinterest in resettlement, regulators and the companies largely focus on regulatory compliance. For example, a director in a regulatory agency described the local communities as “stubborn” when speaking on the tensions around compensations. Therefore, while regulatory evolution is a major driver for social sustainability implementation due to specified compliance requirements, lingering issues regarding resettlement and compensation remain a source of tension in mining areas.

7.3.2 Institutional Pressures

Institutional pressures as an organizing theme emanate from regulators, industry-led institutionalised culture, and the actions of the chamber of Mines in fostering social sustainability practices of its member companies. Additionally, the data analysis suggests that institutional pressures stem from external and internal causes leading to isomorphism in the approaches and strategies in addressing social issues by large-scale mining companies in Ghana. In this regard, institutional pressures based on the data are manifested in three sub-themes –*regulatory, competitive and community pressures* (see Figure 7.1). The following section elaborates on each of these basic categories in detail.

7.3.2.1 Coercive Pressure

Coercive pressure comes from the institutions with the legal mandate to provide governance to mining development and ensure compliance with relevant regulations and codes of practice. Regulatory or coercive pressure draws from the fear of punitive sanctions or penalties and largely emanates from the environmental protection agency (EPA) and the Minerals Commission on social sustainability issues. The data show that regulatory pressure mainly applies to social compliance issues, including community resettlement,

compensations, and provision of alternative facilities as a mitigation requirement. For instance, a mining company needs to submit an environmental impact assessment (EIA) study addressing how its activities may affect human settlement and other specified social compliance indicators and suggests mitigation responses for approval before an environmental license can be issued. This is part of the conceptual compliance requirements in the environmental impact assessment process in line with the principles and planning for mitigation and adaptive environmental management. In relation to this, a regional manager of the Environmental Protection Agency (EPA) indicated that:

The environmental assessment regulations, under section 1, 2, and section 17, every mining company is supposed to have environmental permit... We are interested in knowing the number of affected persons in terms of the community itself, whether there is going to be a relocation. It does not matter whether it is a small family or a big family. Whether there is somebody there who will be affected directly by the company and who will be relocated.

Similarly, the community affairs manager of company 'A' made this observation about how regulatory pressure obliges the company to engage in certain social sustainability activities.

We have had detail discussions with the EPA and have submitted a detailed resettlement action plan to them, which they have accepted. There were some conditions they gave in terms of when and how we start and complete the resettlement, and this has been finalized.

Further, the operational phase also requires compliance to various terms of references stated in the license and permit conditions of large-scale mining companies. Particularly, this mainly involves community relocation and resettlement, compensation for land dispossession, and the provision of alternative facilities as an impact mitigation measure. As such, regulatory pressure is widely accepted to be the strongest driver of sustainability

practices by firms, as suggested by Hoejmoose, Grosvold, & Millington (2014). However, there is currently no specific regulatory compliance requirements for post-closure social sustainability practices as it only relates to practices for post-closure environmental sustainability.

7.3.2.2 Competitive Pressure

Competitive emerged as a sub-theme regarding the institutional drivers. It comes from situations where companies are confronted with uncertainty due to the lack of previous experiences in an area of practice. This relates to mimetic pressure, where companies imitate the strategies of successful competitors in the mining industry. This finding relates to the literature, which indicates that competitor's pressure other companies to embrace sustainability practices and engage in effective stakeholder management. The data show that competitive pressure drives social sustainability implementation regarding voluntary or self-regulatory issues. The Chamber of Mines, which is the industry association, provides annual awards to the best large-scale mining company in the category of corporate social responsibility practices. As such, mining companies are encouraged by the industry association to imitate and learn from successful voluntary initiatives of their competitors. For example, a senior officer of the Chamber of Mines made the following observation:

Mining companies are encouraged to go into agreements with their communities and help with their development at the back of their projects, so as a chamber, this is something that we encourage our member companies to do and to learn from each other.

Further, the data shows that because of the effect of competitive pressure on isomorphism, large-scale mining companies have common social sustainability practices across policies and practices. Particularly, the nature of social agreements, social responsibility projects,

stakeholder management, and local content policies are very similar across mining companies in Ghana. This finding is further examined in chapter 8 (section 8.5). For instance, a community affairs manager of company ‘C’ indicated that: “The formula for doing community social investment is quite common in Ghana now, but (our company) started it”. This statement refers to the Community Foundation established by company ‘C’, which provides funding for various development initiatives in local communities. All the other large-scale mining companies have established similar development financing schemes based on the structure and formula established by company ‘C’. Additionally, this observation by the manager of company ‘C’ demonstrates competitive pressure as a driver for a self-regulatory social sustainability practice. .

We have a comprehensive host community employment policy procedure, and it is one of the things [we] like to brag about because currently even the Chamber of Mines is discussing it and trying to get other companies to adopt same. We used to register every unemployed person in the community. We had a database, and whenever there was a vacancy, we look in and call the people. Now, we have stopped registering them and we have put in place since 2016 a community employment committee made up of representative of every host community.

This statement relates to an initiative that was introduced by one of the three biggest mining companies in Ghana where local employment decisions are coordinated and managed by a committee made up of representatives of affected communities rather than the company itself. This initiative is touted to have reduced tensions relating to the perceptions of unfairness, nepotism, and lack of transparency in prior employment processes. Given this, the other large-scale mining companies who are members of the Chamber of Mines have imitated and implemented similar initiatives as part of their social sustainability responses to institutional pressures. This finding relates to an assertion by Fikru (2014) on the role of endogenous and exogenous institutional pressures. Overall, competitive pressure drives

social sustainability implementation on self-regulatory issues because of the necessity to keep up with successful competitors within the mining environment.

7.3.2.3 Community Pressure

Community pressure emerged in the data as sub-theme in institutional factors, which drives social sustainability practices. As indicated earlier, local communities are a particularly powerful stakeholder because of their ability to confer a social license and threaten corporate sustainability. Additionally, because host communities are directly affected by mining, they possess all the elements of stakeholder salience, including legitimacy, urgency of claims, and power. Accordingly, the data shows occasions where chiefs, opinion and assembly members boycott meetings on compensations because of deep-seated mistrust. At the time of the data collection in this study, there were violent confrontations between a community and a large-scale mining company, which led to injuries.

Community pressures as a major driver of social sustainability implementation often involve active traditional councils, municipalities, and affected people actively engaging large-scale mining companies to address local needs. For example, an area manager of the EPA stated that: “They [companies] find it necessary to have a social license. They want to continue to mine, and they need to have their peace of mind because of agitations from community members”. The increasing community awareness of the consequences of mining means that corporate managers are compelled to embrace social sustainability practices that intersect with stakeholder interests. In this regard, the Community Affairs Manager of company B made this observation:

One of the key things that [we] have to develop is [our] social license with communities...I think the objective is to ensure that we enhance the social license of the mine and try to operate in ways that bring mutual and beneficial relationships with our stakeholders. This includes benefit-sharing, impact management, and relationship building.

This comment suggests that the relevance of obtaining a social license to operate from the host communities is pushing large-scale mining companies in a direction consistent with the objectives of social sustainability. In a similar vein, corporate managers are accepting the legitimate expectations of local communities through embracing wider sustainability objectives that go beyond social impact mitigation, as posited by (UNDP & UN Environment, 2018). Consistent with the assertions of Owen & Kemp (2013) and Prno & Slocombe (2012), this finding demonstrates the significance of community pressures in influencing the practices of the selected case companies. However, the data also demonstrate that large-scale mining companies have found ways to lessen the effects of community pressure through developing patronage or transactional relationships with tribal chiefs and local government officials. Thus, this finding situation is further explored in section 7.4 regarding the barriers to social sustainability and discussed in chapter 8 (see section 8.5). Particularly, because large-scale mining companies wield huge resources, this has provided them with a high degree of influence over critical decisions of governments and regulatory institutions. Additionally, because local people in mining communities are culturally subjected to the leadership of traditional authorities, corporate managers have developed a strategy of using the hierarchical customary system and power structure to resolve issues on favourable terms. For instance, the community affairs manager of company B expressed the following thoughts:

When nothing works, we escalate it to the paramountcy or to the municipal chief executive and the Ghana police. You know the community people respect some of these higher authorities, and when it gets there, they can

have amicable resolution and along the line, we are able to get the projects ongoing.

Finally, the data indicate that community pressure has lesser effects on voluntary social sustainability issues compared with regulatory and mimetic pressures. This is consistent with the view that the scope of action of stakeholders on multinational companies depends largely on regulation (see Delgado-Márquez & Pedauga, 2017). As such, the traditional chiefs interviewed expressed absolute corporate discretion on whether to accept or reject community demands relating to development assistance projects outside signed social agreements.

7.3.3 Internationalization

The data indicate that selected case companies strive to implement voluntary initiatives based on their history of sustainability practices in other countries. Based on the interviews with the mining companies, industry association, and even regulators, internationalization was an internal organizational feature driving social sustainability implementation. Against this backdrop, *standardization* emerged as the basic theme related to internationalization, which is based on global codes and protocols (see Figure 7.1). In particular, standardization is largely evident in the policies of large-scale mining companies relating to compensation and resettlement. For example, there is a policy of paying higher compensations beyond the rates required by the existing legislative instruments. For instance, a manager in company ‘C’ indicated that, “We do not pay people based on what the government rates are. We pay them more for inconvenience, resettlement allowance, and we give them investment training”. A director of the Environmental Protection Agency confirmed this by stating this:

I think the situation where they (company and communities) negotiate is better. For example, if you look at the compensation rate for cocoa farm,

the government has a rate. Invariably, what we have realized is that what the mining companies pay go far above the government rates.

Further, the data shows that large-scale mining companies strive for standardization based on global protocols and frameworks beyond compliance during resettlement and compensation negotiations. There is a practice of consulting widely beyond national laws in social compliance activities even when a company is not a signatory to a specific protocol or standard. For instance, a manager of company ‘C’ indicated that they borrow the standards and codes of the International Financial Corporation in their resettlement activities and in preparing their resettlement action plans. Similarly, a manager in company ‘B’ posited this, “when we were doing resettlement, we looked at International Financial Corporation (IFC) standard 5, which talks about resettlement”.

Overall, the findings indicate that the adoption of voluntary international certification by large-scale mining companies is in line with the incentives for standardization by multinational companies as asserted by Fikru (2014) and Fonseca et al. (2014). Thus, internationalization, as an internal organizational characteristic drives large-scale mining companies in embracing global standardization regarding social sustainability implementation. These arguments are consistent with those posited by Delmas & Toffel, (2011) and Gómez-Bolaños et al. (2019). Given this, the role of internationalisation as an internal driver for social sustainability is further examined in detail in chapter 8 (section 8.5). Finally, the findings relate to the view that the most common voluntary practice is the adoption of international certification by companies based on recognized standardization that address social issues (see Fikru, 2014; Newbold, 2006).

7.3.4 Transparency and Disclosures

Transparency and disclosure emerged as a major theme regarding the drivers for social sustainability practices (Figure 7.1). This describes the willingness of firms to involve their stakeholders to observe, participate, and influence sustainability practices. Accordingly, the increasing stakeholder consciousness of the impacts of mining activities has compelled companies to embrace the demands for transparency and disclosures. The data indicates that different stakeholders such as the district/municipal assemblies, the traditional council, and NGOs are especially focused on transparency in social sustainability practices around resettlement, compensation, and community social investment projects. Table 7.1 presents the social sustainability domains where large-scale mining companies are implementing transparency and disclosure.

Table 7.1: Transparency and disclosure as a driver for social sustainability practices.

Implementation Domains	Interviewee Statement
Resettlement and Compensation	If a teacher understand it or that young girl in the secondary school understand the compensation process, and they ask questions from the mother who is complaining, for example, that the compensation process is unfair, they are able to have a discussion without the company's intervention because you made your communication clear to almost everyone within the operational area, and that is where to me, we have taken our transparency on compensation matters to (Manager, Company 'C')
Regulatory Requirement	Monthly reports to Minerals Commission now contains a social paragraph. Every month, there is a report, we sent to them. I have my section, and we are saying that we are doing community employment and another month, I say

	100 people were employed. If I come and give data that is contrary, they would pick it up. (Manager, Company 'C') .
CSI/Stakeholder Management	They want fair opportunities for employment, they want skills training, they want transparency in dealing with community issues, and they want development projects like roads (Manager, Company 'C')

The data shows that industry regulators require corporate reporting on social sustainability initiatives in response to stakeholder pressures for transparency and full disclosure. This finding adds to a previous observation by Amoako-Tuffour (2017), which states that transparency and disclosures have increased due to Ghana's ascension to the Extractive Industries Transparency Initiatives (EITI) in 2007.

Despite this, the relationship between large-scale mining companies and regulators beyond social compliance issues remains ad hoc. Regulators hardly monitor and supervise voluntary social initiatives of selected case companies because of the lack of regulatory compliance requirement on self-regulatory practices. However, because of tensions and conflicts around social impact issues such as local employment and community development projects, large-scale mining companies are pressured to show greater openness and transparency in processes around social sustainability. Beyond this, mine managers are voluntarily involving local stakeholders in their practices and initiatives, especially relating to employment, community social investment projects and participatory decision making. As such, the purpose for the growing transparency and disclosure in the social sustainability practices of large-scale mining companies aim at enhancing stakeholder engagement.

Moreover, the extractive industries transparency initiative (EITI) aims at expanding non-financial transparency in the mining industry. Consequently, because corporate managers

aim to obtain a social license, this has pushed them to engage in practices such as organizing regular forums, establishing various participatory committees with composition from stakeholder groups, and providing some degree of local control over decisions that directly intersect with community needs.

7.3.5 Post-Closure Legacy

Post-closure legacy as a major or organizing theme (Figure 7.1) regarding the drivers for social sustainability refers to the consequences of mining impacts after mine closure in local communities. In this study, it is the social and economic recessions associated with the post-mine period that has become a driver for social sustainability practices. The data indicates that the common post-mine closure social costs include loss of social affinities to ancestral lands, resettlement in places less optimized to the productive capacities of affected people, and the phenomenon of ghost communities or towns. These post-closure social legacies relate to two sub-themes – *ghost township* and *economic depression*. For example, the traditional chief of community Y made this observation:

Since the mine started going down, many economic activities went down as well. Even churches are complaining of lost offerings because all the strangers who came here because of the mine had to leave, so about 60% of those who are not originally from these areas have left, and this has negatively affected every economic and social activities around here.

In a similar vein, a senior officer of the industry association, the Chamber of Mines stated that:

We have learned from our past experiences. In the past, when mines close, it leads to what is called the ghost town phenomenon, and this means the communities retrogress and become much more deprived than the situation before the start of mining.

This statement is reinforced by the decline in the local economy of Obuasi due to the mine undergoing a five years period of care and maintenance to revamp an otherwise collapsing operation. A community affairs manager expressed this idea by stating that:

In 2014, we entered care and maintenance, and almost everything in Obuasi ceased. We stopped operations and the town became almost like a ghost town. Businesses and people moved out of town, so we understand it. No mine understands it better than us. If we (eventually) leave and the communities are not able to thrive, then we have failed.

Therefore, the mine closure social legacy is driving companies to establish exit strategies, which focus on long-term development of host communities. Specifically, Newmont Ghana Gold Ltd established the '*Ahafo Development Foundation*' (NADeF), AngloGold-Ashanti has the '*AGA Community Trust Fund*', and Goldfields Ghana Ltd set up the '*Goldfields Community Foundation*'. Given this, large-scale mining companies have established various initiatives to address mine closure legacies, which present critical social costs and hinder the social sustainability of local communities.

We know the notion of ghost towns that used to be associated with mining in Ghana. We had the experience where the State mining company in Tarkwa went down, and before Goldfields came in, Tarkwa was known as a ghost town. This mining was not sustainable, so that informed our decision to put measures in place to ensure that even when we are out of here, economic, social, and environmental issues would receive the highest attention.

This finding is significant because of the limited knowledge on the social aspect of mine closure in the excluding the real costs involved in post-closure management, as suggested by Bainton & Holcombe (2018). Thus, post-closure legacies constitute an

external and internal pressure on large-scale mining companies to embrace social sustainability practices that address long-term impacts.

7.3.6 Managerial Cognition

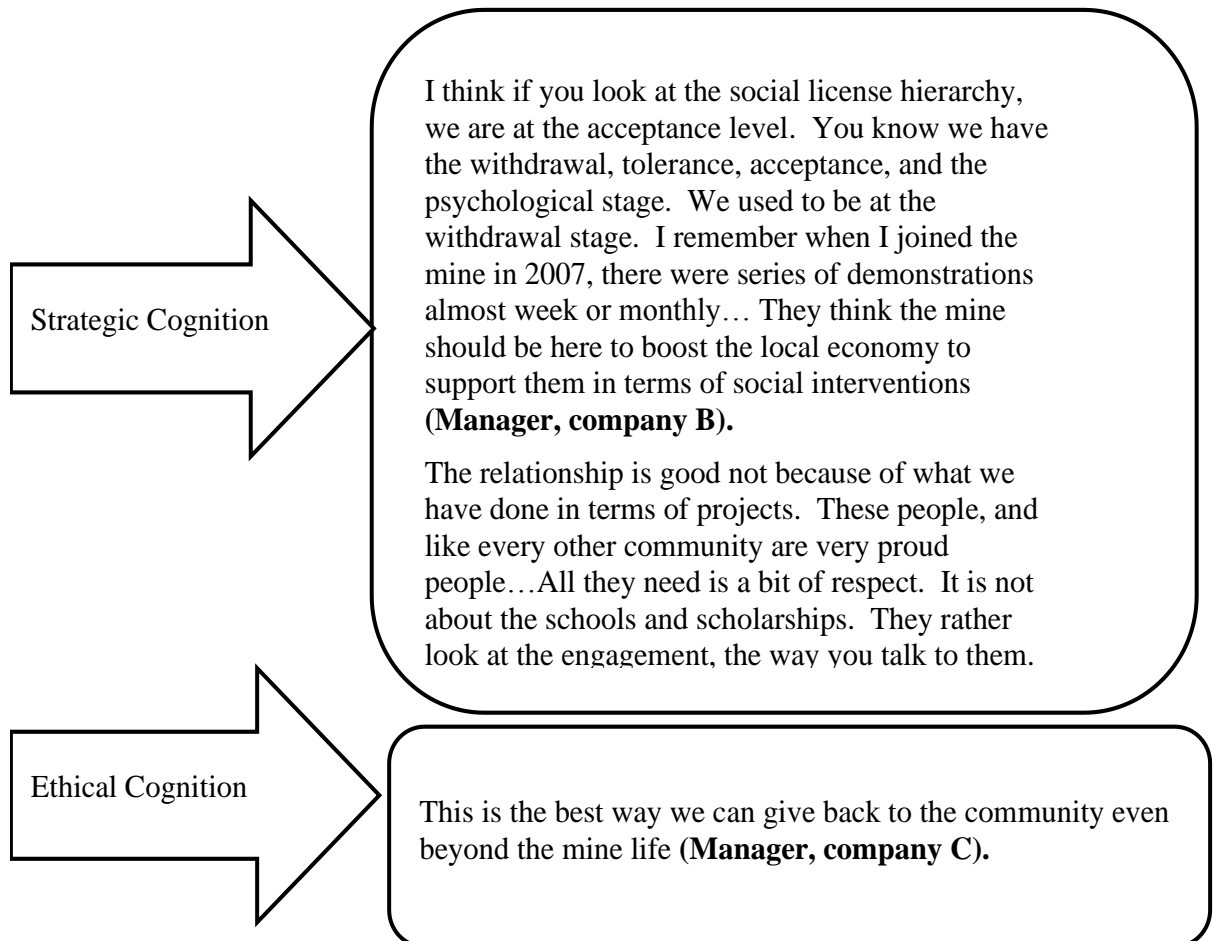
Managerial cognition emerged as an organizing theme in relation to social sustainability drivers. It describes how the subjective representation of managers regarding their context drives strategic or ethical decisions and subsequent organizational actions (see Figure 7.1). Embedded in the managerial cognition perspective is the idea that limited or finite rationality prevents corporate managers from developing a total understanding of their environment. Similarly, managerial cognition is critical in an uncertain and ambiguous domain where managerial sensemaking of the external environment shapes organizational responses. Consequently, because social sustainability implementation in Ghana occurs within a complex and non-enabling institutional context, managerial cognition helps companies to recognize and interpret changes in a firm's internal and external environment. Two sub-themes emerged from the data analysis – *strategic cognition* and *ethical cognition*. These are explored in detail in the following sub-sections.

