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Business Drivers for Environmental Regulations Compliance in Ghana's Mining Sector

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Ghana's mining sector is a significant contributor to the national economy; however, environmental degradation continues to stigmatize the sector. The purpose of this phenomenological study was to explore experiences and perspectives of middle managers on how to drive compliance with EPA regulations and standards in Ghana's mining sector. Ajzen's theory of planned behavior was the conceptual framework for this phenomenological study. A purposive sample of 20 middle managers from Ghana's mining sector participated in interviews, which were transcribed and then coded to generate common themes. The primary research question involved exploring factors that promote employee compliance in Ghana's mining sector. Three critical themes that emerged from the study were (a) business benefits of compliance, (b) factors that promote employee compliance, and (c) obstacles to compliance. The implications for positive social change include the potential for community members to experience reduced environmentally related health challenges with concomitant increases in their quality of life.

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Dedication

I dedicate this study to the Glory of my Lord Jesus Christ through whom all things are possible, for the people who know their God do exploits. To my late parents, Mr. and Mrs. Akrong, who believed in me and set the stage in life for me. And to my heroes, my children; Mawuko and Ewoenam, you are my inspiration. I want to honor the cherished memory of my beloved late mother, Mrs. Comfort Akrong, who lit the zeal for education in me and for her immense sacrifice. You encouraged me to study to the highest level of education; you are my angel and inspiration. This study is also dedicated to all who dare to dream, the dream is possible.

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Section 1: Foundation of the Study

The environmental impact of natural resource extraction holds importance for the society, academia, and the business sector (Choi & Ng, 2011; Ekins, 2011). Poor mining operations present significant business risks, such as the withdrawal of governmental permits and social license to operate (SLO; Prno & Slocombe, 2012). Mineral mining operations present business and environmental challenges (Ekins, 2011). Poor mining operations degrade the environment and affect investors' confidence. The business and social consequences of poor mineral mining practices include protests by affected communities and stakeholders, the retraction of government permits, and loss of social license to operate, (Nyame, Grant, & Yakovleva, 2009; Prno & Slocombe, 2012). Leaders of mining companies can avoid high-risk business situations by driving operations, which are environmentally responsible and compliant with the state environmental regulations and standards.

Although the literature on business management is replete with volumes of research on responsible corporate operations, the need remains for research on how managers can drive compliance with Environmental Protection Agency (EPA) regulations and standards (AKOBEN rating) in Ghana's extractive sector. In this study, I explored how middle managers of mining companies can drive employees to comply with Ghana's environmental regulations and standards. The following section contains discussions on the foundational aspects of the study, including (a) background of the problem; (b) problem statement; (c) purpose statement; (d) nature of the study; (e)

research questions; (f) conceptual framework; (g) definition of terms; (h) assumptions, limitations, and delimitations; (i) significance of the study; and (j) review of professional and scholarly literature.

Background of the Problem

The mining sector in Ghana is significant to the national economy, however; contamination from poor mining operations present significant challenges to stakeholders of the sector (Akabzaa & Yidana, 2011; Garvin, McGee, Smoyer-Tomic, & Aubynn, 2009). Gold exports account for over 38% of national commodities and is a source of foreign exchange for Ghana's economy (Garvin et al., 2009). Despite the contribution of the mineral mining sector to the national economy, operations in the sector generate environmental degradation with negative business consequences for mining companies (Akabzaa & Yidana, 2011; Nyame & Blocher, 2010; Nyame et al., 2009; Prno & Slocombe, 2012). Contamination of water sources from poor mining operations and cyanide spillages present challenges to both mining companies and communities in Ghana (Akabzaa & Yidana; Armah et al., 2010). The mining regions also serve as food production areas; consequently, recurring chemical contamination from poor mining operations raise concerns about environment-to-food chain contamination, health, and business reputation (Aroh et al., 2010; Frazzoli, Orisakwe, Dragone, & Mantovani, 2010).

Although regulation of the mining sector has proved challenging, Ghana's EPA has regulations and standards (AKOBEN rating) through which officials of the Ghana

EPA evaluate mining companies' performance on legal requirements, compliance with environmental standards, and best practices of environmental management (Epaghana, 2010). Various researchers have explored corporate social responsibility in the mining sector; however, the identification of the drivers for compliance with EPA regulations and standards in Ghana's mining sector is beneficial.

Problem Statement

Many factors influence business leaders' ability to comply with regulations (Schrettle, Hinz, Scherrer-Rathje, & Friedli, 2014). Poor mining operations and environmental degradation in Ghana's mining sector lead to costly business repercussions (Henisz, 2011; Prno & Slocombe, 2012). Executives of mining companies who fail to ensure compliance with environmental regulations and standards are fined and may lose their governmental license to operate (Prno & Slocombe, 2012). In Ghana, the level of chemical contamination in water bodies by mining operations exceeds the World Health Organization's permissible level of 10 μg/L (Akabzaa & Yidana, 2011). The general business problem is an existing failure of mining leaders to ensure compliance with the environmental and social standards set by EPA – Ghana (AKOBEN rating). The specific business problem is that middle managers lack information on the best practices, which drives compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector.