First, strategic cognition in this study refers to the degree to which a stakeholder issue is prioritized due to its perceived salience in the minds of managers (see Figure 7.2). As previously established, the findings suggest that managers of the selected case companies interviewed are aware of the strategic opportunities and benefits associated with social sustainability practices including the ability to manage institutional changes and obtain a social license to operate (see Boso et al., 2017; Gifford et al., 2010). However, unlike corporate responsiveness to the stakeholder and institutional pressures, strategic cognition

depends on the subjective representation and meaning construction of managers relating to their firm's decisions and subsequent actions.

Second, ethical cognition explains how and why corporate managers make moral choices. It describes how corporate managers perceive their moral responsibility to contribute to the wellbeing of the local mining communities (See Figure 7.2). This is consistent with the view, which explains management decision-making based on a sense of moral obligations and equitable responses to stakeholder issues without regards to the perception of salience (see Boso et al., 2017; Garcia-Castro et al., 2011; Yongvanich & Guthrie, 2005). The data analysis indicates that managers of large-scale mining companies are motivated by a moral duty to assist affected people through various initiatives, including the provision of health services, education, and, water and sanitation.

Figure 7.2: Strategic and ethical managerial cognitions regarding social sustainability



The above statements (Figure 7.2) by research participants suggest that in the absence of regulations, large-scale mining companies try to navigate the uncertainty in the mining space due to institutional changes by developing degrees of responsiveness based on the salience of the issue. Strategic managerial cognition provides context to how corporate managers are embracing new forms of social sustainability practices in which stakeholder engagement, collaborative decision-making, and cross-cultural partnerships are perceived as salient stakeholder issues. Additionally, the ethical managerial cognition driving social

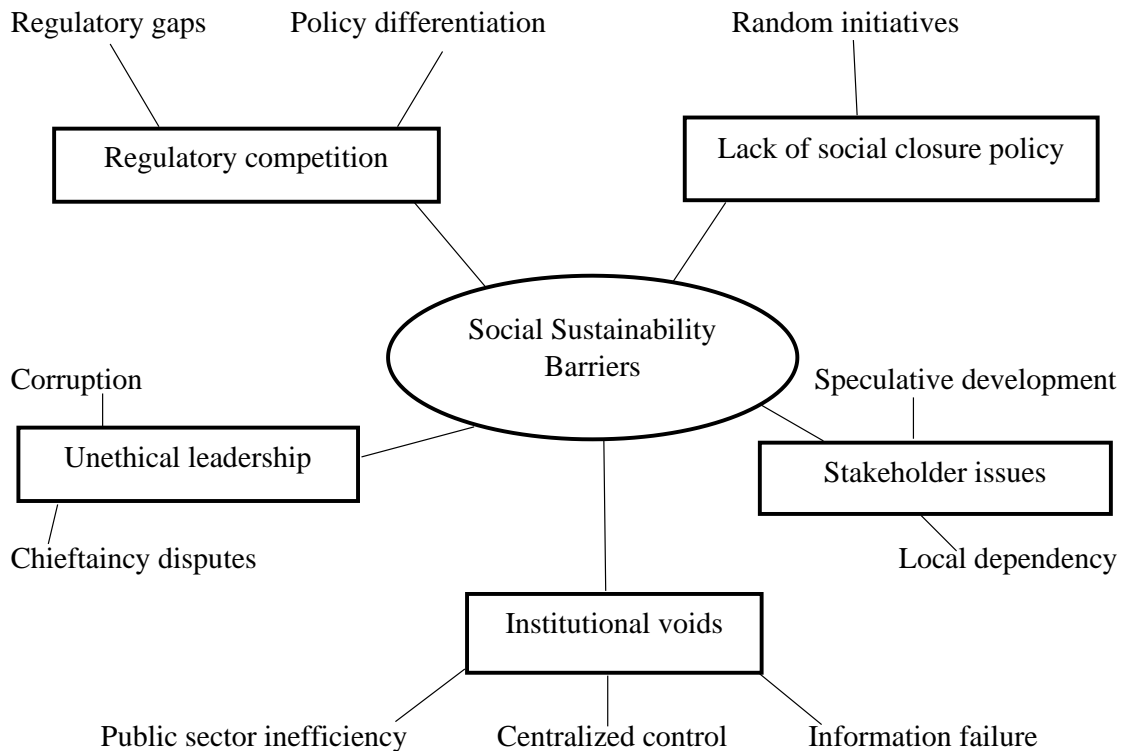
sustainability implementation relates to a collective sensemaking based on the willingness of the mining companies to respond to perceived moral obligations to stakeholders. However, the findings based on the interviews with the corporate managers and stakeholders suggest that the social sustainability practices based on managerial ethical cognition is inherently strategic and serve as forms of social license activities. The difference with regards to strategic managerial cognition is that ethical cognition as a driver is not based on trade-offs, but a moral choice to respond to the needs of local communities.

7.4 Barriers to Social Sustainability

This section reports on the barriers to social sustainability practices within the institutional environment of Ghana. As earlier suggested, previous studies show critical challenges to social sustainability in local communities including relatively higher poverty, underdevelopment and high living costs (Adu et al., 2016; Dupuy, 2017; G. Hilson & Hilson, 2017). However, while previous studies provide empirical evidence of mining consequences, the barriers to the social sustainability of local communities remain relatively unexplored. The argument here is that, if mining presents critical sustainability challenges to sustainable development despite existing practices and initiatives, then it follows that some barriers may be contributing to this situation. Thus, this study provides the organizational and institutional factors impeding social sustainability implementation in the context of Ghana.

Based on the data analysis, the following themes relating to the social sustainability barriers emerged—regulatory competition, lack of social closure policy, unethical leadership, stakeholder issues, and institutional voids as represented in Figure 7.3.

Figure 7.3: Barriers to social sustainability implementation



7.4.1 Regulatory Competition

The theory of regulatory competition predicts that within the context of international economic integration, countries generally adjust their regulatory standards to cope with the pressures from competitors. As a result, there are assumptions linking regulatory competition to the notion of ‘race to the bottom’ where countries weaken their regulations in response to the behaviour of other economies with which they compete for economic investment. From the data analysis, two sub-themes relating to regulatory competition emerged in the data analysis – *regulatory gaps* and *policy differentiation* (Figure 7.3).

Table 7.2: Effects of regulatory competition regarding social sustainability

Regulator Competition	Interviewee Statements
Regulatory Gaps	Although Ghana has signed and ratified the ECOWAS mining directives and the United Nations Indigenous Peoples' Right, we have still not domesticated it into (the) Minerals and Mining regulations (Program Manager, NGO 2)
Policy Differentiation	<p>You know exploration is the future of mining because today's ore may be depleted in 5- or 10-years' time... If you want to see how attractive your mining space is, we use the exploration expenditure as an indication of how competitive you are as a mining country. In the last 6 or 7 years, we found out that Ghana, which used to be the powerhouse of exploration spending, now the inflows are dwindling and Burkina Faso, Cote d'Ivoire and Mali having higher exploration activity or spending than Ghana. (Senior Official, Chamber of Mines).</p> <p>They are given stability agreement, and they are given reduced royalty payment, so instead of paying royalties of 5%, they pay a reduced 3.5%. I am sure you know how they are excused from paying excise duties on equipment that they bring in (Programs Manager, WACAM).</p>

First, regulatory gaps in this study refer to weaknesses in the substantive rules and regulations guiding the behaviour of companies in mining development (See Table 7.2). The data analysis identified regulatory gaps regarding major stakeholder issues relevant to social sustainability. The representatives from mining social pressures (NGOs) raised the failure of the Ghanaian State to legislate on the principle of free prior and informed consent (FPIC), which provides customary land rights to inhabitants in rural communities. The barrier exists in the pre-emptive rights of the government over mining resources which means that families and individuals lose access and control over their lands. Thus, the lack of legal protection of individual rights to make informed decisions and voluntarily consent to mining on their lands constitute a significant barrier to social sustainability implementation. Given this,

regulatory gaps limit the effectiveness of the legislative instruments on social compliance leading to lingering tensions in community resettlement and compensation issues. Further, the data suggest that the reason behind the failure in establishing legislative instruments regarding the principle of free, prior, and informed consent into national regulations without equivalent laws in competing countries across the region might be to prevent losing competitive advantage in new mining investments. This idea might relate to the role of institutional complexity resulting from multiple and competing demands from various State institutions in the face of contradictory prescriptions in Ghana. Thus, this finding is further examined in the discussion chapter (chapter 8) in section 8.5.

Second, policy differentiation in this study describes the process of providing different terms of references to different firms based on some qualifying criteria. This finding brings attention to the policy in Ghana in which large-scale mining companies who invest a total of US\$500 million are offered stability agreements for 15 years with benefits that vary from others within the industry. This data analysis demonstrates that policy differentiation has the aim to obtain a competitive advantage in attracting new investment in Ghana (see statements in Figure 7.2). The data shows that the government of Ghana signs stability agreements with mining companies, which lowers the compliance threshold for large-scale multinational mining companies. Currently, there are three (3) out of 12 large-scale mining companies with Ghanaian subsidiaries that operate under separate policies and regulations.

Moreover, the data shows that the need for competitive advantage in attracting exploration expenditure has produced different sets of policies that provide incentives to mining investors. The competitive pressures may be explained by factors suggested by Konisky (2007) including threats of companies shifting their activities elsewhere, internal lobbying from industries on the disadvantages of domestic economic actors due to relatively costly

stringent regulations, and economic voting associated with electoral incentive. Yet, this does not suggest that large-scale companies prioritise countries without stringent mining regulations for investments. For example, a study by Luiz and Ruplal (2013) observed that regulatory clarity is a primary consideration of the investment decisions of multinational mining companies. Thus, mining companies are more likely to invest in countries with regulatory clarity rather than in those lacking stable laws. Notwithstanding, the findings show that regulatory competition constitutes a barrier to social sustainability because of royalties and other statutory payments by mining companies help in local development.

Further, policy differentiation undermines the efficiency of local content policy because while it requires building community linkages to productive activities, the tax-free regime for mining imports hinder the growth of local competitors. For example, because mining companies with stability agreements can import their equipment for free without paying excise duties, local manufacturers cannot compete with foreign vendors because of higher production costs.

7.4.2 Lack of Social Closure Policy

As earlier suggested, mining resources are finite and non-renewable. Additionally, the impacts of mining activities endure long after mine closure and therefore requires policies and practices to address long-term sustainability challenges. However, the data shows that the lack of social closure policy has resulted in random and disjointed initiatives by large-scale mining companies. Consequently, large-scale mining companies lack social closure policy relating to social sustainability issues as part of post-closure rehabilitation. For example, a Community Affairs manager of company 'C' made this observation:

We don't have social closure policy. It is a new thing that we have learned. Going forward, we would develop a policy on social closure. We want to do best practice as social closure is not a regulatory requirement, but it is a new thing – the best practice in the industry that we will try to adopt.

Further, the research participants reflected on the nature of the current initiative aimed at social closure in the absence of a regulation or policy. The statement below reflects the views of the community affairs managers of the selected case companies.

You know what we are doing in the absence of a policy. All the money that accrue into the community foundation, we only use 90% for projects. Since we set up the foundation in 2005, we have saved 10% of the resources for community engagements and projects after the life of mine. Currently, we have about 4 million Ghana Cedis [US\$ 800,000] in that account. Now, we need to design a policy and procedures around how that resources can be used to take care of the community after mine closure because 10% might not be enough for the social costs of closure.

The above comments demonstrate that large-scale mining companies have no social closure policy because of the lack of regulatory requirement, although they have similar initiatives that address long-term social sustainability issues. The barrier is that, the lack of social closure policy has made current corporate initiatives ad hoc and disjointed in addressing post-closure risks. Particularly, voluntary social closure initiatives exist as random and unaudited practices without clear measurement indicators. However, large-scale mining companies with the encouragement of the industry association are speaking of quantifying the total social cost associated with post-closure commitments. For instance, the community affairs manager for company C indicated that:

What we were asked to do in 2016 was to quantify all the commitments we have made to the community and add it to our closure cost. We must quantify all that, add it to our cost, which means the company would have to make resources available even at the point of closure.

Further, this barrier relates to post-resettlement gaps. The resettlement and compensation regulations do not require case companies to engage in post-resettlement or post-compensation activities. For instance, a manager in charge of community affairs of company ‘B’ alluded to this gap, arguing that their past resettlement activities did not include post-resettlement activities because this is not required by regulation. He stated that:

That concept [post-settlement activities] is new. You know we work under regulation. There are no post-resettlement activities attached to it, and it was not against regulation. As part of any future resettlement that the company does, post resettlement and monitoring activities will come in.

The above comment suggests that the selected case companies recognize a gap in their resettlement and compensation compliance activities. As earlier suggested, chiefs in the communities which have past experiences of resettlement and compensation argue that community members become poorer after receiving compensations. Accordingly, the manager of company ‘C’ shared in the community concerns by referring to an observation by a chief that, “You will take the land and give us all the money we ask for, but we will be poorer after a few years”. This finding agrees with the assertion by Adam et al. (2015) that the general absence of a framework and method for ensuring improved social and economic conditions for resettled persons is arguably the single and most significant cause of resettlement failure. This is due to the failure of mining companies to invest in a post-resettlement program that could support livelihood reconstruction, which leads to poverty and deprivation in local communities. Indeed, because of the lack of social closure policy, a regional director of the Minerals Commission spoke about community members demanding for a second compensation because of hardships from losing their farmlands.

To address this barrier to social sustainability implementation, community managers indicated that their companies are considering offering incentives to enable affected people to engage in alternative economic activities. This means that in the absence of a post-resettlement initiative during mining development, companies across the landscape are providing scholarships to the children of affected people, savings and investment training, and offering soft loans to contributors through credit unions established by the companies. The other stopgap initiative includes giving priority to community members for employment and skills training to develop local capacities. Finally, corporate managers are working on incorporating post-resettlement packages into their social closure policy as a beyond compliance practice. However, while this is laudable as a temporal strategy, the lack of regulatory requirement suggests that companies might ignore social closure costs that involve huge financial commitments.

7.4.3 Stakeholder Issues

Stakeholder issues as a major theme (Figure 7.3) refer to community demands and expectations that go beyond the common understanding of fairness, equity, and the sense of justice. The data analysis identified *speculative development* and *local dependency* as key sub-themes relating to the barriers of social sustainability implementation.

7.4.3.1 Speculative Development

As mentioned earlier, speculative development involves practices where people deliberately establish makeshift structures or grow crops on lands given on concession to mining companies in anticipation of resettlement and compensation benefits. For example, the community affairs manager of company C stated that “Initially, they will go and grow crops

somewhere knowing you are coming there”. The rationale for the involvement of people in speculative development comes from a homogenized expectation across local communities to share in the value of minerals resources in their land through compensation payment. Additionally, this statement reflects the views on selected case companies, the industry association, and regulators about the role of speculative development regarding tensions and conflicts in local communities:

Within the buffer zone, we do not expect anybody to have a settlement there, but because some people would expect to profit at the back of the mine in the sense that once they know the mine is coming there, they would set up speculative structures hoping that when it comes to resettlement, they would also be resettled and paid benefits. Therefore, they would find all ways and means to have a structure close to that buffer zone. (Senior Official, Chamber of Mines).

The tension arises from mining companies refusing to pay compensations for speculative structures on land closed to their mining operations. Similarly, there is a stakeholder issue around compensation payments. According to the Mineral and Mining Regulations, compensations for crops and physical structures on lands given on concession should be paid once to affected persons. However, there was an incidence where community members demand for additional compensations based on the perception that the amounts previously paid were inadequate and not commensurate with the value of their farmlands or houses. This emerged as a barrier because, consistent with the findings by Fassin (2012), while firms have responsibilities toward their stakeholders, they are also required to reciprocate by treating corporations with fairness, genuineness, and responsibility. For example, a regional director of the Minerals Commission indicated that:

I had to attend to an issue at [name withheld], farmers wanting compensation, but compensation is paid once. There is a law, so if you want compensations to be paid the second time, what is the basis of your

argument? I had to go and explain to the communities regarding what the law says.

These issues are significant because tensions and conflicts around speculative development and compensations hinder effective engagements between companies and stakeholders, leading to projects failures. This finding converges with a study by Kum (2014) who identified speculative development by project-affected households as a major cause of conflict between local communities and mining companies in Ghana. In the same vein, lingering issues with compensation payments explain why host communities are enthusiastic about mining development during the exploratory phase, but become resentful during the operational stage (see E. T. Lawson & Bentil, 2014). Therefore, the challenges with speculative development and compensation payments negatively affect selected case companies' social license to operate, which ultimately erode the degree of effectiveness of stakeholder interactions.

7.4.3.2 Local Dependency

Local dependency is a major stakeholder issue that impedes social sustainability. This describes situations in communities where stakeholders depend on selected case companies for support and assistance. The data show that the common assistance in local communities in Ghana takes the form of donations, free accommodation for local government staff, and financial support to the traditional council during funerals and festivals. Beyond this, communities perceive development processes as the responsibility of large-scale companies leading to local dependency. Accordingly, this statement represents the views of community affairs managers of the selected case companies:

The perception in this community [name withheld] is more of a dependency syndrome. All the communities within the mine are always looking to the companies to attend to their needs, so it is one of the challenging areas due to dependency because human needs are insatiable, and we have a whole lot of communities within the concession. (Community Affairs Manager, Company B).

This absolute dependency is a driver for social agreements where corporate managers negotiate and sign development contracts with communities to narrow the boundaries of stakeholder demands. This prevents excessive demands from local stakeholders outside the negotiated programmes and initiatives. Indeed, there is a long history of dependency on mining companies for free electricity, water, and payment of bills related to healthcare and educational expenditures. For example, the chief of community C stated said this, “Formerly they were communities (name withheld), that were not even paying electricity bills and I said which part of the country now doesn’t pay electricity bill?”. This situation is worsened by the district/municipal assemblies, which have the responsibility for local development in the various administrative areas, lack the finances to implement initiatives in line with local expectations. Therefore, district assemblies or local municipalities also impress on large-scale mining companies to assume their political roles including providing basic amenities such as schools, clinics, water and sanitation facilities, and even free accommodation for their own staff. In this regard, this statement by the community affairs manager of company A also reflects the views of the other case companies, industry association, and the traditional councils:

The district assemblies fail to do their bit in supporting communities, so very often you find mining companies playing that quasi role. They surrogate all responsibilities to the mine by saying that you [company] are making the money forgetting that there have been some processes in which the government of Ghana and the investor have made the decision for the mine to operate here, and so it does not augur well for the individuals. Therefore, the communities directly or indirectly depend on the mine for our future, which to me is wrong.

Similarly, the district development planning officer of community A stated that:

When we realize that we don't have such resources to execute our projects, we depend on them mining [companies]. Sometimes, we write to them and try to convince them about the need for the project and in some instances, they come in to provide those facilities for the communities”.

While this situation corresponds to the political roles of firms in meeting the needs of people in ways akin to the responsibilities of governments and public organizations, local dependency on private companies prevents the development of local capacities required for sustainability. This finding relates to an observation by Conde and Le Billon (2017) that mining communities with a history of mining promote linkages with a mine because of the companies' provision of social amenities and CSR initiatives. This is a dependency issue that presents a barrier to social sustainability because it triggers tensions in cases where gaps exist in the expectations between mining companies and stakeholders. What is also interesting from the data is the role and nature of public sector management and service delivery. The data shows that communities and individuals historically depended on public sector institutions for free public services. For example, mining communities received free services like electricity, and water and sanitation from the mining companies, which were previously public companies. This history and the antecedent of the development role of mining companies in host communities are largely responsible for creating this culture of local dependency. Generally, over-dependence in mining communities' fosters underdevelopment, creates temporal growth that erodes institutional quality, and ultimately hinder the social sustainability of mining areas.

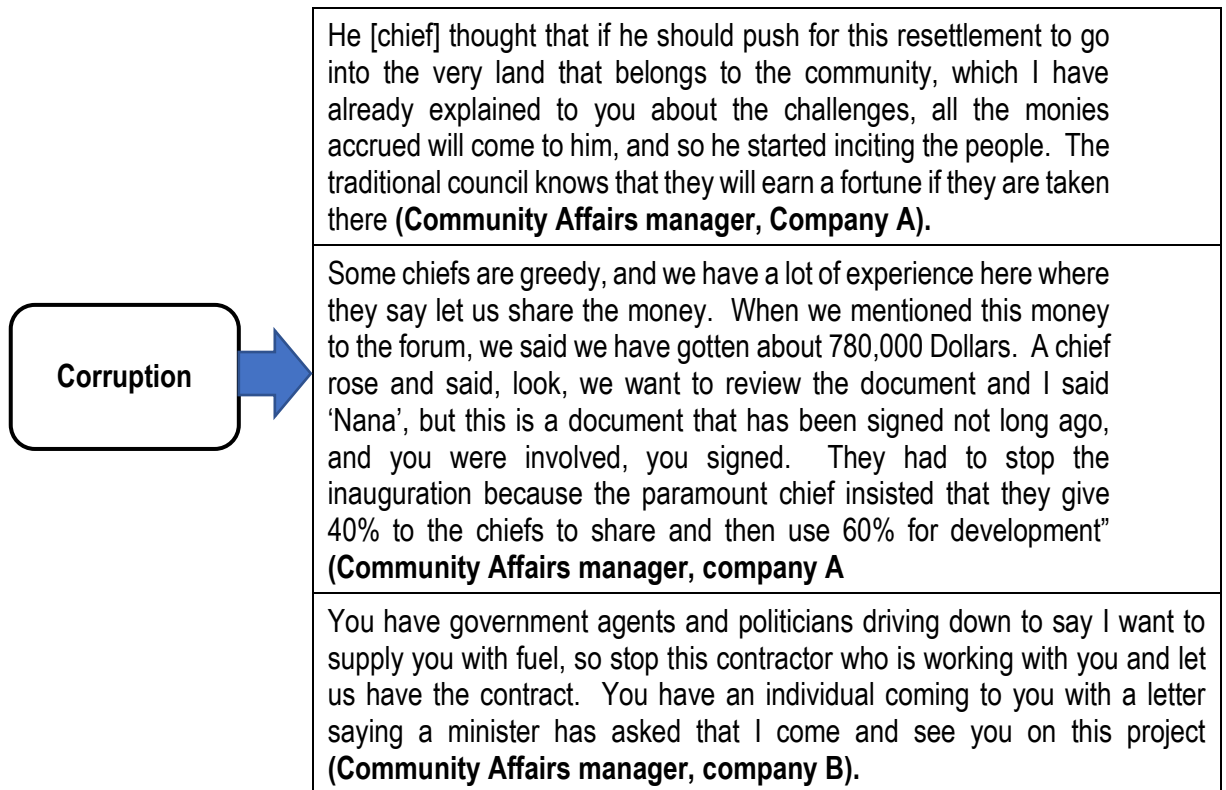
7.4.4 Unethical Leadership

In this study, the theme of unethical leadership in Figure 7.3 refers to the selfish, patronizing, inappropriate colluding, and rent-seeking attitudes, behaviours, and actions of community leaders that are detrimental to the interests of affected people. M. E. Brown and Mitchell (2010, p. 588) define unethical leadership as “behaviours conducted and decisions made by organizational leaders that are illegal and/or violate moral standards, and those that impose processes and structures that promote unethical conduct by followers”. While this definition relates to organizational leaders, the idea of illegal or immoral leadership decisions is relevant to communities as well. In this case, the immoral decisions and manipulative behaviours of community leaders that violate ethical standards because of self-centred objectives constitute a barrier to the success of social sustainability practices. The sub-themes relating to unethical leadership that emerged from the data analysis include *corruption* and *chieftaincy disputes*, which are now briefly presented in the section.

7.4.4.1 Corruption

Corruption as a sub-theme regarding unethical leadership is manifested in the actions of tribal chiefs, district assemblies, and political actors through inappropriate collusion and rent seeking are unethical leadership behaviour in local communities that impede the effectiveness of social sustainability practices.

Figure 7.4: Interviewee statements regarding unethical leadership behaviours.



The data analysis shows that chiefs tend to seek large payments for lands they allocate to large-scale mining companies and therefore they try to whip public sentiments against resettlement decisions that do not match their self-interests. This unethical leadership decision by traditional authorities largely relates to communities with large-scale mining activities at the exploratory or pre-operational stages. Additionally, the land tenure system in Ghana, which gives chiefs or traditional leaders significant control over unused lands contributes to this desire to profit from resettlement even at the expense of affected people in the communities. According to the large-scale mining companies, where feasibility studies show that land outside the jurisdiction of a traditional council is most suitable for community relocation, chiefs tend to insist on bribe payment before they consent to the decision of the resettlement committee (see Figure 7.4). In the same vein, corporate

managers complain about the rent seeking behaviour of traditional chiefs that violate ethical and legal standards.

Therefore, the above statements (Figure 7.4) suggest that the role of the traditional council as a major local-level institution is critical to the sustainable development of mining communities. A previous study by Standing & Hilson (2013), related to this finding indicates that traditional authorities or chiefs are involved in administering about 45% of mineral revenue transferred to host communities, but they often appropriate mining rent for their personal enrichment. For instance, the traditional authority of community B stated that “The 8% royalty the traditional council receives is used for renovating the palace, financing festivals and durbars, and as funeral donations”. Similarly, the traditional authority of community C expressed that “I know how (mine royalties) is disbursed. If it is 20 million and it comes to community C (name withheld), the stool has a percentage”. He further stated that “because we (chiefs) are not working, we must buy our cloths and everything from that royalty”. Clearly, these are personal expenditures of the leadership of the traditional council, which provide little or no benefits to the local communities as a whole.

Moreover, the data indicates a system of cronyism by politicians that underline bribery and corruption. This situation is manifested when people in political authority try to influence corporate managers of mining companies through threats or patronage to secure contracts for relatives and friends. The interference in the operations of large-scale mining companies holds up or completely stops projects and the award of new contracts by individuals of political parties in power (See comments in Table 7.3). In relation to this finding, a previous study by Knutsen, Kotsadam, Olsen, and Wig (2017) suggest a causal link between mining and bribe payment including the relationship between a mine and local-level institutions. Further, the extant literature indicates that the chieftaincy institution in Ghana provides local

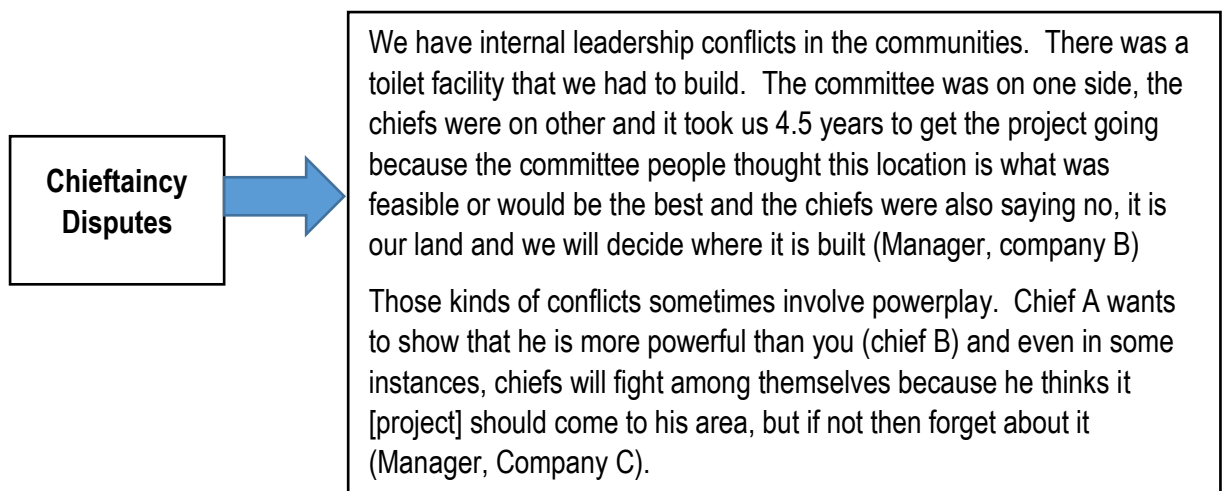
governance and socio-economic development (Asamoah, 2012) while the district assemblies are also responsible for determining the present and future needs of a community (Yeboah & Obeng-Odoom, 2010). However, the data shows that chiefs and district assemblies who largely represent mining communities in negotiations around compensation payment, resettlement benefits, and CSR projects have pronounced self-interest that conflicts with that of the affected people. Thus, the manifestations of unethical leadership in the form of rent seeking, alleged corrupt behaviours, and the inappropriate collusion of traditional authorities with mining companies pose significant challenges to the social sustainability of local communities.

7.4.4.2 Chieftaincy Disputes

A prominent type of conflict usually reported in a mining context is between local communities and large-scale mining companies. The data from the interviews with corporate managers, district/municipal assemblies, and the traditional councils demonstrate ongoing disputes and local power play between the traditional leaderships of host communities. For example, the traditional authority of community B who is also a divisional chief stated that “We have disputes with the 7 divisions within the paramountcy, so every royalty paid have been lodged to the department of stool lands until the issues are resolved”. The issue referred to, involves leadership disputes and conflicts that remain unresolved, leading to total paralysis in customary. Given this, the government of Ghana has not released royalties meant to mining communities because of the unresolved disputes among chiefs and traditional rulers. While this was not the case in communities within a single traditional jurisdiction, those with mining developments across divisional areas face disputes among chiefs for control over land use and other aspects of the extractive process.

Further, while it is difficult to know whether a chieftaincy dispute is a cause or symptom of mining, it nevertheless defines the unethical leadership decision-making of traditional authorities based on their selfish and immediate interests at the expense of long-term benefits to affected communities.

Figure 7.5: Interviewee statements on chieftaincy disputes.



The interviewee comments (see Figure 7.5) relate to the existing tenurial arrangement in rural areas within Sub-Saharan Africa, where chiefs possess title rights over lands. Consequently, because mining activities occur in rural communities where customary land tenure is the norm (Syn, 2014), traditional chiefs are key focal persons involved in corporate decision making at the plant level. Yet, the payment of mining rent to the traditional councils leads to local power play between chiefs of proximal communities within the larger institutional environment. This finding relates to an assertion by G. Hilson (2002b) who indicates that disputes over land use are arguably common in mining than any other single industry. Taken together, the data analysis and the interviewee statements (see Table 7.5) indicates that chieftaincy disputes motivated by personal interests, elitist privileges, and powerplay undermine local development projects and social sustainability because of intergenerational discounting.

7.4.5 Institutional Voids

Institutional voids emerged in the data as a major barrier to social sustainability implementation (Figure 7.3). It refers to the absence of institutions or weak institutional arrangements that support development processes. Luiz and Ruplal (2013) define institutions as formal and informal rules within which business is conducted. Every organizational activity exists within an institutional context that prescribes the ‘rules of the game’ and the delimitation of acceptable corporate behaviours and actions. Thus, the data analysis identified three sub-themes of institutional voids – *public sector inefficiency, information failure, centralised control* – are discussed in this section.

7.4.5.1 Public Sector Inefficiency

Public sector inefficiency as a sub-theme of institutional voids includes the weaknesses in the capacities of decentralised local level organisations to manage and shape the development of communities. Particularly, the data shows that local government institutions, which are the natural partners to the social sustainability practices of large-scale mining companies lack the capacity to design and implement sustainable development strategies owing to institutional weaknesses and governance gaps. For example, any development project such as schools or health facilities built by mining companies always depend on the government’s acceptance to provide the recurrent expenditure because of the financial mismanagement of allocated district assembly’s common funds. As such, the failure or inefficiencies in the local government systems at the plant level undermine the effectiveness of social sustainability initiatives.

The data show that public institutions mandated to provide development and services at the municipal and districts levels have poor project implementation and management capacities. For instance, the community affairs manager of company C complained about the lack of collaboration and managerial competence of local government authorities in the following statement:

We can do a lot in the direction of sustainability if the district or the municipal assembly and their institutions collaborate more effectively with the company. Currently, the collaboration is all about going to them to find out what their plans are. In the project implementation phase, they assist us with inspection and the handing over, but then maintenance you never see them.

Therefore, the selected case companies are regularly engaged in renovating and maintaining projects they have undertaken for local communities rather than the district/municipal assemblies, which have the responsibility to effectively manage completed facilities. As a result, the mining companies expressed frustration with the failure of the communities or the local government authorities because this prevents corporate managers from initiating new projects. Particularly, the manager observed how public sector inefficiencies within the local government administration hinder specific social sustainability practices. This reflects the views of the selected case companies, traditional councils and industry association:

Examples of projects that have not been maintained are many. Let's go to [name withheld] clinic. We still get requests to even provide light bulbs. It shouldn't happen. It demoralizes the decision makers here...You can't depend on the company for that. I can easily arrange to buy lights bulbs to fix it in there, but what happens when we are gone? There are many roads we have constructed in the community, and when the potholes develop, we want collaboration with the assembly to be able to [rehabilitate] them, but you don't even get that. (Community Affairs, Company C).

Further, despite development activities been the main obligation of the local government (assemblies), the traditional authority of community B indicted them for

neglecting and renegeing on their roles. The criticism points to resource mismanagement, poor managerial discretion at the municipal level, and the apparent incompetence of local government authorities. For example, a municipal development planner suggested that the assemblies can only undertake minor development projects. In this regard, the chief of community Y made this observation in this statement:

The assembly should have been able to help to develop the township, but that is not being done. I have been a divisional chief for 25 years and even though I have not always lived here, I have never seen the municipal assembly undertake any project, which they can point to.

This comment points to the culture in public sector institutions, which developed out of the idea that the district/municipal assemblies are under-resourced and ineffective. The data analysis demonstrates the culture of patronage, where public service institutions employ staff based on political affiliations.

This finding overlaps with the view that public sector inefficiency is a common challenge in most developing countries where governmental institutions and administrative departments lack the competence and proficiency to provide services to citizens (see Fourie & Poggenpoel, 2017; Mimba, Helden, & Tillema, 2007). It also shows the weakness in the project design, financing, and implementation capacity of local government development agencies. Therefore, long-term local development projects by selected case companies require the involvement of government to serve their intended purposes, which is a view expressed by Chou (2014). Considering this, public sector inefficiency relating to institutional voids undermines the ability of local institutions to create effective partnerships with other organizations and develop processes in enhancing social sustainability practices.

This lends credence to the assertion by Bebbington and Bury (2009) posit that the expanding mining sector and the associated sustainability challenges in developing countries lead to debates about the role of institutional arrangements in building synergy between mining, livelihoods, and development. Finally, these findings confirm the assertion by Luiz and Ruplal (2013) that developing countries, particularly those in Africa, have weak institutions, which negatively enhance the negative impacts of mining investment.

7.4.5.2 Information Failure

Information failure as a sub-theme (Figure 7.3) of institutional voids refers to the imbalance in the knowledge of stakeholders and companies on various mining processes, regulations, and developments. This is particularly true on issues around compensations, relocation, and resettlement. The argument is that most persons in affected areas have no idea about the compensation processes and the associated regulatory requirements due to the lack of wider community participation and lack of information. For instance, chiefs and municipal representatives largely negotiate compensation, resettlement, and social investments projects on behalf of local communities who lack adequate information on applicable regulations and procedures. For instance, a director of the Minerals Commission, which is a regulator made the following observation.

I had to attend to an issue at a community because of farmers wanting compensation, but compensations are paid once. I had to go and explain to the communities about what the law says. I organized a workshop and took them through what the legislative instruments say about compensation and resettlement.

This case was about farmers agitating for a second crop compensation after accepting an earlier negotiated payment by the committee. There seems to be a gap between what community representatives know and what the affected persons understand to be fair compensation. Therefore, information failure resulting from inadequate representations on compensation and resettlement negotiation committees might suggest that affected persons lack the material knowledge to give free, prior and informed consent. This aspect of institutional voids may be a cause of the lingering issues with compensation as a social compliance activity earlier identified in chapter 6 and further examined in chapter 8 (section 8.5). It is posited in the literature that chiefs with their traditional councils and the district assemblies, which represent communities in various negotiations with mining companies, have rather constrain the access of affected people to adequate compensation and other mine-induced benefits (see Lawer et al., 2017).

The interview with the selected civil society organizations and district/municipal assemblies revealed that a community person who needs to access documentation about a mining project and the extent of a company's activities from the Minerals Commission is required to pay to access this information. In line with the above, a project manager of a civil society organization, which acts as a mining pressure group asserted that:

The issue has to do with getting these people well informed on the resettlement and compensation principles, so that they would be able to make informed decisions when giving their mandates to someone to represent them on the decision-making committees (Programmes Manager, WACAM).

Similarly, a manager of company 'A' who made this statement indirectly affirmed the above view on lack of information due to the limited participation and systematic constriction of opportunities for stakeholder engagement with large-scale mining companies.

People may say they are not satisfied with the compensation. People may say the process is not good, but what I ask is do you know about the process you are talking about? Have you ever been involved in the process? To what extent can you say compensation is unfair?

7.4.5.3 Centralised Control

Centralised control as a sub-theme of institutional voids refers to the responsibility of the central government to directly manage the mining process. Accordingly, the data shows that the central government exercises control over mining leases, permits and licenses, including statutory payments from mining companies with little local influence. As such, while local communities are involved in discussions at forums organized as part of the mandatory environmental impact assessment process, this is largely limited to information sharing.

The interviews with the traditional councils, civil society organizations, and the district/municipal assemblies indicated that centralized control over mining revenue administration and the licensing process prevents local communities and activists from shaping decisions that intersect with the needs of mine-affected persons. Particularly, the statutory payments by large-scale mining companies directly into the consolidated fund means that the central government exercise absolute discretion on the revenues, which by law should be paid to host communities. Thus, while the revenues that must be paid back to host communities have been established by law, the government repeatedly fails to release such funds according to the annual budget requirement. For example, a community affairs manager of company C made this observation “The assemblies can go two years without receiving any subventions from the State. They have vehicles, but they don’t have fuel, so this is a big challenge”. This helps to explain why local government authorities and the traditional council are unduly depended on large-scale mining companies to finance their activities, resulting in a patronage relationship. This finding may be explained by an

observation by Syn (2014) that the central government is a culprit in terms of violating the legal arrangements on redistributing mining royalties to host communities. This means that the centralisation of revenues by the State limits the financing capacity of local government institutions to partner with mining companies on social investment projects.

This leads to institutional voids at the plant level resulting in functional complexities in local level institutions. For instance, the institutions that represent affected communities in social compliance negotiations are faced with conflicting logics of requiring accountability while depending on the same firms for financial assistance. Further, the host communities, industry association, local government (district/municipal assemblies) and even the companies complained about the current ratios for redistributing mining royalties. For instance, the legislative arrangement for redistributing mining wealth provides 80% to the central government and 20% to host communities. This 20% include 12% to the local government (district or municipal assembly) and 8% to the traditional councils of host communities. As a result of this, there was a unanimous agreement among all the interviewers that the proportion of mining revenues that go to host communities are inadequate and require upward review.