Purpose Statement

The purpose of this qualitative, phenomenological study was to explore experiences and perspectives of middle managers on how to drive compliance with EPA regulations and standards in Ghana's mining sector. The targeted population was middle management employees from Ghana's mining sector. A minimum purposeful sample of 20 middle management employees who resided in Ghana participated in the study. A minimum sample size of 20 was appropriate to reach the level of saturation in qualitative studies (Francis et al., 2010; Lasch et al., 2010; Mason, 2010). Middle management employees were the target population because they had significant insights into strategies and implementation challenges by virtue of their unique position between top and lower management (Mantere, 2008; Rouleau & Balogun, 2011; Trotter, 2012).

The business practice benefits from the study may include the identification of potential best practices that middle managers can use to drive compliance with EPA regulations and standards in Ghana. The potential best practices may help business leaders increase community support for mining operations. Implications for positive social change include pollution reduction and the protection of the ecology in mining areas. Compliance with EPA regulations and standards in Ghana may reduce environmental degradation from mining operations and improve both the environment and living standards within mining communities.

Nature of the Study

The study was a qualitative, phenomenological study because the approach was appropriate for exploratory studies. In an exploratory study, a researcher seeks to identify participants' experiences and the interpretation and meaning of their experiences (Thyer, 2012). A qualitative method is suitable for studies that do not require the comparison of variables. A qualitative research method was appropriate because of the exploratory nature of the study and the need to collect data through open-ended questions (Fairweather & Rinne, 2012; Petty, Thomson, & Stew, 2012; Upjohn, Attwood, Lerotholi, Pfeiffer, & Verheyen, 2013). Quantitative research was not appropriate because of the exploratory nature of the study (Petty et al., 2012; Thyer, 2012; Upjohn et al., 2013). A mixed method approach was not suitable because no need existed to analyze data from both qualitative and quantitative perspectives within the study (Lunde, Heggen, & Strand, 2013; Petty et al., 2012; Thyer, 2012).

Grounded theory, phenomenology, ethnography, narrative, and case study approaches are research designs available in qualitative studies. A phenomenological approach was appropriate for the study because it was the most suitable qualitative research design to describe and understand the lived business experiences of participants (Anosike, Ehrich, & Ahmed, 2012). A phenomenological study approach was suitable because the objective of the study was not to test a theory or find answers to business situations in which the researcher has minimal control over the phenomenon (Amerson, 2011; Anosike et al., 2012; Tufford & Newman, 2012). The objective of this research

was not to study the cultural norms of a group of people, nor interpret human experiences from narrative data. The choice of a phenomenological study approach benefited this research by allowing participants to share in detail, their own experiences, and the derivative lessons learned on the subject of behavior (Englander, 2012; Sin, 2010).

Research Question

The objective of the study was to explore and identify possible pathways by which managers in mining companies can drive employees' compliance with EPA regulations and standards in Ghana's mining sector. The findings from the study may inform the identification and adoption of best practices for responsible extractive operations in Ghana's mining sector. Best mining practices may help mining executives improve employee compliance with EPA regulations and standards in Ghana, as well as decrease chemical contamination. The central research question was the following: How can managers drive employee compliance with EPA regulations and standards (AKOBEN ratings) in Ghana's mining sector?

Interview Questions

1. What is the business-related importance of compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector?
2. What are the three key business benefits of compliance with EPA regulations and standards (AKOBEN rating)?
3. What are the three key factors, which promote employee compliance with EPA regulations and standards in the mining sector?

4. How is employee compliance with EPA regulations and standards assessed?
5. What are the three main standard procedures and practices, which you have used to ensure employee compliance with EPA regulations and standards in the mining sector?
6. What is the role of organizational culture in driving employee compliance with EPA regulations and standards?
7. What incentive framework is available to promote employee compliance with EPA regulations and standards for mining in Ghana?
8. What are the key obstacles to complying with EPA regulations in mining operations?

Conceptual Framework

The conceptual framework was Ajzen's (1991) theory of planned behavior (TPB). Ajzen's TPB evolved from an earlier theory, the theory of reasoned action, which advanced that behavior was voluntary and under control. In TPB, behavior is deliberate and not voluntary, unlike the earlier views in the theory of reasoned behavior (Ajzen, 1991). Ajzen built on the TPB on the theory of reasoned action by introducing perceived behavioral control. The theory includes three beliefs:

- Behavioral belief, which deals with the likely consequences of behavior
- Normative belief, which deals with the normative expectations of others

- Control beliefs, which involve the presence of factors, which promote or hinder performance of the behavior

According to the TPB, behavioral beliefs produce either favorable or unfavorable attitudes toward behavior, and normative belief results in perceived social pressure that result in perceived behavioral control (Ajzen, 1991). The combination of the beliefs leads to the creation of behavioral intention. The control beliefs aspect of the theory provides the conceptual framework to explore how managers may promote compliance with EPA regulations in Ghana's mining sector (Ajzen, 1991).

Definition of Terms

AKOBEN rating: An AKOBEN rating is an assessment program used by EPA officials to evaluate companies' leaders' compliance with environmental regulations and standards in the mining and manufacturing sectors of Ghana. AKOBEN originates from a Ghanaian tradition, which signifies alertness and readiness to serve a good cause (Epaghana, 2010).

Eco-efficient strategies: Eco efficient strategies are strategies, which involve the efficient use of natural resources and reduction in waste and greenhouse gases (Albino, Balice, Dangelico, & Iacobone, 2012).

Environmental degradation: Environmental degradation is the adverse impact of human and organizational activities on the environment (Ekins, 2011).

Eco system services: Ecosystem services are what nature does (Cornell, 2011).

Environment-to-food chain contamination: Environment-to-food chain contamination is the introduction of chemicals or contamination from the environment into the food production process (Frazzoli et al., 2010)

Galamsey: Galamsey is unregistered or illegal small-scale mining, a corrupted expression of *gather and sell* (Bush, 2009)

Green strategies: Green strategies are strategies, which involve the efficient use of natural resources, reduction in waste and greenhouse gases in pursuit of environmental sustainability *(*Albino et al., 2012)

Responsible business practices: Responsible business practices are the operational activities and processes adopted, by businesses, to promote environmental responsibility (Lynch-Wood, Williamson, & Jenkins, 2009).

Social license to operate (SLO): SLO is the social license to operate (Prno & Slocombe, 2012)

Stakeholders: Stakeholders are individuals or groups of people who either are affected or influence organizational decisions (Aaltonen, 2011).

Sustainability: Sustainability is the equilibrium between competing goals and the quality of life within the confines of what nature can bear (Ekins, 2011)

Assumptions, Limitations, and Delimitation

Assumptions

The primary assumption was that participants would answer the interview questions and share personal experiences and learning from those experiences truthfully.

An additional assumption was that middle-management officers had insights into the strategy and implementation issues that affect their companies. Another assumption was that the lived experiences of middle management officers would provide information about their experiences and perceptions about how to drive employees to comply with EPA regulations and standards in their day-to-day mining operations.

Limitations

A minimum sample size of 20 participants may limit the application of the findings to larger populations. The conclusions reached in the study might lack a wider application. The decision to limit the research to middle management employees may also limit the research. Examining the perspectives of junior management may provide additional insights into compliance with EPA regulations in the mining sector. Time was a limitation because of the limited duration of the study.

Delimitations

The objective of the study was to explore how middle managers can drive compliance with EPA regulations and standards in Ghana's mining sector. Middle management employees from Ghana's mining sector were the targeted population for the interviews. For the purpose of the study, middle management employees were senior officers who contributed to decision making and who managed people, a function, or a process in a company, but were not in top management. Middle management employees participated in the study because of their unique positions between top management and junior employees. The middle management employees interacted with both top

management and junior officers and, as such, developed insights into organizational operations related to both strategy and implementation (Mantere, 2008).

Significance of the Study

Contribution to Business Practice

The results of the study may contribute to information on how managers can drive employee compliance with environmental regulations and standards in Ghana. Managers in the mining sector may use recommendations of the study to guide and adopt the best business practices for EPA compliance in Ghana. Managers may use the results of the study to identify gaps in organizational culture and promote employee compliance. Given the costly business implications of noncompliance, findings of the study may inform mining executives to develop and implement systems, which facilitate compliance with EPA regulations and standards in Ghana (Prno & Slocombe, 2012). Improved employee compliance will eliminate or minimize costly penalties. The results of the study inform mining executives to balance the need for short-term profit and long-term viability of mining operations.

Implications for Social Change

The social implications of the study include improved business practices for achieving compliance with EPA regulations and standards by employees in the mining sector. Such compliance may reduce environmental footprints, such as the pollution of water bodies and lands in mining communities and their environs (Teschner, 2012). As environmental conditions improve, members of mining communities may experience

reduced environmentally related health challenges with concomitant increases in their quality of life that could benefit their specific communities and Ghana's economy (Frazzoli et al., 2010; Wu, 2012). Improved employee compliance may induce better stakeholders' relations and decrease resistance to mining operations within communities.

A Review of the Professional and Academic Literature

Introduction

The objective of this literature review was to explore the elements and drivers of compliance with EPA regulations and standards and environmentally sustainable operations in Ghana's mining sector. Examining various facets of environmental sustainability, regulation, and mining in Ghana could increase insight into the factors and practices which promote compliance with EPA regulations and standards in Ghana's mining sector. Poor mining practices may result in the loss of bio-diversity losses, as well as governmental license to operate (Fleury & Davies, 2012; Prno & Slocombe, 2012).

Addressing issues of environmental sustainability requires collaborative work between key stakeholders such as governments, industry, and civil societies. Collaborative relationships among stakeholders ensure sustainable development and governmental and social support to operate in the extractive sector (Prno & Slocombe, 2012). To ensure business viability in the mining sector, executives need to identify and replicate best business policies and operations, which drive compliance with EPA regulations and standards.

The literature reviewed in this section includes the TPB and themes such as

responsible corporate behavior, the concept of sustainability, issues of environmental sustainability, mining in Ghana, stakeholders, regulation, and green strategies. Key words used in the literature search included *environmental sustainability, regulation, sustainability,* and *stakeholders.* Resources for the literature review included the Walden University online library and Internet searches and public library resources such as books, journals, and electronic articles. Other resources included Walden University Dissertations. Databases used included *ProQuest, Business Source Complete, ABI / INFORMComplete, ScienceDirect, Sage,* and *Emerald.* From the 155 resources used in the study, 141 articles representing 91% of resources were peer-reviewed articles published within 5 years from the expected approval of the completed study.