However, the institutional arrangement on fiscal issues occurs at the national level between the ministry of land and natural resources, Minerals Commission, and ministry of finance without the involvement of other stakeholders like communities and civil society organizations. For example, the traditional authority of community B voiced it this way:

The royalties the company pays to the government is rather small, but who negotiate that? We were not involved in that negotiation, so it is the responsibility of the government to re-negotiate a fairer term than what currently exists. I think the agreement signed by the government is not good

for the people, so maybe it will be better if the government can re-negotiate this because this is not good for us.

Taken together, this demonstrates that centralized control over mining revenue administration and licensing processes generate institutional voids that undermine stakeholder participation at the plant level. This ultimately results in disaffections from community members who perceive a lack of equity, fairness, and goodwill from large-scale mining companies.

7.5 Synthesis

This section presents a synthesis of the findings in this chapter by highlighting the network of factors relating to the drivers and barriers to social sustainability implementation throughout mining lifecycle. First, the drivers of the social sustainability practices of large-scale mining companies involve *regulatory evolution, institutional pressures, internationalization, transparency, post-closure legacies, and managerial cognition*. These drivers are not only shaped by the necessity for social impact mitigation and local development, but also by institutional changes and organizational sensemaking due to the uncertainties and ambiguities in the Ghanaian mining environment. For instance, while the major forms of social sustainability practices are driven by industry self-regulation, institutional changes caused by a synthesis of contradictory logics present both threats and opportunities regarding sustainable communities.

The findings show that the progression from random to specified regulatory compliance is improving corporate responsiveness to social sustainability issues. Particularly, social compliance domains such as resettlement, compensation, and impact mitigation are progressing towards best practices. As such, regulatory evolution in relevant mining laws

in Ghana is pushing corporate managers to re-orient their practices in line with new legislative requirements. Beyond this, institutional pressures based on isomorphic factors also drive social sustainability implementation (Hoejmose et al., 2014). Specifically, coercive, mimetic, and normative pressures combine in driving large-scale mining companies to embrace broader social objectives and align corporate practices with wider stakeholder expectations for sustainable communities (Armah et al., 2011; UNDP & UN Environment, 2018).

Additionally, this study finds internationalization as a major driver of social sustainability implementation. This is largely expressed in the promotion of standardization based on global best practices. As earlier stated, the selected case companies operating in Ghana are multinational firms and their identity in their home countries has a strong influence on its strategy, operation, and behaviour (Patnaik, Temouri, Tuffour, Tarba, & Singh, 2018). For example, the mining companies in this study employ IFC standard 5 in their resettlement and compensation activities as evidence of the industry policy for beyond regulatory compliance initiatives.

Further, transparency around local content issues and post-closure legacy impacts such as local economic depression and the phenomenon of ghost townships are promoting social sustainability implementation. First, because of the impacts and increasing public consciousness of the costs of mining to local communities (Wang, Awuah-Offei, Que, & Yang, 2016), corporate managers are showing much more transparency and disclosures as part of their sustainability practices. Consequently, mining companies are promoting local control and collaborative decision-making in line with the demands for transparency in the processes and procedures that intersect with core stakeholder interests such as local employment and participation in mine value chain.

Finally, this chapter shows managerial cognition as a driver of social sustainability implementation (Peng & Liu, 2016; Yang, Wang, Zhou, & Jiang, 2019). This relates to the subjective sensemaking of corporate managers of their environment, leading to diffusion or sense-giving that affects organizational decision-making and practices. Particularly, the findings demonstrate that managerial cognition relates to two important considerations—strategic and ethical (Boso et al., 2017; Dawkins, 2014). On the one hand, strategic cognition is mainly influenced by the need to obtain a social license to operate by prioritising stakeholder needs based on managerial perceptions of salience (Bundy, Shropshire, & Buchholtz, 2013). This involves practices that necessarily require trade-offs based on which expectations or demands align closely to stakeholder preferences. As such, I discuss that strategic cognition leads to a broader scope of social sustainability implementation that includes intangible benefits. On the other hand, ethical cognition informs managerial decisions and initiatives based on the moral obligation to respond to the needs of stakeholders without regard to levels of salience. Thus, both strategic and ethical cognition relate to stakeholder theory in terms of why and how companies manage stakeholders. The outcome of ethical cognition leads to universal and tangible social benefits based on the moral choices of corporate managers. Overall, the drivers of social sustainability implementation in a non-enabling institutional environment have resulted in common policies and practices across the Ghanaian institutional environment.

Second, the barriers to social sustainability implementation include *regulatory competition*, *the lack of social closure policy*, *stakeholder issues*, *unethical leadership*, and *institutional voids*. Regulatory competition leads to gaps in mining laws, compliance enforcement, and policy differentiation, which undermines social sustainability policies and practices. Additionally, the lack of social closure policy in Ghana means that the current practices of

selected case companies in addressing post-mining impacts are random, fragmented, and less effective (Essah & Andrews, 2016). For example, due to the lack of social closure policy, the social costs of mine closure are unknown (Bainton & Holcombe, 2018). Similarly, the lack of social closure policy by selected case companies is the result of the unavailability of a regulatory framework in this domain. Further, stakeholder issues involving speculative development related to compensations and dependency of local communities on large-scale mining companies cause disputes and hinder the growth of local capacities necessary for sustainable development.

Moreover, unethical leadership is expressed in the form of rent seeking, corruption, nepotism, and chieftaincy disputes that hinder social sustainability implementation (Bush, 2009; Lawer et al., 2017). For example, elitist privileges where traditional authorities wrongly use royalty payments on private expenditure at the expense of local communities hinder local development (Abdulai, 2017). Particularly, the current land tenure arrangement that provides customary rights to traditional authorities over lands contributes to rent seeking, corruption, and customary patronage. Finally, institutional voids involving public sector inefficiency within the decentralized governance system, centralized control over statutory payments, and information failure on resettlement and compensation issues are major barriers to social sustainability implementation within the mining space.

Overall, the drivers of social sustainability implementation are functions of the changing institutional environment based on stakeholder pressure and the moderating effects of organizational characteristics. Similarly, increased competition for exploration expenditure in the regional mining context has led to multiple and divergent logics. This situation is worsened by the customary arrangements, which erode institutional quality and the

development of the necessary synergies among institutions and actors for effective social sustainability implementation throughout the mine lifecycle.

7.6 Conclusion

This chapter examined the fourth and final research question regarding the drivers and barriers to social sustainability implementation in Ghana. The chapter reported the drivers of social sustainability to include regulatory evolution through specified compliance requirement, institutional pressure (coercive, competitive, and community pressures) relating to isomorphism, mining companies' level of internationalization, and corporate transparency and disclosures. Other drivers include post-closure legacies and managerial cognition based on strategic and ethical considerations (Boso et al., 2017).

This study conforms to a previous assertion that regulations are critical in the extractive industry to promote compliance with sustainability goals (K. Söderholm et al., 2015). Additionally, because mining hugely influences social processes because of the inherent impacts, stakeholders are pushing for corporate strategies that contribute to long-term sustainability long after mine closure (Antwi et al., 2017; Dashwood, 2014; UNDP & UN Environment, 2018). Similarly, the study provides additional evidence about the role of institutional pressures on the sustainability practices of companies. Particularly, common pressures from industry regulators, competitors, and local communities within a mining space lead to companies embracing new forms of social sustainability practices. As a result, these pressures have resulted in broader scopes for social sustainability implementation in Ghana.

Further, large-scale mining companies in Ghana are voluntarily using global standards and protocols in their social compliance practices. This beyond compliance practices is a function of their level of internationalization because of the necessity for them to obtain legitimacy and manage stakeholder pressures (Delmas & Toffel, 2004; Gómez-Bolaños et al., 2019). For example, the findings indicate that selected case companies aim to appeal to an international audience, including by securing potential investments from sustainability conscious investors and exploratory financing from the International Finance Corporation (IFC). The transfer of sustainability practices by multinational mining companies across countries with different regulations has benefits to host domains (Rodrigues & Mendes, 2018).

Transparency and disclosure are increasingly important to companies' social license and stakeholder management (Fernandez-Feijoo et al., 2014; Morrison-Saunders et al., 2016; Wu, Liu, Zhang, & Yu, 2019). This comes from the combine expectations of stakeholder groups within the institutional environment. However, the systematic constriction of opportunities for wider stakeholder engagement throughout the mine lifecycle and the lack of adequate information sharing during the exploratory processes limit full transparency and disclosure. For instance, while civil society organizations are critical to influencing activities of mining companies (Dashwood, 2014), they lack opportunities for direct engagement in Ghana. This has adverse consequences because according to Rodrigues and Mendes (2018), effective sustainability implementation requires interactive dialogue between relevant mining actors.

Additionally, the legacy of social closure in Ghana is pushing corporate managers to embrace social sustainability practices. This is important because of the lack of regulatory requirement for social closure compliance. As such, the mining companies are showing the

willingness to embrace practices addressing post-closure social impacts, albeit uncoordinated, random and fragmented (Essah & Andrews, 2016). Finally, the changes, uncertainties, and ambiguities in the institutional context are leading to managerial cognition relating to social sustainability practices. This situation is driving social sustainability implementation where organizational sensemaking and sense-giving is expanding the scope of managerial decision making and actions. While Rodrigues and Mendes (2018) perceive social responsibility as strategic for multinationals, this study shows that social sustainability also involves ethical managerial cognition. Thus, managers are combining stakeholder salience and ethics to expand their social sustainability practices. This finding coincides with managerial stakeholder theory and normative stakeholder theory in terms of why and how companies respond to demands and expectations in the institutional context (Amran & Haniffa, 2011; Garcia-Castro et al., 2011; Gilbert & Rasche, 2008).

The barriers of social sustainability implementation include regulatory competition, lack of social closure policy, stakeholder issues, unethical leadership and institutional voids. First, the increased competition for exploratory investment in the mining industry, especially across the West African sub-region have resulted in ineffective compliance monitoring and enforcement, failure to domesticate regional mining agreements into national laws, and policy differentiation, which dilutes the legal requirements of existing regulations (Bebbington & Bury, 2009; Holzinger, Knill, & Sommerer, 2008). This relates to the view that multinational mining companies have multiple considerations for investments beyond considerations of resource abundance and quality (Vivoda, 2017). As such, countries seeking a competitive advantage and new investments in the mining sector might prioritise new policies (Morrison-Saunders et al., 2016), rather than sustainability implementation. This may relate to institutional complexity relating to divergent societal logics and

paradoxical tensions within the mining space of resource-rich developing countries. For example, the value around promoting local content in the mine value chain is contradicted by the need to offer incentives to large-scale mining companies in terms of import tax breaks (Patnaik et al., 2018), which make it impossible for domestic firms to compete for contracts. Thus, this study posits regulatory competition as a major barrier to social sustainability implementation in Ghana.

Second, issues relating to social closure impacts are lacking in existing regulations and the mining policies of companies. As a result, current efforts by mining companies to account for social impacts after mine closure are disjointed and random because of the lack of assessment of the costs of impacts and corporate commitments. For instance, while about 10% of the sustainability funds of mining companies are invested to address exit expenditure, there is no empirical evaluation, which matches the saved amounts with future social impact mitigation costs and financing commitments. Third, stakeholder issues involving speculative development and dependency create tensions between large-scale mining companies and local communities (Essah & Andrews, 2016; Jenkins & Obara, 2008). This arises from stakeholder demands for benefit-sharing and compensatory redistribution through fair, prompt, and adequate compensations. However, the basis of these community expectations is largely beyond regulatory thresholds and requires managerial ethical cognition.

Fourth, unethical leadership in the forms of elitist privilege, corruption, and customary patronage are straining and undermining social sustainability goals. Finally, institutional voids within the present system and arrangements in the mining space hinder the effectiveness of social sustainability implementation. Particularly, these relate to public sector inefficiency, information failure regarding social compliance issues, and centralized

control over mining licensing and fiscal policies (Morrison-Saunders et al., 2016). These voids create institutional bottlenecks that negatively affect the interactions and partnerships among various actors resulting in temporal growth and unsustainable development processes.

Taken together, the drivers and barriers of social sustainability implementation relate to the institutional complexities within the mining environment. The need to receive the benefits of mining through new mine investments and development is always contradicted by the necessity to manage the social impacts associated with extractive activities. Thus, the contradictory societal logics against complicit commonality in values between large-scale mining companies, regulators, and even traditional authorities to a lesser extent complicate social sustainability implementation. Therefore, achieving a synthesis between the drivers and barriers may require accommodating the multiple, competing, and divergent logics within the institutional environment

Chapter 8

Discussion

8.1 Introduction

In this chapter, major themes and findings from the last four chapters are further discussed, analysed, and integrated. The aim of this study was to explore and examine the sustainability practices of large-scale mining companies in addressing social and environmental impacts throughout the mine lifecycle. The research has two key frames of reference. First, it was proposed that how large-scale mining companies account for their social and environmental impacts through their sustainability practices remain unexplored in developing countries. Based on this, the study investigated social and environmental sustainability practices and initiatives in addressing the impacts of mining activities throughout the mine life. Second, how institutional, organizational, and stakeholder contexts influence social and environmental sustainability implementation is not understood because of the dearth of research in this line of inquiry. As such, contextual variables affecting sustainability implementation are identified and examined in this study. Third, the abductive logic in this research helped to make sense of the findings in this discussion. The findings are discussed and explained by making an inference to the best explanation based on the existing suppositions in the literature. In this regard, the discussion links the findings to available studies in this area regarding the consistencies and variances.

In this chapter, the key findings are explicated and linked to the research questions, extant literature, and theoretical framework. It starts by discussing the environmental sustainability practices of large-scale mining companies within regulatory and self-regulatory contexts, highlighting the areas of intersections and divergence to the established literature. The

second section identifies and examines the barriers to environmental sustainability implementation within a non-enabling mining environment and analysing them in the context of institutional complexities. The third section explores the forms of social sustainability practices by examining the broadening scope of implementation in a changing institutional context. The drivers and barriers to social sustainability implementation are discussed in the fourth section. The final section presents a theoretical framework developed from the empirical findings of the study.

8.2 Environmental Sustainability Practices in Addressing Impacts

The sustainability practices in addressing environmental impacts throughout the mining lifecycle were discussed in chapter 4. This section provides a summary of the examination of the empirical data and discusses how the institutional and stakeholder perspectives provide theoretical meanings to the findings.

Environmental sustainability is a necessary condition for the sustainable development of resource-rich developing countries (Mudd, 2010; Tost et al., 2018; UNDP & UN Environment, 2018). As such, the mining sector as a large and important global industry is embracing environmental responsible practices because of the ecological costs of minerals extraction (Orlitzky et al., 2011; Tost et al., 2018; Vintró et al., 2014). However, how mining companies are addressing their proximate and long-term environmental impacts is not understood adequately in Ghana, although the country has some of the best mining policies in developing countries. To address this gap, this study provides an empirical examination of the environmental sustainability practices of multinational mining companies

First, this study indicates that environmental sustainability practices in Ghana occur within an evolved regulatory environment and therefore, initiatives to address mining impacts included regulatory compliance. The findings show that environmental sustainability practices are determined by *regulatory compliance* and *corporate environmental responsibility*, which target both impact mitigation and prevention during the phases of the mining lifecycle. Regarding the regulatory compliance practices, the findings study shows that the environmental sustainability practices of mining companies in Ghana go beyond land reclamation as stated by Essah and Andrews (2016), to also include impact mitigation. This suggests that while large-scale mining companies focus on land rehabilitation at the post-closure stage, they also engage in impact mitigation practices based on the environmental impact assessment process, which contributes to long-term environmental sustainability (Morrison-Saunders et al., 2016; J. Phillips, 2012). This finding is consistent with the view of Bawole (2013) and Betey and Essel (2013) who see mining practices as required by the environmental impact assessment regulations to be critical to sustainability.

However, while the environmental impact assessment processes within the conceptual compliance stage require effective stakeholder engagement, the findings demonstrate that public participation has not been effective. This agrees with a previous study by Betey and Essel (2013). For example, A. Hilson et al. (2019) observe that stakeholders including mining activists in Ghana, have limited opportunity to engage directly with mining companies. Public forums at the conceptual stage of the mine lifecycle are the medium for stakeholder engagement on environmental issues. Thus, mining companies experienced fewer stakeholder pressures and expectations from local communities and activists on environmental issues except in cases of clear risks such as cyanide pollution. This is consistent with a previous finding by Essah and Andrews (2016), which reported a lack of

community participation in mining decisions. As a result, community pressure is largely reactive and occurs after a major environmental accident. On the contrary, regulatory pressure is proactive and involves compliance monitoring and enforcement of relevant policies and regulations. The reasons for the moderated community pressure is consistent with the suggestions by Bawole (2013), which include limited community capacity to influence decisions, non-participation in scoping of mining projects, lack of information due to lack of access to documents, and undue focus on environmental impact assessment process rather than on the outcomes of minerals extraction. These point to the limitations of regulatory compliance as the framework for the sustainability practices of large-scale companies in addressing environmental impacts. Thus, regarding institutional theory, the findings demonstrate the role of coercive pressure in driving large-scale mining companies to embrace environmental sustainability practices within the parameters of regulations and policies. This also has implications for stakeholder theory in terms of perceiving regulators as the dominant body in the institutional field to drive the environmental sustainability practices of large-scale mining companies. As a result, while local communities have some salience on the practices of large-scale mining companies (Owen & Kemp, 2013; Prno & Slocombe, 2012), this is limited in the context of environmental compliance and sustainability. This also relates to the view in stakeholder theory about the subjective granting of legitimacy by a stakeholder group (Chen & Roberts, 2010). In this context, the regulatory compliance practices based on the defined standards of regulatory institutions do not always reflect the common societal interest as local communities, and mining activists may have subjectively different goals.

Second, the regulatory compliance practices in Ghana relate to the major environmental sustainability themes identified in the literature including addressing impacts on biodiversity

(fauna and flora), water, climatic ambience (air and noise pollution), and soil quality (Brueckner et al., 2013; Mensah et al., 2015; Tost et al., 2018). The operational mechanisms include the use of high-density polyethylene (HDPE) liner and clay in tailings facilities to prevent chemical infiltration, water treatment and recycling to ensure quantity and quality, and the avoidance of fauna mortality, and engineering controls to reduce ambient air and noise pollution. This mechanism relates to the cleaner production processes and the introduction of new technologies in large-scale mining development (Barkemeyer et al., 2014; Newbold, 2006; Silvestre, 2014).

However, unlike previous research, this research identifies the specific mechanism for environmental sustainability at every stage of mining development. Thus, the findings show that during the operational phase of mining development, large-scale mining companies' environmental sustainability practices tend to be limited to impact mitigation as required in the environmental impact assessment process, environmental permits, and mine license. Beyond this, large-scale companies have embraced cleaner production processes through creativity and innovation to improve environmental performance (Newbold, 2006; Silvestre, 2014; S. Yin et al., 2020), especially regarding impact prevention through effective management of tailings storage facilities and minimization of waste and vehicular emissions. Particularly, there are efforts at protecting and maintaining water quality through the prevention of seepages from chemicals, tailings, and acid mine drainage.

Moreover, the findings show that post-closure land rehabilitation is a major part of the compliance practices within the mining industry in Ghana (Essah & Andrews, 2016). The mechanism for land reclamation (Essah & Andrews, 2016) includes revegetation, afforestation, phytoremediation to reduce soil acidification, and species repopulation to enhance biodiversity. However, contrary to previous studies in Ghana (Antwi et al., 2017;

Essah & Andrews, 2016), the findings show that the regulatory compliance practices during the conceptual and operational stages are geared towards post-closure land reclamation. Beyond this, large-scale mining companies in Ghana are required to lodge reclamation bond with the regulator to cater for the cost of abandoned mine sites. The “purpose of this bond is to ensure that funds are in place to carry out rehabilitation and remedial works by the relevant authority in the event that the company becomes insolvent” (Nehring & Cheng, 2016, p. 229). This is important because a critical sustainability risk in developing countries relates to the environmental costs associated with prematurely closed mines, which stands at 75% (UNDP & UN Environment, 2018). In a similar vein, the findings show that the current practices regarding post-closure rehabilitation are inadequate for full environmental sustainability. This is because while the regulatory requirement for post-closure rehabilitation has a specified compliance level of 40% for indigenous plants, there is no requirement for active fauna reintroduction. This finding is supported by prior research by Attuquayefio, Owusu, and Ofori (2017), which suggests that peripheral areas have a higher species diversity and abundance because of the comparatively more natural environment than core mining domains, which cause a permanent alteration of habitats. Similarly, this confirms the findings by Morrison-Saunders et al. (2016), which indicates that the policy for land closure planning is less developed in the mining countries in Africa compared to the developed world.