The TPB provided the framework to study human behavior and compliance with regulation. Literature on environmental sustainability laid the foundation for the importance of environmental sustainability and the need for compliance with regulations and standards in business operations. Researchers have shown the importance of the long-term viability of the environment to all human endeavors, as well as the need and benefits for business leaders to adopt eco-friendly strategies. Although some authors held the view that green product development was instrumental to environmental sustainability, others opined that green human resources were essential, and other scholars advocated the bridling of uncontrolled consumption.

Literature on regulation includes the self-regulation, governmental regulation, and the regulation capture. The literature review on mining in Ghana includes the

contribution of the mining sector to the Ghanaian economy, as well as environmental degradation. Information on the AKOBEN rating system includes the objective of the system and the key performance indicators measured in the system by EPA officials. Researchers who have studied strategies to address environmental sustainability have highlighted employee training and responsible corporate operations irrespective of company size.

Theory of Planned Behavior

Proponents of TPB illustrate how human behavior changes. Compliance is a function of human behavior (Ajzen, 1991). Ajzen (1991) described human behavior as planned and deliberate; researchers can use the TPB to predict the outcomes of human behavior (Ajzen, 1991). Ajzen proved that attitudes change based on the general attitudes of a group. The TPB is useful in exploring human behavior, which includes compliance with EPA regulations and standards. TPB includes beliefs such as the likely consequences of behavior, the expectations of others, and the presence of factors that promote or hinder performance of the behavior. Ajzen advanced that an individual's level of commitment derives from the ability to follow a cognitive decision to display expected behavior.

TPB is applicable to this study because managers can identify factors that can drive employee compliance (Ajzen, 1991). Managers in mining companies can use TPB to assess and motivate employees to align with expected daily task members of mining communities may experience reduced environmentally related health challenges with

concomitant increases in their quality of life that could benefit their specific communities and Ghana's economy (Frazzoli et al., 2010; Wu, 2012). Motivation is important to influencing employees to commit to expected organizational behaviors (Ferguson & Reio, 2010). Considering the elements of TPB, managers can drive compliance with regulations by motivating employees within the constructs of behavioral, normative, and control beliefs (Ajzen, 1991).

In the context of TPB behavioral and normative beliefs, managers of mining companies can communicate to employees the expected behavior regarding compliance with EPA regulations and standards of mining. Clear policies and strategies that align with EPA regulations can be used to communicate the importance of compliance (Mallen & Chard, 2012; Quairel- Lanoizelee, 2011). The identification and implementation of strategies such as material eco–efficiency and green human resources training can emphasize environmentally responsible operations (Coelho, Castro, & Gobbo, 2011; Daily, Bishop, & Massoud, 2012). Managers can capitalize on TPB to communicate the consequences of employee compliance behavior.

The control belief in TPB connects to the presence of factors that promote or hinder performance of behavior. Managers can use regulations and opportunities to promote organizational actions towards environmentally sustainable operations (Schrettle et al., 2014). Compliance with Ghana's EPA regulations on mining is mandatory, and managers can use the control belief aspect of TPB to determine the presence of factors that promote or hinder compliance with Ghana's EPA regulations. Green human

resources training and management are factors that can lead to compliance with regulations (José & Jabbour, 2013). Managers need to focus on factors that promote job satisfaction and compliance with regulations and standards. The presence of enticing organizational frameworks can promote the retention of skilled human resources (Bui & Baruch, 2010). TPB is useful in considering the presence of factors that promote compliance with EPA regulations, such as policies and activities (Ajzen, 1991). Managers of mining companies can develop incentive frameworks to encourage compliant behaviors and discourage noncompliance.

Another factor that can promote compliant behavior is the presence of corporate culture, which emphasizes environmentally responsible operations (Brennan, Binney, McCrohan, & Lancaster, 2011; Vallance, Perkins, & Dixon, 2011). Sound corporate culture can promote responsible corporate citizenship through commitment to the company (Andrew & Sofian, 2012; Meyer, Stanley, & Parfyonova, 2011). Managers of mining companies can use the TPB to motivate employees to comply with environmental regulations irrespective of the company size.

Concept of Sustainability

Sustainability is a concept based on the ability of a system to maintain life in the long term (Ekins, 2011). Scholars have defined sustainability as a balance between societal demands on the environment and the social well-being of present and future generations (Diedrich, Upham, Levidow, & van den Hove, 2011). Sustainability is an ethical constraint and a future-oriented concept (Goeminne & Paredis, 2010). Broadly,

sustainability is meeting present needs without compromising the ability of future generations.

Sustainability is the equilibrium between competing goals and quality of life within the confines of what nature can support (Ekins, 2011). The concept of environmental sustenance is the basis for all other forms of sustainability in other disciplines (Forsyth, 2011). The concept of sustainability has evolved over time; however, balancing consumption and utility within the boundaries of nature without compromising future generations' remains a component of sustainability (Choi & Ng, 2011). Present human and commercial endeavors must secure the environment for future generations.

Sustainability hinges on three interconnected elements: economic, environmental, and social (Manzini, Islas, & Marcias, 2011; Moldan, Janouskova, & Hak, 2012). Each element is not mutually exclusive. No sustainable development is possible in any individual element exclusive of the other two; for instance, social or economic sustainability is not possible without environmental sustainability (Moldan et al., 2012). No sustainable development is achievable without integrating all three elements. Balancing economic and societal demands on the environment is essential to long-term sustainability of the mining business. The environment is unable to support economic or societal endeavors that neglect environmental protection (Choi & Ng, 2011). A collective consideration of the three dimensions ensures sustainability (Choi & Ng).

Environmental Sustainability

Environmental sustainability refers to the ability of the environment to sustain life, renewable resources, and the absorption of waste (Ekins, 2011). Discussions on environmental sustainability are relevant because of global implications of environmental degradation on climate change, energy, natural resource, public health, and food security (Forsyth, 2011). The environment provides ecosystem services such as natural resources and waste absorption, which translates into benefits like human health and welfare (Ekins). These ecological functions are of benefit to the sustenance of life. Human activities such as population growth and economic activities have interrupted these ecological functions (Choi & Ng; Ekins).

Regulation is a necessity as human activity is the main culprit of environmental degradation and sustainability challenges (Ekins, 2011; Grande, 2009). Choi and Ng (2011) attributed the present condition of the environment to the unbridled human consumption patterns and inadequate environmental solutions. Solutions that do not include human consumption patterns will not succeed (Choi & Ng). Some researchers have attributed environmental challenges to industrialization: however, human exploitation of natural resources outdates the era industrialization (Ekins). Prior to the industrial revolution, which gathered momentum in the 1700s, human activities had exploited natural resources through the burning and clearing of forests for food and shelter. Industrialization, however, has accelerated industrial discharges and waste, natural resource depletion, and the deteriorating health conditions (Wu, 2012).

Although industrialization and technological advancement have improved lives globally, such development has been associated with environmental challenges (Choi & Ng, 2011; Ekins, 2011). Environmental degradation adversely affects business, social, cultural, and economic aspects of life. These uncertain, large, and irreversible damages to the environment have long-term implications for business, food quality and production, public health, migration, and ecological balance (Ekins, 2011; Nyame et al., 2009; Wu, 2012). Human activities such as population pressure, industrialization, and excessive consumption have contributed to deforestation, land degradation, and ecological damages (Orimoogunje, Adegboyega, Banjo, & Funmilayo, 2011). Environmental sustainability deals with human activities, which meet present needs in a manner that avoids irreversible damage to the quality of life, other species, and the environment in general (Ekins, 2011). Views on environmental sustainability vary on a continuum from simple steps such as recycling to restorative strategies to redeem past damages to the environment. Meeting demands of the present without irreversible damage to the environment is desirable. Ad hoc measures cannot promote the long-term sustainability of the environment. Business leaders must pursue policies and strategies that promote eco-friendly and sustainable operations (Vallance et al., 2011).

Issues of environmental sustainability have assumed global dimensions as both developed and developing countries face the challenges associated with unsustainable human activities (Diedrich et al., 2011). Climate change, aggravated health conditions, mortality, food production challenges, water pollution, natural resource depletion, and

waste have characterized environmental degradation (Diedrich et al., 2011). Despite the variance in global emissions, developing countries suffer from the impacts of climate change and pollution (Wu, 2012). Reduced access to health care further compounds the situation of developing countries (Biermann et al., 2012; Goeminne & Paredis, 2010; Wu, 2012). There is a need for paradigm shifts on the environment and its finite natural resources. Business leaders must approach sustainability within the context of economics, society, and the environment (Ekins, 2011). Although a need exists to address unsustainable human activities, governments barely restrain large-scale natural resource extraction (Brennan et al., 2011).

Despite the implications of unsustainable environmental operations, human-induced degradation continues to damage the environment with consequences for present and future generations (Brennan et al., 2011). Increasing economic growth and global demand for products have led to the exploitation and depletion of natural resources and disruption of ecological balance (Brennan et al., 2011; Choi & Ng, 2011). Business leaders' focus on short- term economic gains compromise sustainable environmental operations (Brennan et al., 2011). Scholars have attributed different reasons for the slow pace in addressing environmental sustainability challenges (Brennan et al., 2011; Lahsen et al., 2010). Continuous environmental degradation is a result of overall failure to alter trends of human-induced environmental degradation (Biermann et al., 2012). The marginal progress in addressing global environmental challenges stems from the failure of international regulations (Lahsen et al., 2010). Other scholars have claimed that the

absence of well-developed international standards undermined efforts at addressing environmental degradation (Brennan et al., 2011; Dauvergne & Lister, 2012). The gap created by the absence of well- developed international standards permits organizations to define sustainability, gain legitimacy, and in effect become global regulators (Dauvergne & Lister, 2012).