Further, the findings indicate that large-scale mining companies have embraced corporate environmental responsibility regarding *global sustainability reporting standards and opportunities for continuous improvement*. Corporate environmental responsibility in the various manifestations was found to be isomorphic based on normative pressures in the mining industry in Ghana. Specifically, normative pressure reflects the common

expectations of the acceptable behaviour for companies within the same industry who are faced with a homogenous stakeholders, regulators, suppliers, competitors, and media (Fernando & Lawrence, 2014; Gao et al., 2019). As such, this finding is supported by the idea that normative pressure can motivate companies to embrace environmental benefits and respond to corporate environmental responsibility engagement (Armah et al., 2011; Gao et al., 2019). Further, this finding supports the suggestion of Armah et al. (2011) that gaps exist in the mining and environmental regulations of Ghana compared to international best practices. As a result, large-scale mining companies have embraced ethical responsibilities that go beyond the existing regulatory compliance requirements (Dashwood, 2014). Thus, voluntary sustainability practices such as supply chain management, green sourcing, and water recycling are to meet the requirements of the Global Reporting Initiative (GRI), International Cyanide Management Code (ICMC), International Organization for Standardization (ISO14001), and the International Financial Corporation (Greenwald & Bateman, 2016; Tschopp & Nastanski, 2014). Consequently, the corporate environmental responsibility practices in the mining industry confirm the findings by Gao et al. (2019) that companies facing regulatory pressure would embrace perceived ethical obligation as evidence of their voluntary commitments.

The findings on corporate environmental responsibility practices may point to the role of normative and mimetic pressures in a weak and non-enabling mining context, which provides further meaning to institutional theory. For instance, this relates to the findings of Amaeshi et al. (2016) who demonstrate the role of private morality and the quest for social legitimacy as important drivers for responsible business practices in non-enabling institutional environments. Thus, in a weak institutional context where mechanisms for monitoring and regulatory enforcement are weak, large-scale mining companies are

implementing beyond compliance practices based on self-regulation to promote legitimacy and social acceptance. This is a significant contribution, which enhances the theoretical connection, not adequately addressed between the literature on sustainability and institutional theory.

From these discussions, the following propositions can be made:

Proposition 1a: Large-scale mining companies in Ghana experience regulatory and normative pressures that motivate their efforts toward implementing environmental sustainability throughout the mine lifecycle.

Proposition 1b: Regulatory pressures encourage perceived ethical obligations and corporate environmental responsibility by large-scale mining companies to demonstrate conformity to social and environmental sustainability.

Proposition 1c: Large-scale mining companies would embrace self-regulatory practices based on perceptions of legitimacy and ethical obligations in non-enabling institutional contexts.

8.3 Barriers to Environmental Sustainability Implementation

The barriers to environmental sustainability implementation were explored and examined in chapter 6. This section summarises the empirical data and discusses the barriers to the environmental sustainability practices of large-scale mining companies in Ghana, as they operate in complex institutional fields with multiple, diverse, and divergent logics (Marano & Kostova, 2016). To explain the barriers to the environmental sustainability

implementation in the findings, this study drew on insights from institutional complexity within institutional and stakeholder theories.

First, this study identifies resource governance gaps as a major barrier to environmental sustainability practices in the mining industry. This is an interesting finding because Ghana is globally recognised as one of the best mining countries in the area of resource governance (Amoako-Tuffour, 2017; ICMM, 2015; Standing & Hilson, 2013). This is based on major policies and regulations guiding licensing, operational, and post-closure activities such as the Environmental Assessment Regulations, 1999 (L.I. 1652), and the Minerals and Mining Regulations, 2012 (L.I. 2173). However, while the country's mining regulations have evolved over the years, this empirical finding agrees with previous studies in which many critical authors have observed gaps in existing policies and governance systems in Ghana (Armah et al., 2011; Ayee et al., 2011). For instance, in the domain of environmental governance, Morrison-Saunders et al. (2016) note that policies for post-closure land planning are less developed in Africa compared to OECD nations like Australia. In the same vein, Elbra (2017) has observed poor resource governance in Ghana and other developing countries in Africa, resulting in critical sustainability challenges.

Additionally, the findings suggest that regulators and policy makers know about resource governance gaps regarding regulatory differences in compliance indicators and the weakness in the institutional mechanisms for regulatory compliance and monitoring enforcement. Arguably, the failures to strengthen existing laws, domesticate international policies into local regulations, or bridge the gaps in monitoring and enforcement may relate to the contradictory logics within the institutional environment. For example, Ghana has failed to domesticate the free, prior, and informed consent principle in its laws despite being a signatory to the Economic Community of West African States mining directives. This

finding is supported by Bebbington and Bury (2009), who found a similar situation in Peru, which is a signatory to the International Labour Organization Convention (ILO) 169. The ILO requires companies to provide prior consultation and undertake free, prior, and informed consent before any relocation of people from their lands.

The findings point to a divergent logic between promoting sustainability and attracting mining investments as the gaps in enforcement mechanisms suggest that large-scale mining companies have some flexibility in their compliance practices. This view is consistent with a study by Schoneveld and German (2014) who observed situations in Ghana where district assemblies refused to report negative impacts of projects to appropriate institutions to stop the issue from escalating, which might endanger investments. This is further supported by Bebbington and Bury (2009), who found that institutions in African countries prioritise the promotion of mining over regulations and institutional arrangements for sustainability. The above might help to explain why regulatory institutions are under-resourced, leading to a weak monitoring and enforcement mechanism (Tuokuu et al., 2018). Thus, within the framework of institutional complexity, the market logic of attracting mining investments appears to contradict sustainability goals in Ghana.

Further, the findings note a divergence between the centralization and decentralization logics in resource governance. Specifically, the findings show how the outcome of decentralization, which provides a certain level of decision-making and control to traditional councils and local government institutions, has resulted in patronage, corruption, and collusion, which are detrimental to the sustainability of local communities (Bush, 2009; Schoneveld & German, 2014). Particularly, Schoneveld and German (2014) suggest that government institutions tend to ignore issues related to chieftaincy matters because of a policy of non-interference, especially regarding land management. This unfortunate

situation is perpetuated by the significant power of traditional authorities over a majority of lands in Ghana (Lesniewska & McDermott, 2014). As such, while decentralisation leads to unethical situations in mining communities, centralisation also hinders local accountability, including moderating stakeholder pressures at the plant level. This contradiction may be explained by invoking the role of institutional complexity as demonstrated in institutional theory.

From these discussions, the following propositions can be made:

Proposition 3a: Large-scale mining companies in Ghana experience a wide range of institutional barriers that hinder them from effectively implementing environmental sustainability practices.

Proposition 3b: In the context of institutional complexity, the market logic of attracting investments contradicts effective resource governance hindering the environmental sustainability practices of mining companies

8.4 Social Sustainability Mechanisms in addressing Impacts

The sustainability practices in addressing the social impacts of mining were examined in chapter 5. This section summarizes the empirical data, highlights defining areas in the social sustainability discourse, and discusses how the findings may be explicated using the institutional and stakeholder approaches. For instance, the empirical findings suggest that institutional changes relating to endogenous and exogenous isomorphic factors are aligning mining companies toward broader social sustainability practices. Similarly, because social sustainability practices largely occur within self-regulatory contexts in Ghana (Andrews,

2016; Essah & Andrews, 2016; Oppong, 2016b), this discussion considers how stakeholder and institutional pressure affect organizational sensemaking towards the sustainable development of mining communities.

This purpose of this study was to provide a complete understanding of social sustainability practices in addressing impacts in Ghana. This is important because while sustainability recognizes three major strands, the social dimension has received little empirical and theoretical investigation (Dempsey et al., 2011; Eizenberg & Jabareen, 2017). The findings show that large-scale mining companies address social impacts through such sustainability practices, including *corporate social responsibility*, *social compliance*, *local content*, and *stakeholder management*.

First, the findings show that the corporate social responsibility of large-scale mining companies take the form of community development initiatives (Essah & Andrews, 2016; Owusu-Ansah et al., 2015) and include projects in education, water and sanitation, health, and infrastructural development. Consequently, corporate social responsibility is implemented in two strands – *social agreements* and *community social investments*. As such, while corporate social responsibility is based on voluntariness (Andrews, 2016; Malik, 2015), its manifestations also include enforceable negotiated development agreements between companies and local communities. Thus, despite prior evidence in the literature that corporate social responsibility is voluntary in Ghana (Amponsah-Tawiah & Dartey-Baah, 2011a; Andrews, 2016; Essah & Andrews, 2016), the findings suggest an intersection between self-regulatory and legal compliance practices.

Similarly, unlike Indonesia, where CSR is entirely mandatory (Waagstein, 2011), the Ghanaian case is a mixture of self-regulatory initiatives with enforceable negotiated

agreements. This finding is consistent with the view that while a less restrictive regulatory framework for CSR implementation allows companies to develop voluntary policies (Waagstein, 2011), a self-regulatory environment also undermines social sustainability (Andrews, 2016). This contradiction highlights the role of institutional complexity in sustainability practices based on plural and divergent logics as depicted in institutional theory (Besharov & Smith, 2014; Smith & Tracey, 2016). Additionally, these findings support the view that CSR practices in a self-regulatory environment without regulatory pressure are both ineffective and inadequate for social sustainability (Andrews, 2016; Essah & Andrews, 2016; Hamann & Kapelus, 2004; Lyon & Maxwell, 2008). To address the weaknesses in voluntary CSR practices, the findings note a widening of corporate approaches to include enforceable social agreements. This includes an evolving institutional arrangement in Ghana, which is similar to the mining charter in South Africa regarding voluntary practices and regulatory compliance in CSR implementation (Cronjé & Chenga, 2009).

Second, large-scale mining companies address their social impacts through *social compliance practices*, which involve statutory payments for *resettlements* and *compensations* (Boso et al., 2017). While social compliance is required under the Environmental Assessment Regulations, 1999 (L.I. 1652) and the Minerals and Mining Regulations, 2012 (L.I 2173), actual resettlement and compensation decisions are negotiated with affected people (Owen & Kemp, 2015; Wan, 2014). Additionally, the findings suggest that mining companies are less interested in engaging in resettlement activities contrary to past proclivities. The reasons for this are consistent with previous findings by Owen and Kemp (2015), which include the complexity and difficulty involved in identifying and acquiring land for resettlement and the opposition of previously resettled communities.

Further, the study indicates lingering concerns with large-scale mining companies' resettlement and compensation practices. Consequently, the concerns with social compliance practices involve the lack of *post-resettlement initiatives*, *constraints on access to free, prior, and informed consent*, and *inadequate community knowledge* and participation in the compensation process. This confirms previous findings by Adam et al. (2015), Lawer et al. (2017), Bugri and Kumi (2018), and Essah and Andrews (2016). Interestingly, the above gaps in social compliance practices may help in explaining the paradox between an improved resettlement and compensation processes and the rise in poverty, disruptions and violent protest observed by E. T. Lawson and Bentil (2014) and (Owen & Kemp, 2015).

Third, local content practices within broader social sustainability implementation are arguably the most innovative initiative in addressing social impacts. Local content initiatives focus on competitive production of goods and services to increase employment and build linkages within the mining value chain (Maponga & Musa, 2020; Östensson, 2017; UNDP & UN Environment, 2018). A common refrain in Ghana relates to statements comparing Obuasi, which has over a century of gold mining to Johannesburg while bemoaning the high incidents of poverty and underdevelopment. Local content policies aim at addressing unemployment issues through skills training and the emergence of economically depressed local communities after mine closure. This confirms previous findings that unemployment constitutes a major sustainability concern due to the limited capacity of mining companies to generate direct employment (Amponsah-Tawiah & Dartey-Baah, 2011b; Pegg, 2006). As such, the promotion of local content policies by the government, mining companies, the industry association, activists, and local communities is seen as a strategy to enhance employment and promote local participation in the mining value chain (Kansake, Kaba, Dumakor-Dupey, & Arthur, 2019; Maponga & Musa, 2020; Östensson, 2017). Beyond the

manifestations of local content practices reported in the literature, the empirical findings in this study demonstrate that a critical dimension of local content practices in Ghana is the promotion of *transparency* and *local control* as a stakeholder management strategy.

Finally, stakeholder management has become an effective social sustainability strategy to address the social impacts of mining development (Barnett et al., 2018; Lokuwaduge & Heenetigala, 2017). This involves processes or procedures in effectively managing relationships with stakeholders. The findings of this study indicated several sub-themes of stakeholder management—*transparency*, *stakeholder engagement*, *collaborative decisions*, and *cross-cultural partnerships* as the managerial strategy for developing social proximity (Boso et al., 2017). Generally, the study demonstrates that stakeholder management is important to social sustainability in Ghana due to the egalitarian, cultural, and value systems, which prioritize social interactions and local engagements. Accordingly, this finding suggests that large-scale mining companies engage in stakeholder engagement as this “CSR is perceived as patronising and paternalistic, when companies undermine knowledge and skills of local communities to identify their own needs and priorities” (Mutti et al., 2012, p. 221). The willingness of corporate managers to embrace stakeholder management supports the suggestion by Perrini and Tencati (2006) that the sustainability of a firm depends on its stakeholder relationships as a guiding principle and a pillar of a comprehensive corporate strategy. Crucially, this finding is consistent with the suggestion by Black (2004) that multinational mining companies are increasingly focusing on social and cultural sustainability issues, which are embedded in their stakeholder management practices.

However, due to the critical social sustainability challenges facing the mining industry in developing countries, this finding agrees with the view of Barnett et al. (2018) that managing stakeholders interests may prove inadequate in addressing critical sustainable risks because

of the low demand for sustainability by heterogeneous stakeholder groups. Therefore, this study has implications for stakeholder theory and social sustainability. It highlights the role of stakeholder pressure on the sustainability practices of large-scale companies because of the need of mine managers to obtain a social license to operate (Bice, 2014; Prno & Slocombe, 2012). Particularly, the development of social proximity and relationships with various actors within the institutional environment is consistent with the view of Hörisch et al. (2014), regarding stakeholder theory and sustainability.

From these discussions, the following propositions can be made:

Proposition 2a: Large-scale mining companies in Ghana have embraced a wider scope of social sustainability practices beyond the traditional focus on CSR.

Proposition 2b: While social sustainability practices of large-scale mining companies in Ghana occur within a self-regulatory context, some initiatives intersect with regulatory references.

8.5 Drivers and Barriers to Social Sustainability

The drivers and barriers to environmental sustainability implementation throughout the mine lifecycle were explored and examined in chapter 7. This section, therefore, summarises the empirical data and discusses the findings from stakeholder and institutional perspectives. This part discusses the drivers of social sustainability implementation in a mining context.

First, the concept of social sustainability is a largely neglected discourse in the extractive industry, but the growing focus relates to the social costs in mining communities (Segerstedt & Abrahamsson, 2019; Solomon et al., 2008; Suopajarvi et al., 2016). As a result, there are

both stakeholder and institutional pressures to expand the scope of social sustainability implementation beyond impact mitigation to the broader development of mining communities (UNDP & UN Environment, 2018). The findings identified several sub-themes relating to the drivers of social sustainability – *regulatory evolution, institutional pressures, internationalization, transparency and disclosures, post-closure legacies, and managerial cognition*.

First, the findings show a *regulatory evolution* from *generalised* to *specified compliance standards* is a major driver of social sustainability implementation. This is significant because while stringent regulations have enhanced corporate practices on environmental issues (Shum & Yam, 2011; K. Söderholm et al., 2015), social sustainability occurs within self-regulatory contexts. With the passage of the Minerals and Mining Regulations, 2012 (L.I 2173), which provide specified compliance requirements on social compliance issues including *community resettlement* and *compensations*, mining companies have progressed their social sustainability practices based on specified regulatory requirements. This finding highlights the gaps in the voluntary practices of mining companies in enhancing social sustainability within an extractive sector (Andrews, 2016; Essah & Andrews, 2016).

Second, institutional pressures have pushed large-scale mining companies to embrace new forms of social sustainability practices. Consistent with institutional theory, the findings show that *competitive, regulatory, and community pressures* are isomorphic, which lead to homogenized social sustainability practices within the Ghanaian institutional environment (Grob & Benn, 2014; Husted & Allen, 2006; Suddaby, 2010). For example, the findings indicate that large-scale mining companies have similar financing schemes, local content policies, CSR initiatives, and stakeholder management processes in Ghana. As such, these findings confirm the theoretical framework, which indicates that the combined pressures of

various actors within an institutional field influence large-scale companies to conform to practices based on stakeholder values and preferences as suggested by Delmas and Toffel (2004); and Delmas and Toffel (2011). However, the interaction between stakeholder pressure and companies is not a linear relationship because the findings also demonstrate that organizational characteristics are an important determinant of sustainability implementation. Particularly, this agrees with previous findings regarding *internationalization* as a positive internal organizational determinant of sustainability practices (Gómez-Bolaños et al., 2019; Park, 2018; Symeou, Zyglidopoulos, & Williamson, 2018). This is an important finding because the large multinational mining companies operating in developing countries are registered under the legislations of developed countries (Jenkins & Yakovleva, 2006). As such, large-scale mining companies in Ghana implement international standards such as the Global Reporting Initiative, ISO 14001, and the International Financial Corporation, are significant to enhancing social sustainability. Additionally, *managerial cognition* based on *strategic* and *ethical considerations* internally drives social sustainability implementation (Boso et al., 2017; Dawkins, 2014; Mzembe & Downs, 2014).

However, this finding shows that while managerial cognition relates to organizational sensemaking due to uncertainties, the decisions and actions of large-scale mining companies are externally motivated. This relates to a study by Boso et al. (2017), which finds drivers of CSR among large-scale mining companies to include strategic reasons based on their self-interest and a sense of moral obligation. This finding is significant because unlike previous studies by Garvin et al. (2009) and Essah and Andrews (2016) showing significant disparities in the social sustainability discourse between mining companies and communities, this study notes a positive relationship between managerial cognition and perceived stakeholder

pressures. Interestingly, the finding demonstrates that ethical managerial cognition is driven by a sense of moral obligations to local communities, as stipulated in normative stakeholder theory in terms of the social sustainability practices of large-scale mining companies (Boso et al., 2017; Reed, 2002).

Additionally, the theoretical framework for social sustainability implementation involves interrelated cause and effect relationship between stakeholder pressures and company characteristics (Delmas & Toffel, 2004). However, the findings demonstrate that the relationship between stakeholder pressures and organizational characteristics can be both cause and effect suggesting a bidirectional relationship. Thus, a positive reciprocal interaction between stakeholder pressures and a company's internal drivers may enhance social sustainability in a mining environment.

Moreover, according to the UNDP and UN Environment (2018), the high rate of premature mine closure globally leads to huge social costs in host countries. This includes large outward migration, high unemployment, increased crime rates, and general economic depression in post-mining communities (Bainton & Holcombe, 2018; Petrova & Marinova, 2013). As a result, mining companies are pressured to embrace initiatives that address post-closure social impacts. However, the findings show a lack of social closure policy. This finding is consistent with previous findings by (Essah & Andrews, 2016), which observed an uncoordinated and disjointed corporate practices in existing social sustainability initiatives. From these discussions, the following propositions can be made:

Proposition 4a: Large-scale mining companies in Ghana experience a wide range of internal and external drivers that encourage their efforts to embed social sustainability practices in a largely self-regulatory domain.