Environmentally Responsible Corporate Behaviors

Businesses leaders have a responsibility to consider the environmental impact of their operations to safeguard corporate viability (Lynch-Wood et al., 2009; Prno & Slocombe, 2012). Executives of mining companies need to operate beyond the primary goal of profit-making, as compliance with EPA regulations and standards are relevant to business viability as well as governmental and social licenses to operate. Contrary to the perception that compliance with environmental regulations may have costly effects on companies, benefits exist for companies that adopt environmentally sustainable strategies (Quairel- Lanoizelee, 2011; Russo & Perrini, 2010). Executives of small and medium organizations avoid environmentally sustainable strategies, although the strategies may lead to financial gains (Quairel- Lanoizelee, 2011). Leaders of small and medium businesses avoid issues of regulation compliance and environmentally sustainable strategies because they do not perceive the financial benefits (Quairel- Lanoizelee, 2011).

Companies that adopt environmentally sustainable operations may see a reduction in operating cost and waste and increased cost savings and stakeholders' satisfaction (Gadenne, Kennedy, & McKeiver, 2009). Failure to pursue environmentally responsible

business operations may result in a financial loss to the organization (Russo & Perrini, 2010). Other benefits of environmentally responsible business operations include a positive impact on corporate reputation, governmental support, and social license to operate (Prno & Slocombe, 2012; Russo & Perrini, 2010). Additional benefits of complying with environmental regulations include social positioning of products, sustainable processes, governmental support, and social license to operate (Prno & Slocombe, 2012).

Company Size and Environmentally Responsible Business Strategies

Some scholars of responsible corporate behavior have advocated that company size plays a role in the adoption of responsible corporate strategies (Russo & Tencati, 2009). Company size affects an organization's approach to corporate social responsibility and socially responsible strategies (Russo & Tencati, 2009). Leaders of small and medium sized companies cannot compete with large sized companies because of variations in finances and resources (Dangelico & Pujari, 2010). Insufficient resources and information limits the ability of small and medium sized companies to adopt socially responsible corporate strategies (Russo & Tencati, 2009).

Organizational leaders need to develop strategies that support sustainable environmental operations (Laudal, 2011; Loucks, Martens, & Cho, 2010). Business managers must find unique, but relevant ways of integrating environmentally responsible strategies into their operations (Preuss & Perschke, 2010). Business leaders can use organizational culture to inspire environmentally responsible operations (Warrick, 2011).

Responsible business operations have a direct impact on the governmental license to operate (Prno & Slocombe, 2012). Irrespective of company size, executives of mining companies must align business operations with environmental sustainability (Preuss & Perschke, 2010).

Business Drivers for Environmentally Responsible Operations

Different reasons may account for the adoption of environmentally responsible behaviors. Strategic alignments and altruistic reasons may account for the adoption of responsible environmental behaviors (Luo & Bhattacharya, 2009). Resources are integral to adopting eco-friendly strategies. The absence of human and financial resources, as well as competence, limits organizational ability to adopt environmental strategies (Russo & Tencati, 2009). Legislation and owner attitudes influence the adoption of environmentally responsible strategies (Gadenne et al., 2009). Information is vital to the adoption of environmentally responsible strategies as informed business executives comply with environmental standards (Fassin, Van Rossem, & Bulens, 2011; Gadenne et al., 2009). A lack of appreciation for environmentally responsible strategies may result in ad hoc corporate responses to eco-friendly strategies (Russo & Tencati, 2009). Business executives may experience barriers to the adoption of eco-friendly strategies through the lack of support and appreciation for environmentally responsible strategies from employees and the cost involved in adopting eco-friendly strategies.

Two mechanisms trigger actions toward environmental sustainability: mandatory legislation and opportunities (Schrettle et al., 2014). Mandatory legislation compels

organizations to adopt environmental sustainability measures to avoid penalties (Schrettle et al., 2014). Internal and external factors drive organizational pursuit of environmental sustainability (Schrettle et al., 2014). External factors such as regulation, social values, and market drivers influence the pursuit of environmental sustainability. Internal factors include culture, strategies, and resource. Customer pressure and legislation can trigger the adoption of eco-friendly operations. Although business motives may trigger the adoption of eco-friendly strategies, business executives must note that cordial relationship with key stakeholders such as government and society are vital to business viability (Aaltonen & Kujala, 2010; Prno & Slocombe, 2012).

Stakeholders are critical to addressing challenges of environmental sustainability (Aaltonen, 2011). Business leaders must manage stakeholders to avoid public pressure for environmental sustainability (Aaltonen & Kujala, 2010; Harris & Wicks, 2010). As the role stakeholders migrates from control to cooperation, continuous engagement with all relevant representatives ensures the goal of integrative management of the elements of sustainability (Markova & Ford, 2011; Pirson & Lawrence, 2010). The participation of stakeholders representing the three elements of sustainability is essential in addressing environmental issues, irrespective of their power, legitimacy, and urgency (Aaltonen & Kujala, 2010; Neville, Bell, & Whitwell, 2011). Strategies for addressing environmental sustainability should include the interest of the various stakeholder groups to ensure viability and legitimacy (Mutti, Yakovleva, Vasquez- Brust, & Di Marco, 2012). Regulatory elements, such as prescribed technologies and specific targets, influence the

pursuit of environmental sustainability.

Internal drivers, such as culture, resource, and strategy influence organizational decision to pursue environmental sustainability (Schrettle et al., 2014). Some organizations adjust operations to meet sustainable requirements; such decisions are the lesser approaches to ensuring environmental sustainability. Proactive steps towards environmental sustainability involve introducing sustainable innovations and processes (Schrettle et al., 2014). Cultural influences that drive environmental sustainability include accurate and timely information dissemination, motivation, and long-term perspectives. Open communication inspires and develops employee commitment to organizational goals uncovers biases and challenges (Rahman et al., 2012). Open communication facilitates truthful communication on the success or failure of organizational strategy development and implementation.

Researchers who have examined business drivers for environmentally responsible operations include the internal and external factors that drive eco-friendly operations (Schrettle et al., 2014). Scholars have indicated factors such as mandatory regulations, social values, and market demands as driving factors for environmentally responsible corporate operations. Internal drivers such as resources, culture, and strategy influence companies to adopt environmentally responsible operations. A lack of appreciation and support for eco-friendly operations, as well as cost of funding environmentally responsible operations, emerge as factors that impede environmentally responsible corporate behavior (Fassin et al., 2011; Russo & Tencati, 2009).

Regulation

Regulation as an option ensures balance between economic, social, and environmental development (Etzioni, 2009); however, recent global financial crisis and failed regulation has resulted in diminished public trust in regulation (Etzioni, 2009; Monks, 2010). Enforcing compliance with environmental legislation and policies protects the public interest, which may not be the primary goal of businesses (Meghani & Kuzma, 2011; Simon, 2010). Regulatory bodies perform essential functions, which culminate into the public interest by balancing economic, social, and environmental development. The core mandate of regulatory agencies includes monitoring and controlling business activities to ensure compliance with legislation in the interest of the public (Meghani & Kuzma, 2011; Pautz, 2010; Simon, 2010). Regulators have the task of ensuring that the interest of the regulated aligns with sustainable development (Etzioni, 2009).

Two main forms of regulations are external and self-regulation (Etzioni, 2009). Proponents of external regulation have advanced greater regulation of the private sector in the interest of the public (Grande, 2009). Opponents of regulation have argued that external regulation impedes free-market economies and restricts business (Etzioni, 2009; Mulatu, Gerlagh, Rigby, & Wossink, 2010). Proponents of government regulation have argued that the absence of enforcement, coupled with loopholes within existing regulations, is recipes for exploitation and erosion of public confidence (Gadenne et al., 2009; Grande, 2009). Opponents of external regulation have argued that the governmental regulation hinders innovation (Pautz, 2010).

External regulation. External regulation proponents have argued that external intervention sanctioned and enforced responsible behavior, as the absence of enforcement coupled with loopholes within existing regulations lead to exploitation and erosion of public confidence (Gadenne et al., 2009). In contrast to the challenges of external regulation, the mere threat of regulation is sufficient to inspire adherence to government regulation, professionalism, and better industry behavior (Grande, 2009). The command and control approach is an example of the external or government regulation (Meghani & Kuzma, 2011; Pautz, 2010). In the command and control approach, agencies operate in a centralized manner. Government agencies grant permits, as well as determine rules and standards for industries to comply. For instance, regulatory agencies determine noise levels, pollutants, and exploration of natural resources, as well as permitted technologies (Pautz, 2010).

Although some successes are associated with this form of regulation because of the specificity of the regulations, challenges persist with the traditional approach (Pautz, 2010). The inflexible and legalistic nature of governmental regulation hinders innovation because of its stringent rules and the compulsion to comply (Pautz, 2010). The nonconsultative nature of the approach eliminates contributions from key stakeholders, such as the industry in drafting rules and standards (Meghani & Kuzma, 2011; Pautz, 2010). The nonparticipative approach adopted by regulators in drafting legislation alienates the industry and minimizes ownership of the standards (Pautz, 2010). A key challenge associated with traditional regulation is synchronizing with evolving

technologies, challenges, and changes (Pautz, 2010).

Self -regulation. Self-regulation is an alternative approach to regulation. Industry self-regulation is socially desirable and is an attractive institutional arrangement for developing countries (Grajzl & Baniak, 2009; Lynch-Wood et al., 2009). The participation of industry members ensures higher levels of cooperation because views expressed represent the collective interest of the industry. Self-regulation could be problematic, as regulations based on voluntary standards of conduct are devoid of public scrutiny (Grande, 2009). Self- regulation could serve industry interest and hold the potential for regulation capture (Ojo, 2011; Pai & Tolleson, 2011; Simon, 2010).

In terms of policies, environmental regulation involves standards for organizations that improve corporate citizenship and public good (Lynch-Wood et al., 2009). Next generational policies are comprehensive but vulnerable to exploitation by the regulated compared to the fragmented and legalistic nature of traditional policies (Pautz, 2010). In terms of policy tools, the traditional approach relies on prescribed rules, processes, and technologies, whereas next generation policies are flexible and permit innovation (Pautz, 2010).