Proposition 4b: While external drivers may encourage large-scale mining companies to embrace social sustainability, internal drivers have a bigger moderating effect in a non-enabling institutional context.

The second part discusses the barriers to social sustainability implementation in Ghana. The findings identified several sub-themes relating to the barriers, which include *regulatory competition*, *lack of social closure policy*, *stakeholder issues*, *unethical leadership*, and *institutional voids*. First, the increasing competition for mining investments has resulted in developing countries implementing neoliberal economic policies (Taylor & Bonner, 2017), which often serve the interest of multinational mining companies. In the same vein, many developing countries, especially those in Africa are focusing on establishing new policies to attract foreign direct investments into the mining industry (Morrison-Saunders et al., 2016; Owusu-Antwi, Antwi, Ashong, & Owusu-Peprah, 2016). Accordingly, the finding shows that Ghana has promoted a policy of compliance flexibility and stability agreements, which protect the interest of large multinational mining companies (Elbra, 2017; Tienhaara, 2006). As such, Ghana has failed to pass legislation, which would enshrine the Economic Community of West African States protocol and the International Labour Organization Convention (ILO, 169) into its mining regulations. These protocols require companies to provide prior consultation and undertake free, prior, and informed consent before any relocation of people from their lands.

This finding on regulatory competition is supported by Taylor and Bonner (2017), who asserts that reduced regulatory oversight contributed to the growth of mining across Latin America. This also agrees with the assertion of Humby (2015) about the concerns that rigorous implementation and regulatory enforcement may stifle mining investment in South Africa and make the industry uncompetitive. Consequently, the argument is that while

mining companies face stakeholder pressure to obtain community acceptance (Wilburn & Wilburn, 2011), the failure to domesticate the free, prior and informed consent protocols in national regulations relate to a desire to maintain regulatory parity with competitive enclaves. Additionally, while large-scale mining companies may be attracted to countries with better environmental regulations (K. Söderholm et al., 2015), the finding suggests that governments in developing countries assume that empowering local communities may be a disincentive to mining investments. Thus, this institutional barrier to social sustainability in Ghana is consistent with the findings of Bebbington and Bury (2009), who notes a similar situation in countries across Latin America and Africa. These findings have implication for institutional theory with regards to contradictory logics in challenging contexts. Specifically, regulatory competition relates to a market logic for investments against a compliance logic towards sustainability. This is consistent with the observation that institutional complexity triggers a higher demand for self-governance or self-regulation (Amaeshi et al., 2016). Thus, this contributes to the institutional theorization of social sustainability where large-scale mining companies implement responsible practices despite contradictory logics, weakness and inefficiency of institutions and governance arrangements.

Further, the lack of social closure policy may be explained in the traditional neglect of the social sustainability practices in mining (Suopajarvi et al., 2016; Tiainen et al., 2014). As such, the findings show that post-closure social risks are not addressed in the existing mining policy and regulations. Yet, this is critical to social sustainability because of the high incidence of premature mine closures within the global mining industry (Laurence, 2011; UNDP & UN Environment, 2018). Thus, in the cases of post-community resettlement and mine closure, large-scale mining companies may be unable to meet the long-term social

sustainability commitments such as the payment of scholarships to affected persons as this is not a requirement in existing regulations. This finding is consistent with the views of Shum and Yam (2011) and Hu et al. (2019) that governmental regulation is more efficient than industry self-regulation or the voluntary practices of companies.

In relation to stakeholder issues, the findings identified *speculative development* and *local dependency*, as barriers to social sustainability implementation. Generally, conflicts arising from speculative developments affect stakeholder perceptions of corporate legitimacy and social license to operate. Interestingly, this finding supports the idea of multiple institutional logics because local dependency leads to acceptance of mining during the prospecting or conceptual phase (Conde & Le Billon, 2017; B. Dale, 2002), but later results in community resistance during subsequent phases of the extractive process. Additionally, local dependency appears to be both a cause and an effect of the social sustainability practices of large-scale mining companies in response to internal and external pressures (Jenkins & Obara, 2008; E. T. Lawson & Bentil, 2014; Petrova & Marinova, 2013). For instance, while local dependency affects the ability of stakeholders to demand accountability, it also hinders the willingness of corporate managers to effectively engage with local communities, which leads to a cycle of confrontations. As such, community pressure is less effective in an environment of local dependency on large-scale mining companies.

Moreover, unethical and self-interested behaviour of the traditional leadership of local communities undermines social sustainability practices in mining companies. This is supported by a previous finding that traditional chiefs and the district assemblies constrain access to mining benefits in local communities due to their self-interest (Lawer et al., 2017). However, while the manifestations of unethical leadership such as corruption, rent seeking, local power play and collusion have been previously reported (Bush, 2009; Lawer et al.,

2017; Schoneveld & German, 2014), the underlying arrangements that sustain such self-interested behaviours have not been adequately explored. Consequently, the empirical findings show that the institutional arrangements perpetuating unethical leadership involve decentralization and Ghana's 1992 constitution, which have enshrined and guaranteed the role of the chieftaincy institution (Asamoah, 2012). As such, the customary rights of traditional chiefs provide them with significant control over a majority of lands in Ghana (Lesniewska & McDermott, 2014). The findings suggest that the existing customary laws and the logic of decentralization, which grant rights to traditional chiefs as custodians of lands results in clientelist pressures, as noted by Abdulai (2017). Importantly, this finding contributes to the institutional theory because while *decentralization* leads to unethical situations in mining communities, *centralization* undermines corporate accountability and lessen the effectiveness of community pressure. This finding contributes to addressing the call by Spiegel (2012, p. 202) for research attention on how “institutions engage miners’ concerns and how such efforts relate with the centralization/decentralization of power and the dynamics of social mobilization and collaboration”

Further, the findings relate to stakeholder theory in terms of the multiple and divergent interests among different actors leading to managerial confusion (Brower & Mahajan, 2013; Jensen, 2002). As demonstrated in the findings, the contradictory interests between chiefs or traditional authorities and local communities require managerial sensemaking in responding to multiple stakeholder demands from the community of stakeholders. Accordingly, this finding supports the view that corporate managers often respond to demands based on their cognition of the levels of power and stakeholder urgency, which is consistent with managerial stakeholder theory. (Amran & Haniffa, 2011; Mitchell, Agle, & Wood, 1997b; Pater & Lierop, 2006). This is because chiefs or traditional authorities are

custodians of customary lands and represent communities in direct negotiations with large-scale mining companies and therefore have power and urgency to disrupt extractive activities. However, because of the unethical practices involving *collusion*, *corruption*, and *rent seeking behaviour* of traditional authorities (Bush, 2009; Lawer et al., 2017), large-scale mining companies face low community pressures to implement sustainability initiatives that address ‘wicked’ impacts. This clearly supports the argument by Barnett et al. (2018, p. 133) that

When managing for stakeholders, firms are likely to face low demand for sustainability relative to the many other demands that stakeholders place upon them, and firms are likely to provide even less, given limited ability to meet the demands for sustainability that do arise.

Finally, this study highlights the role of institutional voids in weakening the effectiveness of social sustainability practices of large-scale mining companies. Particularly, *public sector inefficiency*, *centralized control*, and *information failure* erode institutional quality, which undermines social sustainability implementation. These findings relate to the assertion of Owusu (2012), suggesting deep-rooted inefficiencies in many public sector organizations in Africa. Accordingly, the district and municipal assemblies, which constitute local government institutions are responsible for spearheading or partnering with companies in designing and implementing development projects in Ghana (Akudugu, 2013; Yeboah & Obeng-Odoom, 2010). However, the findings show that public sector institutions have inadequate project implementation and management capacities leading to poor performance (Akudugu, 2013). As a result, many CSR initiatives in local communities suffer serious deficits regarding project sustainability. Additionally, the processes of mining development from licensing to post-closure planning are managed by the central government with little local control. Therefore, because the government of Ghana have centralized control over mining and mineral resources (Ayee et al., 2011; Garvin et al., 2009), this undermines

community pressure and *corporate accountability* to local stakeholders. Accordingly, Bawole (2013) notes that local institutions such as district assemblies largely stay out of EIA processes because of their inability to influence project decisions which is further evidence of the consequences of centralized control in undermining effective stakeholder engagement.

Importantly, imagining centralized control as a barrier to sustainability implementation contributes to theory by raising issues of *institutional complexity* due to the interrelationships between opposing logics embedded in self-contradictions (Ashby et al., 2019; Smith & Tracey, 2016). Generally, the challenges facing a centralized and decentralized control of mining policy are suggestive of contradictions in Ghana's institutional environment. For example, while centralized control may reduce unethical leadership in mining companies, government institutions tend to ignore issues related to chieftaincy matters because of a policy of non-interference and may also limit local participation in decision-making (Schoneveld & German, 2014). As such, the findings demonstrate that the plural and divergent logics between a policy for centralization and decentralization as mechanisms for improving natural resource governance and local participation emanate from the complexities of the current institutional arrangements. Thus, large-scale mining companies face such multiple and competing demands based on incompatible institutional prescriptions, which undermine social sustainability implementation.

Finally, institutional voids caused by *information failure* hinder sustainability practices regarding social compliance issues. For instance, many chiefs who represent affected communities in negotiating compensation and resettlement payments lack legal literacy on the relevant regulations governing these processes (Schoneveld & German, 2014). Similarly, the mining affected persons in local communities have less direct engagement with large-scale mining companies (Apoh et al., 2017; A. Hilson et al., 2019). However,

while intermediaries such as NGOs often seek out information and possess good knowledge on social compliance processes, the findings show that they are largely marginalized during major negotiations between the large-scale mining companies and affected communities. This finding converges with a study by Bawole (2013), which observed the ineffectiveness of public hearings and stakeholder engagement during the EIA process. Interestingly, the finding contributes to the *stakeholder theory* in showing how companies respond to different interest groups. Generally, activists, including NGOs operating nationally and internationally, are instrumental in mobilizing public opinion against mining (Dashwood, 2014; Mzembe & Meaton, 2014). As such, corporate managers moderate the effects of pressures from activists with adequate knowledge of the opportunities and risks of mining by constricting opportunities for direct engagements. This finding is supported by Hu et al. (2019) who argue that the influence of informal organizations on the behaviour of companies in developing and emerging countries remain weak. In relation to *institutional theory*, the findings show that in a mining environment, which prioritizes foreign direct investments, the lack of access to adequate information by local communities may be suggestive of competing demands. In this regard, regulators and mining companies pursue an objective of side-lining opposing voices and interests by limiting their participation and access to relevant information based on complicit commonality (Ayelazuno & Mawuko-Yevugah, 2019). From these discussions, the following propositions can be made:

Proposition 5a: Large-scale mining companies in Ghana experience a wide range of institutional barriers that hinder them from implementing social sustainability initiatives.

Proposition 5b: While stakeholder pressures may positively influence the practices of large-scale mining companies, self-interested demands can move corporate managers away from complex sustainability challenges.

8.6 A Holistic Framework for Social and Environmental Sustainability Practices

According to Kovács and Spens (2005), the abductive approach is very common with case studies because of the simultaneous data collection and the theory development in this method. Particularly, they indicate that studies using the abductive approach start with basic theory, data collection and analysis, undertake theory matching, and concludes with propositions and re-development of the existing theoretical framework with new insights and knowledge. Based on this, this study utilised an abductive approach by proposing a theoretical framework for sustainability implementation in chapter 3. While stakeholder and institutional theoretical frameworks have been used in previous research (Dawkins, 2014; Suddaby, 2010; Tina Dacin, Goodstein, & Richard Scott, 2002), majority of these studies employed one of these theories in explicating findings.

However, this study combined the two theories into a theoretical framework to provide meaning to the empirical findings. Additionally, Essah and Andrews (2016) and Fonseca (2010) suggest that since mining companies tout themselves as engaging in sustainable practices, there is the need to examine how they respond to sustainability issues. While there are several research on the practices of companies on sustainability issues (Essah & Andrews, 2016; Fonseca et al., 2014; Mudd, 2010; Vintó et al., 2014), majority of these studies were based on the contexts of developed countries. In a similar, there is a lack of empirical and theoretical studies regarding social sustainability implementation (Dempsey et al., 2011; Eizenberg & Jabareen, 2017), as most research focused on environmental issues. Thus, this study, based on the empirical findings, addressed the gap in sustainability practices relating to social and environmental impacts by both confirming and extending the theoretical framework.

The proposed holistic framework for social and environmental sustainability implementation draws on knowledge from institutional and stakeholder theories. Particularly, this integrative framework as shown in Figure 8.1 indicates two interrelated parts, which are sustainability practices (Chapter 4 & 6) and drivers and barriers (Chapter 5 & 7) – and their relationship with the theoretical perspectives adopted in this research.

First, drawing on the stakeholder theory, the framework suggests that different stakeholder groups pressure mining companies to respond to sustainability rules and requirements regarding specific sustainable practices (Ranängen & Lindman, 2018; Sayed et al., 2017). However, mining companies, based on their characteristics may embrace sustainability practices and pressure stakeholders indicating a bidirectional interaction between mining companies and different stakeholder groups (Delmas & Toffel, 2011; Rosati & Faria, 2019). Therefore, based on the empirical findings and discussions in chapter 8, this study confirms that mining companies respond to the pressures from different stakeholder groups based on their power and urgency as posited in managerial stakeholder theory (Fernando & Lawrence, 2014; Mitchell et al., 1997b; Pater & Lierop, 2006). For instance, managerial cognition of stakeholder salience affects how mining companies respond to different stakeholders, which, according to the findings, are mostly regulators and competitors in environmental sustainability issues. Regarding social sustainability practices, local communities, the industry association along with regulators, competitors and other stakeholders exercise normative pressure consistent with ethical stakeholder theory (Fernando & Lawrence, 2014; Garcia-Castro et al., 2011).

Second, drawing on institutional theory (Brammer et al., 2012; Husted & Allen, 2006), the framework demonstrates that organizational characteristics interact with different drivers and barriers to positively or negatively influence sustainability implementation. For

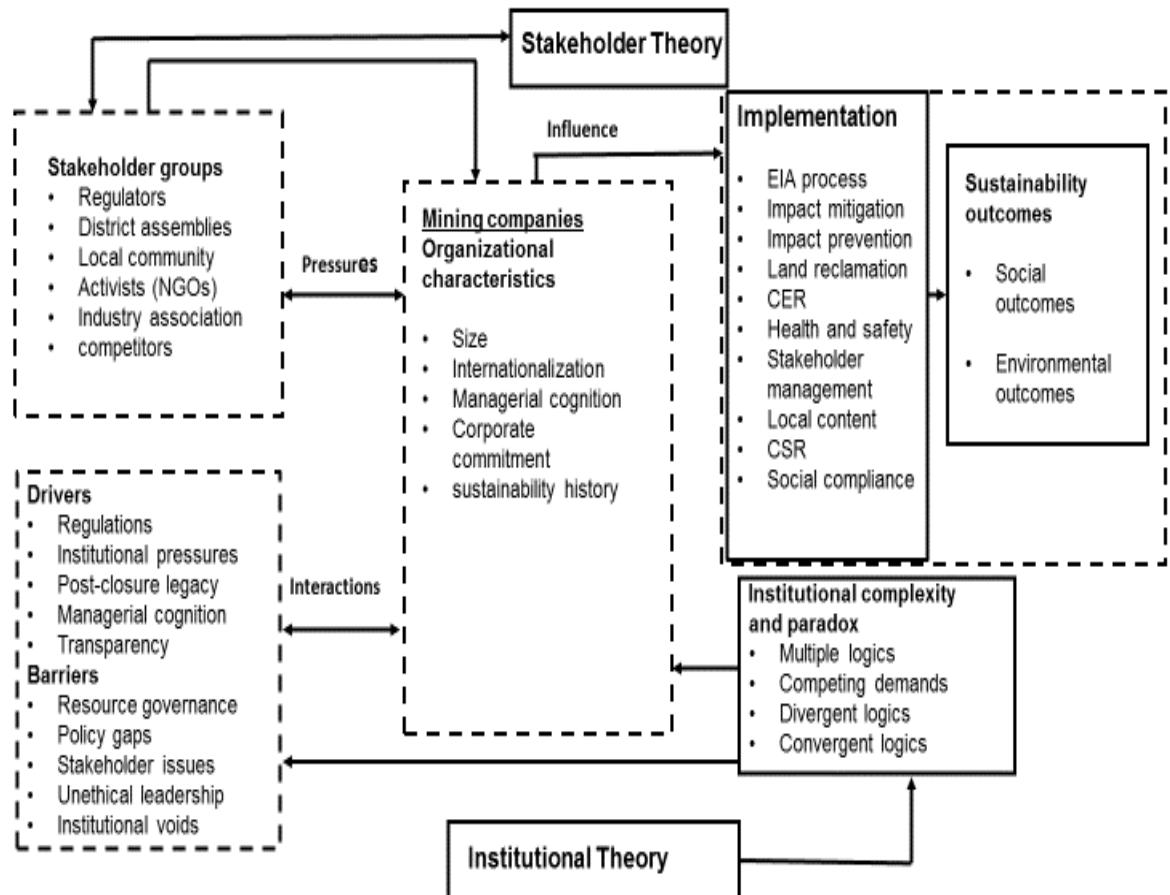
example, a positive interaction between institutional pressures and organizational characteristics may enhance sustainability implementation. Similarly, a mining company with a positive history of sustainability practices may still implement sustainable initiatives in an environment of institutional voids and resources governance gaps. Thus, the effects of institutional drivers or barriers on sustainability practices decrease or increase depending on the interactions with a company's internal characteristics. Thus, the framework indicates that the constant interaction, reciprocity, and the interfaces between sustainability drivers and barriers, and companies' internal characteristics are reactions from institutional complexities and paradoxes (Greenwood et al., 2011; Smith & Tracey, 2016). As such, a convergent logic between a company's internal characteristics and positive stakeholder pressures would enhance sustainability implementation while a contradiction may undermine sustainable outcomes. This aspect relates to the assertion that the institutional complexity in a challenging and non-enabling environment places a higher demand for self-governance and collaboration (Amaeshi et al., 2016). Thus, the direction of engagement, whether positive or negative, and the interaction with the sustainability drivers or barriers also depend on companies' internal characteristics.

Further, while institutional theory posits that firms facing common institutional pressures may eventually adopt similar practices (DiMaggio & Powell, 1983; Escobar & Vredenburg, 2011), this framework suggests that mining companies would respond differently due to varying internal characteristics. For instance, within the context of divergent logics and paradoxical tensions, large-scale mining companies with stability agreements with the government would react differently to institutional pressures from those without it. This supports the notion that it is difficult to ascertain the impacts of a company's sustainability

responses because such decisions depend on a dynamic interaction between competing institutional logics (Corbett, Webster, & Jenkin, 2018).

The third part of the proposed framework focuses on specific sustainability practices and sustainable social and environmental outcomes. Based on the findings in chapter 4 & 6, the framework indicates that large-scale mining companies are implementing various social and environmental initiatives to enhance sustainability outcomes. However, the level of sustainability implementation in addressing social and environmental impact categories are fluid and fragmented. The empirical findings suggest that the sustainability practices and policies of large-scale mining companies are largely focused on addressing environmental impacts because of the relatively punitive regulatory context. While the mining companies are also focused on social sustainability practices, this domain is relatively disjointed, especially on long-term post-mining issues. Drawing on stakeholder theory, the proposed framework confirms that because of the self-interested and short-sighted expectations of stakeholders, companies often face a limited set of sustainability demands (Barnett et al., 2018). In a similar vein, this confirms the notion that sustainability implementation in addressing grand sustainability challenges described as wicked problems may not yield to industry self-regulation and stakeholder management without regulatory pressure.

Figure 8.1: Holistic framework for large-scale mining companies embedding social and environmental sustainability.



8.7 Conclusion

This chapter integrated the findings of the four empirical sections of the study and showed their relationships to theories and the literature. Four major empirical findings and resulting propositions were discussed. In summary, the chapter discussed the environmental sustainability practices of large-scale mining companies in the context of the extant literature. It highlighted that large-scale mining companies in Ghana experience institutional pressures to implement environmental sustainability practices throughout the mine lifecycle. Additionally, the discussion suggested that large-scale mining companies respond to perceived ethical obligations based on regulative pressure on environmental practices.

Second, the chapter discussed social sustainability practices in addressing impacts within a largely self-regulatory context. It suggested that large-scale mining companies have embraced a broader scope of social sustainability implementation beyond the traditional CSR model based on a changing institutional environment.

Further, this chapter discussed the drivers for and barriers to social and environmental sustainability implementation in relation to the institutional and stakeholder theories. It suggested that large-scale mining companies experience coercive, mimetic, and normative pressures that enhance or impede sustainability implementation. It also highlighted that large-scale mining companies experience institutional complexity because of plural institutional logics and contradictory demands. As a result, managerial decisions are based on the interactions between a variety of barriers and drivers and internal organizations characteristics. Finally, the theoretical framework proposed earlier in chapter 3 were confirmed and expanded, leading to an enhanced model.

Chapter 9

Conclusion

9.1 Introduction

The study examines the sustainability practices of large-scale mining companies in addressing social and environmental impacts throughout mine lifecycle. The chapter concludes with major empirical findings and contributions to theory, policy, and practice. The chapter is organized as follows. First, an overview of the study is provided. Second, a summary of the key research findings is presented. Third, the theoretical contributions of the study are highlighted. Fourth the implications for policy and practice, and limitations are given. Finally, the researcher's reflection and the direction for future research are presented.

9.2 Structure of the Study

The study aimed to contribute to and expand the field of sustainability by examining how large-scale mining companies in Ghana address critical social and environmental risks associated with extractive processes and proposed a theoretical framework for sustainable implementation. To achieve this, the following research questions were addressed (see chapter one):

1. How do the sustainability initiatives of large-scale mining companies address their environmental impacts?
2. What are the barriers to the environmental sustainability practices of large-scale mining companies?

3. How do the sustainability initiatives of large-scale mining companies address their social impacts?
4. What are the drivers for and barriers to the social sustainability implementation of large-scale mining companies?

To address these key questions, the study adopted a qualitative study using the case study and abductive approach. The data were collected from three purposively selected multinational mining companies operating in different extractive enclaves and the major stakeholder organizations. Consequently, 18 semi-structured interviews were conducted with managers responsible for their companies' social and environmental sustainability issues and key officials of various regulatory agencies, community representatives (traditional council and district assemblies), the industry association, and civil society organizations. To complement and triangulate the views from research participants, data from documents ranging from annual sustainability reports, environmental and corporate social responsibility policies and charters, and publications from regulatory institutions were obtained. In this study, two theories – stakeholder theory and institutional theory–were adopted as the framework to guide the discussion of the empirical findings. Specifically, stakeholder theory and institutional theory were used to explain the drivers for and barriers to the social and environmental sustainability practices of large-scale mining companies.

Further, the institutional theory was applied to explain that companies face institutional complexity when they confront plural institutional logics and contradictory demands. As such, to implement social and environmental sustainability practices that enhance sustainable outcomes, institutional pressures bidirectionally interact with companies' internal characteristics. Moreover, the study suggested that while sustainability practices may promote effective performance outcomes based on convergent logics, this could also be

detrimental if this leads to complicit commonality. Drawing on the overall findings, a series of propositions and a holistic framework for sustainability implementation were suggested. The following section revisits and briefly summarises the key research findings from each empirical chapter (chapter 4, 5, 6 and 7) in relation to the research questions and objectives.

9.3 Research Findings

9.3.1 Environmental Sustainability Practices

Chapter 4 examined the sustainability practices of large-scale mining companies in addressing environmental impacts throughout the mine lifecycle. The findings indicated that environmental sustainability practices are based on *regulatory compliance* and *corporate environmental responsibility*. This may be explained on the basis that the environmental policies and processes are built on complying with relevant regulations and standards established under the Environmental Assessment regulations and the Minerals and Mining legislation. As such, environmental practices address the parameters and guidelines set out under natural resources governance laws, including terrestrial condition, water, climatic ambience, biodiversity, and tailings storage facilities. With regards to the overall reported environmental practices, these range from scoping and impact assessment activities, impact mitigation and prevention initiatives around the management of tailings storage facilities, air-pressure vibration controls, air and noise pollution reduction, and water and soil quality.

However, beyond this, mining companies have also embraced corporate environmental responsibility practices based on perceived ethical obligations. Such corporate environmental responsibility practices are motivated by meeting voluntary requirements based on *international mining standards* and a normative policy of *continuous*

improvements. Particularly, large-scale mining companies in Ghana have adopted green sourcing, water recycling, cyanide management codes based on the requirements of voluntary organizations, including the Global Reporting Initiative, International Cyanide Management Code, and ISO14001. This may be due to mimetic and normative pressures on mining companies as a way of establishing common practices in the industry and professionalism for legitimation among peers. Finally, post-closure practices are based on *concurrent land reclamation* and *partial flora restoration* at a compliance rate of 40%, but no specified initiative for fauna reintroduction. This suggests that mining companies' practices during the post-closure phase of the mine lifecycle are inadequate for effective environmental sustainability and ecological restoration of the ecosystem in core extractive domains.

9.3.2 Barriers to Environmental Sustainability

Chapter 5 examined the barriers to the environmental sustainability of large-scale mining companies in Ghana. The findings suggested that resource governance and impact mitigation gaps hinder effective environmental sustainability implementation. Particularly, *resource governance* gaps relate to institutional barriers while *impact mitigation gaps* involve inefficiencies in the sustainability implementation mechanisms of large-scale mining companies. Thus, the institutional perspectives, specifically institutional complexity, was adopted to frame and unpack the findings. The findings suggest that *regulatory gaps* and *weak monitoring and enforcement* impede effective environmental sustainability implementation since corporate policies and practices are largely predicated on compliance with environmental and mining legislation. Based on an abductive reasoning, these barriers stem from institutional complexity due to the divergence between a market

logic of attracting mining investments and gaining competitive advantage against the sustainability demand for effective resource governance mechanisms.

The findings further indicated a contradiction between centralization and decentralization in resource governance. The divergence is shown in the outcomes of decentralization, which lead to unethical situations while centralization hinders accountability to stakeholders in local communities. Specifically, decentralized institutions, including traditional councils and district assemblies engage in rent seeking and collusion, which elevate their self-interest at the expense of stakeholder demands for sustainability. In contrast, an institutional logic in resource governance may be based on the sense that regulatory pressures from centralized institutions may drive mining companies to comply with relevant environmental laws and standards. However, the weak monitoring and compliance mechanisms stemming from the under-resourced regulatory institutions impede adequate monitoring, investigation, assessment, and enforcement of regulations in cases of non-compliance. This complexity stems from contradictory and mutually constituted demands due to incompatible prescriptions from competing institutional logics. To address these antithetic and divergent logics, it is argued that large-scale mining companies need to employ their internal characteristics through dynamic interactions and processual responses to sustainability values.

9.3.3 Social Sustainability Practices

Chapter 6 examined the social sustainability practices of large-scale mining companies in addressing impacts throughout the mine lifecycle. This was important because of the dearth of empirical and theoretical research on social sustainability issues. The findings suggested that large-scale mining companies in Ghana have embraced a broader scope in addressing

their social consequences beyond impact mitigation. Thus, the major social sustainability practices include *social responsibility, social compliance, local content, and relationship proximity*. These practices are aimed at addressing critical social sustainability challenges related to local development, involuntary resettlement and compensations, unemployment and social exclusions, and promote stakeholder engagement and participation. Corporate social responsibility practices, especially those related to community social investments, are influenced by stakeholder and institutional pressures ranging from a *social license, tax incentives, stability agreements, industry competition, and social reporting* requirements. Regarding stakeholder management, mining companies respond to normative pressure to engage, make joint decisions, and develop cross-cultural understandings with local communities in egalitarian societies. Additionally, a premise for local content is to provide stakeholders' *control* and a sense of *transparency*, which help to manage increasing community pressures for unavailable direct employment.

Further, the findings demonstrated that these social sustainability practices are disproportionately focused on addressing proximate impacts during the extractive phase and less on long-term concerns within larger social processes. As such, post-resettlement and compensation issues are not adequately covered in the social sustainability practices of large-scale mining companies. In a similar vein, the sustainability initiatives in addressing mine closure social costs associated with mining activities are random and fragmented due to the lack of policy.

9.3.4 Drivers for and Barriers to Social Sustainability Implementation

Chapter 7 examined the factors driving and impeding social sustainability implementation in Ghana. With regards to overall reported drivers, the empirical findings identified

regulatory evolution, institutional pressures, internationalization, transparency, post-closure legacies, and managerial cognition. The findings demonstrated that large-scale mining companies largely engage in social sustainability in response to institutional pressures. While a changing regulatory environment has resulted in specified compliance activities regarding social compliance issues, large-scale mining companies have embraced common practices based on competitive and community pressures. Thus, institutional isomorphism, especially relating to normative pressures in a largely self-regulatory domain, drive social sustainability implementation in response to perceived ethical obligation. Additionally, the findings may relate to the classical viewpoints in managerial stakeholder theory in which corporate managers seek to obtain a social license to operate by responding to the increasing community resistance to mining (Amran & Haniffa, 2011). In the same vein, companies' internal cognitive pressures drive social sustainability practices in response to perceived benefits such as social license and legitimacy.

Moreover, the findings indicated that large-scale mining companies face barriers that hinder effective social sustainability implementation. These barriers include *regulatory competition, stakeholder issues, unethical leadership, institutional voids,* and lack of *social closure policy.* These barriers largely relate to the complexities in the institutional environment in which multiple and self-interested stakeholder demands prevent large-scale mining companies from addressing the long-term social viability of local communities. Particularly, stakeholders' speculative activities and dependency, and the unethical behaviours of customary landowners lead to intergenerational discounting where chiefs pursue narrow self-interest and immediate benefits rather than larger outcomes for future generations. In relation to institutional theory, the empirical findings demonstrated a contradictory logic between promoting competitive advantage and competitive

sustainability. A possible explanation for this relates to the increasing competition for mining investments across the sub-region, which prevents the implementation of regulations that may empower and strengthen the bargaining position of mine-affected people in Ghana. Thus, the logic to maintain regulatory parity has prevented governments from implementing the free, prior, and informed consent principles into national regulations. Similarly, the necessity to ensure the competitive advantage of the mining industry in Ghana while promoting sustainability has resulted in plural, competing institutional logics.

9.4 Theoretical Implications

This study contributes to filling gaps in knowledge on social and environmental sustainability theory in a complex and challenging institutional context. Specific theoretical gaps in the literature have been addressed in the following ways:

First, a significant contribution of this study is to extend and expand the developing research stream on social and environmental sustainability practices through the development of a holistic theoretical framework (See Figure 8.1 in Chapter 8). Prior studies have explored sustainability issues in a mining context (Bebbington & Bury, 2009; Dashwood, 2014; Essah & Andrews, 2016; Fonseca, 2010). However, while studies including those by Delmas and Toffel (2004) and Delmas and Toffel (2011) developed theoretical frameworks based on how firms' characteristics interact with the effects of institutional pressures, the influence of institutional complexity drawing from plural and competing demands were not explored. Indeed, Greenwood et al. (2011) has called for empirical studies to contribute to the elaboration and further understanding of institutional complexity. To fill this gap, this study has offered research propositions and developed a holistic framework for sustainability implementation based on an empirical study of the social and environmental practices of

large-scale mining companies. For instance, the theoretical framework for social sustainability implementation involves interrelated cause and effect relationship between stakeholder pressures and company characteristics. However, the relationship between stakeholder pressures and organizational characteristics can be both cause and effect suggesting a bidirectional relationship

Second, based on the systematic literature review, this is the first study, which examines the social and environmental sustainability practices, drivers, barriers, and institutional complexity from the perspectives of large-scale mining companies and their stakeholders. The review of literature highlighted the significance of implementing social and environmental sustainability to address the critical sustainable risks and the legacy of mining costs in developing countries (Dashwood, 2014; UNDP & UN Environment, 2018). However, there is a dearth of empirical research examining the social and environmental sustainability practices of large-scale mining companies (Antwi et al., 2017; Fonseca et al., 2014), specifically in developing countries such as Ghana. Additionally, empirical and theoretical research on social sustainability is quite rare (Åhman, 2013; Dempsey et al., 2011; Eizenberg & Jabareen, 2017), especially relating to a mining context (Rodrigues & Mendes, 2018; Suopajarvi et al., 2016). Further, prior studies on sustainability practices in mining have focused on either social aspects (Auty, 1998; Cronjé & Chenga, 2009; Owen & Kemp, 2015; Suopajarvi et al., 2016) or environmental issues (Attuquayefio et al., 2017; Mudd, 2010; Vintró et al., 2014). Nevertheless, there are a few studies, which have examined both aspects of sustainability (Erdiaw-Kwasie, Dinye, & Abunyewah, 2014; Essah & Andrews, 2016; UNDP & UN Environment, 2018). Moreover, many studies on both social and environmental sustainability implementation tend to investigate sustainability reporting of mining companies based on some global standards (Arthur et al., 2017; Böhling

et al., 2019; Fonseca, 2010; Fonseca et al., 2014). Thus, Essah and Andrews (2016, p. 83) suggested that if mining companies are claiming to be engaging in sustainable practices, “then there is the need to examine what they mean when speaking of sustainability”. In a similar vein, Vintó et al. (2014, p. 162) examined environmental sustainability practices of mining companies in Catalonia and called for future research “to conduct similar studies in different countries and different mining sectors”. Finally, to provide a holistic picture of sustainability practices in the mining industry, Lodhia and Hess (2014, p. 47) suggested that “social issues should also be considered in conjunction with environmental issues”. As a result, this study has provided insights into both social and environmental sustainability practices in the challenging and non-enabling institutional context of a developing country.

Third, in terms of methodological implications, this study further contributes to the use of the case study approach in sustainability research in mining. However, while several studies including those by Lodhia and Martin (2014) and Basu, Hicks, Krivokapic-Skoko, and Sherley (2015) used a single case study while still aiming for analytical generalization, this research utilized multiple cases for theory development (Creswell & Poth, 2017; Polit & Beck, 2010; Rowley, 2002). Perhaps, the biggest methodological contribution in this study is the use of an abductive approach for systematic discovery of knowledge and the empirical development of a holistic framework based on established theories (Kovács & Spens, 2005). Accordingly, Zucchella and Previtali (2019, p. 276) indicated that “ Unlike induction, abduction accepts the existing theory, which may improve the theoretical strength of case analyses”. Yet, previous studies on sustainability within mining in Ghana, which employed an abductive approach to data analysis and discussion are very limited. Where an abductive approach was employed, the focus was on assessing stakeholder perceptions and expectations of CSR (Amos, 2018). In contrast, the abductive approach has been utilized in

several studies on sustainability within mining in other contexts (Ghassim & Foss, 2018; Kelling, Sauer, Gold, & Seuring, 2020; Ranängen & Lindman, 2020). As such, while previous research on sustainability in Ghana has employed either induction or deduction, both approaches have weaknesses in creating systematic discovery of knowledge and meaningful theory construction (Timmermans & Tavory, 2012).

Fourth, another contribution of this study is the application of multiple theoretical perspectives in examining sustainability implementation. Several studies on sustainability and CSR practices in the extractive industry have employed institutional theory, stakeholder theory, contingency theory, and legitimacy theory as the frame of reference or theoretical lens (Dashwood, 2014; de Villiers et al., 2014; Eweje, 2006b; Mzembe & Meaton, 2014). As such, Fernando and Lawrence (2014) note that while the three systems-oriented theories—Stakeholder theory, legitimacy theory, and institutional theory—are widely used in explaining companies' sustainability practices, these are mostly used individually. However, they further suggested that the use of a single theory to explore and explain the practices and behaviours of companies is inadequate and thus recommend the use of multiple theoretical perspectives. Against this backdrop, this study adopted two systems-oriented theories to fill this knowledge gap. Specifically, the study integrated the stakeholder theory and institutional theory considering their convergent features.

Fifth, a major theoretical contribution of this research relates to why and how large-scale mining companies have embraced self-regulatory practices towards social sustainability. This is significant because of the scant theoretical and empirical research on the social aspect of sustainability in mining (Rodrigues & Mendes, 2018; Suopajarvi et al., 2016). Yet, while social sustainability is increasingly becoming a focus in the mining industry in recent years (Tiainen et al., 2014), not many studies exist in countries of Africa. Against this backdrop,

the empirical findings demonstrate a changing institutional environment in which new regulations require mining companies' compliance with aspects of social sustainability. As such, new forms of social sustainability practices, including local content initiatives, transparency and disclosure, cross-cultural partnerships, and corporate social responsibility are emergent strategies in response to unexpected opportunities and challenges. Beyond this, corporate managers engage in certain voluntary social practices because of stakeholder and institutional pressures from local communities, industry association, and internal cognitive elements arising from the level of internationalization, managerial cognition, and history of sustainable initiatives. These drivers support the idea of social sustainability implementation in challenging and non-enabling institutional contexts (Amaeshi et al., 2016).

The sixth and final theoretical contributions of this study relate to the implications for institutional and stakeholder theory. First, consistent with institutional theory, the findings show that isomorphic pressures lead to homogenised mechanisms, identities, guiding logics, and change processes for mining companies operating within the same complex environment. Second, this study contributes to the institutional theorization of social sustainability implementation where large-scale mining companies implement responsible practices despite contradictory logics, weakness and inefficiency of institutions and governance arrangements. Third, the findings on the barriers to social and environmental sustainability practices contribute to theory by raising issues of institutional complexity due to the interrelationships between opposing logics embedded in self-contradictions. For instance, this study demonstrates that the contradictions between a policy for centralization and decentralization as mechanisms for improving natural resource governance and local participation emanate from plural and competing logics within the weak institutional context

for sustainability implementation. Additionally, the sustainability barriers are caused or enhanced by institutional voids.

9.5 Implications for Practice

This study has implications for practitioners including mine managers, regulatory institutions such as the Environmental Protection Agency and the Minerals Commission, the industry association (Chamber of Mines), municipal/district assemblies, NGOs, and policy makers including the Ministry of Lands and Natural Resources.

9.5.1 Implications for Community and Environmental Managers

The study offers several implications for management of large-scale mining companies, specifically managers in charge of social and environmental sustainability issues. First, the empirical findings on the barriers to the social and environmental sustainability practices may help managers to improve on their sustainable practices. For example, being aware of the sustainability barriers in a challenging and non-enabling institutional context can help managers to emphasize self-governance frameworks based on internal cognitive factors such as size, internationalization, transparency, managerial cognition, and sustainable history. Further, corporate managers can envisage stakeholder and institutional barriers such as unethical leadership, speculative developments, local dependency, chieftaincy disputes, and compensation and resettlement concerns, which they are likely to face throughout the mine lifecycle. The purpose is not for corporate managers to take advantage of these barriers in a spiral race to the bottom, but rather develop the right engagement and collaboration with various actors to accomplish the goal of long-term sustainability.

Second, the findings demonstrate that implementing social and environmental sustainability practices is beneficial in terms of managing regulatory and community pressures. Particularly, because of the increasing pressures leading to the discontinuation of mining projects in countries across Latin America, effective social and environmental practices might contribute to corporate sustainability in this context. Thus, large-scale mining companies may consider investing in emerging technologies and cleaner production methods such as phytoremediation to improve land reclamation because of the better possibilities to regenerate biodiversity. Regarding concerns about the long-term social sustainability of mining communities, corporate managers may undertake a quantitative assessment of their total social costs and allocate resources to finance impact mitigation and local development expenditure after mine closure.

9.5.2 Implications for Regulators, Assemblies, and Pressure groups.

This study also provides some implications for regulatory institutions, local governance authorities (municipal/district assemblies), and pressure groups like NGOs and civil society organizations. First, rethinking environmental sustainability implementation relating to conceptual or pre-operational requirements is critical to achieving sustainable outcomes in the subsequent phases of the extractive process. This shows the significance of environmental impact assessment practices during the conceptual stage and the need for regulators and other players to initiate new principles and planning for mitigation and adaptive environmental management. Beyond this, the environmental impact assessment process should also focus on risk avoidance where mining activities, which present higher risks to the sustainability of local communities are not licensed to operate. Additionally, while environmental sustainability focuses on biophysical indicators; socio-economic factors are equally important in holistic decision-making towards effective post-mine closure

restoration. Regulators and environmental pressure groups may consider impact mitigation and prevention practices during the operational mining phase as a direct requirement for post-closure rehabilitation.

Second, the practical implication for various pressure groups relates to improving voluntary accountability by engaging external stakeholders of multinational mining companies. The empirical findings suggest that when new compliance requirements clash with an overarching societal logic of promoting minerals exploitation, resistance is likely to lower the effectiveness of sustainability practices. As such, it is not realistic to depend solely on the institutional mechanisms of the host developing country to achieve sustainability without internationalizing the framework for full compliance. The lack of effective institutional mechanisms and political will to enforce existing environmental and minerals regulations may require the active involvement of stakeholders within the home countries of multinational mining companies due to their higher ecological consciousness. Consequently, players such as shareholders, financial institutions, and other stakeholders within the home countries of multinational mining companies operating in developing countries should be targeted using environmental campaigns and impact disclosures.

Finally, the current natural resource governance practice may be improved by expanding negotiation teams beyond just the traditional councils and local government authorities. This is to allow for the representation of diverse interest groups beyond those established committees (Dobele et al., 2014). Expanding the forums for stakeholder engagement may reduce the perceived corruption and unethical collusions between chiefs, mining companies, and local government authorities and lead to better sustainability outcomes.

9.5.3 Implication for Policy Makers and Society

This study provides practical recommendations to policy makers, specifically the Ministry of Lands and Natural Resources, industry association, and supranational organizations to develop an effective social and environmental sustainability framework. First, this study demonstrates that the existing policy on environmental sustainability in the mining industry is unduly focused on impact mitigation and less on ecological restoration. For example, the policy in Ghana is silent on fauna or species reintroduction as part of post-mine closure rehabilitation. Additionally, while the current policy on flora restoration is currently at a specified compliance level of 40%, this may not be adequate to regenerate biodiversity to the original condition. Therefore, this study recommends that the Ministry of Natural Resources working with the Environmental Protection Agency and the Minerals Commission should introduce a policy requiring specified strategies to repopulate rehabilitated mining lands in terms of species diversity and composition. Where restoring the ecosystem of an area is impossible due to the dense concentration, diversity, and nature of biodiversity, the policy should restrict mining activities to the peripheral areas. Such a policy should be part of the existing Environmental Assessment Regulation and the Minerals and Mining Act and required under the scoping reports and impact studies prior to the issuance of permits and licenses.

Second, the study suggests redirecting regulatory attention towards competitive sustainability rather than moderating compliance regulations for competitive advantage. The key focus of mining policy in most African countries relates to improving governance mechanisms to attract investments and expands opportunities for natural resources exploitation (Morrison-Saunders et al., 2016) rather than on sustainability. For example, Ghana amended its mining policy by reducing corporate income tax from 35% in 1994 to

25% in 2006 to attract FDI (Amoako-Tuffour, 2017). Therefore, a policy that gives incentives to sustainability practices rather than new investments may be a good place to start. This might also include establishing a social closure policy as this is lacking in the current Minerals and Mining Acts and the Environmental Assessment Regulations.

9.6 Suggestions for Future Research

This study examined the social and environmental sustainability practices of large-scale mining companies, which resulted in a series of research propositions and a holistic theoretical framework for sustainable practices. Based on the foundation provided by this study, the following are the suggestions for future research.

First, this study is an initial attempt to develop a comprehensive sustainability framework in the context of the large-scale mining sector in Ghana. Despite this, further research is needed to empirically test the suggested research propositions against a cross-sectional dataset in Ghana, which would permit the drawing of a more generalizable conclusions for the entire mining industry. While this research was carried out in a challenging and non-enabling institutional context, this is only a single country study. As such, a more cross-country study may be needed in similar contexts to understand the differences and congruities in the emerging framework for social and environmental sustainability implementation. Therefore, it should be interesting to conduct empirical studies by considering other extractive contexts including the mining or oil industries in countries such as Nigeria and Angola (Oil), and Peru, South Africa, and Indonesia (solid minerals). Particularly, empirical studies in different regions such as Africa, Latin America, and South East Asia might provide information regarding the impacts of geographical and cultural contexts on sustainability practices in mining.

Second, the findings do not provide a complete picture of the mining industry due to an expanding small-scale mining sector. Particularly, the unit of analysis of this study was limited to large-scale mining companies in commercial production, suggesting the need for studies into the sustainability practices of small-scale mining companies. This is significant because promoting holistic sustainability without the active participation of the small-scale mining sector might be an empty drumbeat or an effort in futility.

Third, promoting sustainability implementation involves processes in a continuum from production to consumption of beneficiated minerals. Therefore, focusing entirely on the sustainability practices of mining companies may be inadequate. As such, future research is needed in tracing and tracking social and environmental footprints back through the entire mining chain through connecting impacts from production to categories of consumption. This research can be done using a quantitative input-out approach, which helps to trace the social and environmental impacts of mineral consumption across nations and sectors.

Finally, future research should consider investigating the economic aspect of sustainability within the mining industry. In particular, the empirical study should examine the economic contribution of mining companies to the economy and the wellbeing of both internal and external stakeholders as against the severe social and environmental costs to Ghana. This is important because achieving sustainability also involves risk avoidance, which is geared toward driving the risk event to zero by removing the source (Hajmohammad & Vachon, 2016). Thus, where the social and environmental costs of mining outstrip the economic benefits, a better strategy for sustainability and sustainable development may be to completely avoid solid minerals extraction. However, since this has not been investigated in prior studies, future research that examines economic sustainability might provide a true and complete picture of sustainability implementation against net-benefits and costs.

9.7 Researcher's Reflection

My initial interest in sustainability issues in mining started in 2010 when I did a study on the CSR practices of a large-scale mining company in Ghana as part of my master's research. A few months prior to the data collection, there was an incident of cyanide spillage from a tailings' storage facility of Newmont Ghana Gold Ahafo mines, which poisoned a source of drinking water for adjacent communities resulting in fauna mortality. This motivated, developed my thinking and persuaded me to want to understand how large-scale mining companies are addressing their impacts.

Further, I faced some challenges at different stages of the PhD journey. The first challenge relates to locating the research gaps within which I could situate my original contributions. Based on a literature review in 2017, I realized that there are several studies, which have investigated different aspects of sustainability in various mining contexts in Latin America, North America, China, Australia, and Africa. As a result, I panicked at the initial stage as I tried to identify research gaps in the social and environmental sustainability areas to provide justifications for the relevance of my study. However, I came across some studies (for example, Essah and Andrews (2016), which argued for examining how mining companies are implementing sustainability as they showcase their engagement in sustainable practices. This was significant because most studies focused on identifying the sustainability challenges associated with mining and not on how the companies are addressing their social and environmental impacts. In addition, a study by Amaeshi et al. (2016) provided a framework for understanding why and how companies pursue CSR or sustainability practices in challenging and non-enabling institutional contexts. Indeed, a plethora of past studies looked at sustainability implementation in mining without considering the institutional environment and how they drive or impede firms' performance. Against this

backdrop and based on my prior desire, I refined the direction of my research inquiry and developed the objective of the study around an examination of the social and environmental sustainability practices of large-scale mining companies in addressing proximate and long-term impacts within a challenging institutional environment.

The second challenge concerns access to the right research participants and data collection within the time constraints in a PhD study. This was perhaps the most challenging as all potential research participants did not respond to any of my emails about scheduling interviews with them. I interpreted this as a cultural norm because all research participants stay and work in Ghana and people usually prefer face-to-face conversations when their help is needed than through an electronic medium. Yet, this did not get any better even after being physically present, especially with the mining companies. I soon realized based on informal conversations with some of the staff that top management is generally against interviewing staff about the companies even for a purely academic purpose as someone told me “people come here to collect data and then write scathing reports about us”. In a similar vein, getting approval letters from the head offices of regulatory institutions to allow me to interview those staff who were directly responsible for supervising and monitoring compliance took over three weeks of continuous calls and visits. My breakthrough came through networking and the assistance of a manager in one of the mining companies who spoke to colleagues in other companies by introducing me as a kid brother. Nevertheless, while I proposed to interview five large-scale mining companies, the community affairs and environmental managers of two firms could not grant the interviews because they needed approval from senior management. Indeed, all efforts to get approval from the vice presidents who are the final authorities responsible for sustainability at the regional

headquarters of the companies in Accra proved futile. In the end, I was able to interview 18 research participants out of the proposed 26.

The final challenge of my research involves data management and analysis for my empirical chapters. One of the difficult aspects of the data analysis process was the transcription of the audio-recorded interviews. I offered to personally do the transcription because I knew doing so would bring familiarity with the text. However, transcribing the interviews conducted in English and Twi (Ghanaian language) into textual form was time consuming. It took over 4 months to complete all the transcription, clean, edit, and proof-read the text for data analysis, which was very stressing because the timeline to submit my thesis is 3 years. Additionally, analysing the massive amount of textual data was quite a struggle, especially at the initial stage, considering that I manually did this using an excel sheet to systematically organize this. However, I found thematic analysis using network maps extremely helpful in building a picture from basic to global themes.

My personal experience and learning based on this PhD research are that self-motivation and unwavering commitment are required to travel on this journey knowing that there is a better place around the bend. There were moments when I experienced self-doubt and despair but kept pushing ahead because of my ability to fix my eyes not on what is seen, but what is unseen. The ups and downs reminded me of what Abraham Lincoln meant when he said, “I have been driven many times upon my knees by the overwhelming conviction that I had nowhere else to go”. In the end, I have learned to handle stressful and unanticipated challenges by developing persistence, flexibility, and self-belief. The skills I have developed, and the lessons learned through travelling on this PhD journey could be applied to my future research endeavours. Taken together, my PhD journey was a challenging one,

but the experiences and the outcomes are like a precious heirloom, which I hold in trust for those willing to travel on this research path.

The next journey for me after this PhD is to publish the remaining empirical findings rated academic journals and present them at conferences. Importantly, I am looking for a teaching and research job or a postdoctoral position in a university where I hope to further pursue my interest regarding sustainability issues in various industries and sectors.

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Appendix 1–Semi-structured Interview Guide

Questions for Mining Companies

Section 1: Participants' Demographics

1. Could you please tell me your designation and role in your company?
2. Could you please describe your previous experiences with sustainability practices?

Section 2: Sustainability Initiatives and mining impacts

3. Does your company have a formal sustainability policy? If yes, why do you a sustainability policy? Could you describe the major issues covered in the policy?
4. Do you have sustainability initiatives? If yes, how do you implement them?

Section 3: Social Sustainability Implementation

5. Kindly tell me your understanding of social sustainability
6. What are the social sustainability challenges in your community/communities?
7. What initiatives are you implementing to address the sustainability risks or challenges you have spoken about?

Section 3: Environmental Sustainability Implementation

8. Could you kindly tell me your understanding of environmental sustainability?
9. What are the environmental sustainability challenges in your catchment communities?
10. What initiatives do you implement to address the risks you have identified during and after mining?

Section 4: How Initiatives of Companies account for Sustainability during and after Mine Closure

11. Does your company have a formal mine closure policy? If yes, can you tell me about it?
12. What specific initiatives do you implement to address formal mine closure issues?
13. Would you please describe your engagement with your host communities and other stakeholders in terms of sustainability during the period of mining and after the closure of mine sites?

Section 5: Community Engagement and Development/Investment

14. How would you describe your engagement or relationship with your host communities during mining?
15. What community development projects and investments do you have in your host communities? Are these investments addressing the expectations and demands from your host communities?
16. If there are gaps, would you kindly tell me why they exist? Do these gaps affect your community development in any way?

Section 5: Institutional Pressures and Sustainability Implementation

17. How would you describe the role of stakeholder pressures on your company's adoption of sustainability initiatives and practices?
 - a) Does the government and regulatory agencies exert any pressure towards sustainability implementation? Kindly describe it
 - b) Does the industry association (Ghana Chamber of Mines) pressure your company to implement sustainability initiatives? If yes, how would you describe it?
 - c) Would you kindly describe the influence of international organizations (* GRI, EITI, MMSD, etc.) on your sustainability implementation? Kindly explain
 - d) Do you feel any pressure from mining communities towards sustainability implementation in your company? Please explain
 - e) Do you feel any pressure from activists like mining NGOs towards the implementation of sustainability practices in your company?
 - f) Could you please describe your perception of the effects of pressures from your stakeholder groups?

g) How do your company's characteristics help you to manage the effects of institutional and stakeholder pressures?

18. What else would you want to tell me about the issues discussed in our interview?

[*Global Reporting Initiative (GRI), Extractive Industry Transparency Initiative (EITI), Mining, Minerals and Sustainable Development (MMSD)]

Questions for Regulators (EPA, Minerals Commission).

1. Could you kindly tell me your role in this agency/commission?
2. Could you kindly describe the current regulations regarding sustainability practices of mining companies? How long have these regulations been in place?
3. Do the current regulations prevent or significantly reduce sustainability risks? Please, explain. Do current regulations compel mining companies to spend part of their earnings on sustainability and community initiatives?
4. How would you describe the nature of the companies' sustainability practices within the existing regulatory environment? Does a self-regulatory context promote or hinder social sustainability implementation?
5. Does the current legal licensing regime require environmental and social sustainability implementation? If yes, how? If no, why not?
6. What regulatory changes, if any, do you intend to have? How would that affect or improve sustainability practices?

Questions for NGOS and Environmental and Mining Pressure Group

1. Could you kindly tell me your position and role in this organization? How long have you been involved in sustainability issues?
2. As an environmental and/or social pressure, what do you see as the current sustainability challenges within gold mining in Ghana?
3. Could you kindly describe what you think about the current regulations (EPA, Minerals Commission) relating to sustainability implementation in mining?
4. Do the current mining regulations prevent sustainability risks?
5. What kind of pressure do you exert on large-scale mining companies in relation to sustainability implementation?

6. Could you kindly tell me the effect of your pressure on the mining companies' initiatives?
7. What initiatives and practices do you think may contribute to sustainability and sustainable goldmining in Ghana?
8. What regulatory changes, if any, would you like to see adopted and implemented?

Questions for The Industry Association (Ghana Chamber of Mines)

1. Could you kindly tell me your position and role in this organization? How long have you been involved with mining companies on sustainability issues?
2. How many large-scale mining companies are members of this association? What relationship do you have with the mining companies?
3. What are the environmental and social impacts of mining that the Chamber focuses on?
4. Do your members implement sustainability initiatives? How important is sustainability to the Chamber of Mines and could you describe your effectiveness in getting your members to embrace your initiatives?
5. Could you kindly tell me the sustainability challenges you are currently addressing as a chamber?
6. What specific initiatives have you proposed or proposing to address these sustainability challenges?
7. What role does the Chamber of Mines play in addressing formal mine closure issues?
8. Would you kindly describe what initiatives the Chamber of Mines is implementing to enhance social and environmental sustainability implementation within the mining industry?

Questions for Traditional Council and District/Municipal assemblies

1. What is your role in this community? How long have you been engaged with the mining company here?
2. Are you informed about the projects been implemented here in this community by the mining company? What are the initiatives of the mining company in this community?

3. Are these initiatives/projects addressing the local demands and needs relating to the mining activities?
4. Would kindly tell me about any lingering issues here that need to be addressed?
5. Kindly tell me your views about sustainability practices in the mining sector.
6. Do you think your pressures on the mining company to embrace initiatives that you have been promoted been effective? If yes, in what ways? If no, why might be making them ineffective?
7. How do you intend to influence the sustainability initiatives of the mining company operating in this community?

Appendix 2–Information Sheet

Sustainability in the Mining Sector in Ghana: An Empirical Study

Researcher Introduction

I, Prince Amoah, is the lead/student researcher of this study, which is carried out as a part of my PhD (Management) research at Massey University.

Project Description

The purpose of this study is to examine the practices of large-scale gold mining companies in addressing their proximate impacts and accounting for social and environmental sustainability risks during and after mine closure. The related initiatives are reported under such topics as stakeholder management, CSR, social license to operate, impact mitigation, risk-reversibility, sustainable social development, etc. However, mining continues to present critical sustainability challenges. With your involvement, this study aims to explore how mining companies make relevant initiatives more responsive to social and environmental impacts, full sustainability implementation, and sustainable development during and after mine closure.

An Invitation

You are invited to share your views and experiences on initiatives, pressures, actions, and strategies regarding this issue. I am hoping to talk to approximately 10 environmental and social sustainability (community relations) managers and 25–30 key stakeholders across the sector to gain a broad understanding.

Project Procedures

I would like to interview you in person for about 60 minutes. The interviews will be recorded, transcribed and returned to you for checking if you so decide. I will then analyse the data and include it in summary form in my thesis. Some direct quotations from your interview may appear, but without names (company and yourself). The only information included is the region of mining site in Ghana. Some data and quotations may also be used in academic and professional articles arising from the project. Electronic data collected will

be kept secured on password-protected devices for three years. After the 3 years, data collected in interviews will be deleted.

Information about you will remain confidential to the study and any identifying details about you or the organization for which you work will be removed from the transcript and from the report, I write. I will use a pseudonym or numbering system instead of your name.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any question;
- withdraw from the study (up until one week following the interview);
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- If you wish, you will be given access to a summary of the project findings when it is concluded.

If you would like to participate in this research please, contact me by email and I will get back to you to organize a meeting. My details are given below along with details of my supervisors. Please contact the supervisors or me if you have any questions about this project.

Project Contacts

Student Researcher: Prince Amoah

Mobile: [REDACTED]

Email: P.Amoah@massey.ac.nz

Supervisor: Associate Prof Gabriel Eweje

Phone: +64 9 414 0800 ext. 43388

Email: G.Eweje@massey.ac.nz

Committee Approval Statement

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director (Research Ethics), email humanethics@massey.ac.nz. "

Appendix 3–Invitation Letter

Dear,

My name is Prince Amoah, a PhD researcher at the School of Management, Massey University, New Zealand. I would like to invite you to participate in my research titled “Sustainability in the Mining Sector in Ghana: An Empirical Study”.

The main purpose of the research is to examine the practices of large-scale gold mining companies in addressing social and environmental sustainability concerns during and after mine closure in Ghana. The collected information from these interviews will be audio-recorded for academic purposes only with absolute confidentiality. Any possible identifiers of any person or organisation will be removed.

In this regard, I would like to talk you about your understanding and experience regarding the sustainability practices of Ghana’s large-scale gold mining companies in the context of your organization and to ask for your opinions and ideas. The interview would take around 45–60 minutes. The collected information from the interviews will be audio-recorded for academic purposes only with absolute confidentiality. Any possible identifiers of any person or organization will be removed. I would be truly grateful to be given such an opportunity. Please find details about my research from the attached documents: Information Sheet and Consent Form.

I look forward to your positive response.

Kind Regards,
Prince Amoah
PhD researcher
School of Management,
Massey Business School
Massey University, Auckland
New Zealand
Phone: [REDACTED] (New Zealand)
Phone: [REDACTED] (Ghana)
E-mail: P.Amoah@massey.ac.nz

Appendix 4–Consent Form

Sustainability in the Mining Sector in Ghana: An Empirical Study

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I wish/do not wish to have my recordings returned to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

.....

Full Name - printed

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