Alternative Interventions to Regulations

Some opponents of government intervention have suggested transparency or disclosure and torts as alternatives. Transparency involves providing the public with the product or service information (Etzioni, 2009). An erroneous assumption, which underlies disclosure, is that the public will make rational decisions based on the product

information provided (Etzioni, 2009). The authenticity of the information under this circumstance requires government backing to gain public trust. Transparency as an alternative to regulation is susceptible to regulation capture because the information provided advances the interest of the regulated entity (Etzioni, 2009).

The proponents of self-regulation also have proposed torts as an alternative to government regulation. The underlying principle of torts is that punitive measures deter organizations from operating against the public interest (Etzioni, 2009). Torts are regulations because they echo the law. In the case of lawsuits, the law prescribes what activities necessitate compensation. The laws, which prescribe the type of offenses and compensation, are liable to capture as industries and organizations can influence legislators to enact laws in their favor (Etzioni, 2009). Like external or self-regulation, transparency and torts have challenges.

Environmental Policies

Environmental regulation provides standards for organizations to improve corporate citizenship and advance public interest (Lynch-Wood et al., 2009). Regulation lies within the context of traditional and next generational policies (Pautz, 2010). The underlying assumption of governmental regulation is that the industry needs monitoring to avoid conflict with the profit- making objectives of business leaders (Grande, 2009; Russo & Perrini, 2010). The three traditional approaches to regulatory enforcement are deterrence, accommodative, and a combination of both approaches (Pautz, 2010). The deterrence approach focuses on established rules and compliance matters, which are easy

to address. Punishment for infringement is a tool for enforcement in the deterrence approach (Pautz, 2010). The accommodative approach, however, thrives on cooperation with the regulated (Pautz, 2010). A hybrid of deterrence and accommodation is another option employed by regulators in the traditional approach. A combination of deterrence and accommodation approaches is not suitable in regulatory instances, which the industry compromises the regulators (Pautz, 2010).

Next generation environmental policies are a range of environmental policies other than the traditional approach to policy (Pautz, 2010). Next generation policies are comprehensive, cooperative, and not entirely decisions by the regulated entities (Pautz, 2010). Government sets the minimum level of environmental performance. In contrast to the traditional approach to enforcement, next generational approach to regulation addresses environmental issues holistically and facilitates innovation (Pautz, 2010).

Comparison of Policy Tools

In terms of policy tools, the two approaches vary. In comparing the traditional and next generation environmental policies, some differences emerge. Whereas the traditional approach relies on prescribed rules, processes and technologies, the flexibility of next generation policies permits innovation (Pautz, 2010). In the next generation policies, responsibility shifts to varied key stakeholders to minimize environmental effects. Governments' responsibility to provide capacity and expertise to determine targets, standards, rules, and attendant challenges diminish in the next generation policies (Pautz, 2010). Key stakeholder participation enhances the determination of industry

environmental standards and compliance because of expertise and support from varied backgrounds.

Traditional policies focus on compliance or violation of regulations by the regulated entities; consequently, significant reliance is on mandatory reports and compliance enforcement rather than the assessment of environmental performance (Pautz, 2010). The next generational approach to policies requires fewer reports as the focus remains on assessing environmental impacts on the regulated entities. Traditional approach to policies creates confrontational relationships between the regulated and the regulators whereas next generation approach fosters cooperation.

Implications of Policy Approaches and Environmental Legislation

The significant differences of the two approaches to environmental policies have implications on environmental inspectors ((Meghani & Kuzma, 2011; Pautz, 2010). The traditional approach of top-down policies implies that policies emanate from the top echelons of the agencies with minimal input from inspectors, posing challenges to the interpretation of regulations (Etzioni, 2009; Meghani & Kuzma, 2011; Pautz, 2010). The consultative nature of next generation policies implies minimal interpretation challenges because of the participation key industry members in the drafting stages of regulations (Etzioni, 2009). Inspectors are not suspicious of industry operations as is the case of the traditional approach (Etzioni, 2009; Meghani & Kuzma, 2011). Inclination toward the next generation environmental policies imply greater cooperation between inspectors and key stakeholders to ensure better relationships and collaboration to achieve set goals and

objectives (Etzioni, 2009; Meghani & Kuzma, 2011;Pautz, 2010). Ethical relationships in the next generation environmental policies potentially minimize conflict of interest situations (Etzioni, 2009).

Legislation on efficient natural resource extraction is essential in achieving environmental sustainability. Integrated laws are instrumental in the prevention, control, and management of environmental degradation (Maricic, Danilovic, & Lekovic, 2012). Legislation emanates from policies; as such, policies must remain environmentally sound. Natural resources such assoil, water, air, and forest reserves are prone to pollution and destruction by negative environmental operations. Useful legislations limit moral or ethical decisions related to stakeholders (Brennan et al., 2011). The implementation and enforcement of laws can stifle ethical initiatives by organizations to address issues of environmental sustainability (Brennan et al., 2011).

Emerging private sector governance trends involve championing global sustainability (Dauvergne & Lister, 2012). Multinational corporations (MNCs) take global sustainability initiatives in the absence of relevant legislation and effective enforcement (Dauvergne & Lister, 2012). The MNCs sustainability initiatives are laudable; however, the challenge associated with the initiatives is the potential for regulation capture (Cortese, 2011; Dauvergne & Lister, 2012; Etzioni, 2009). The MNCs can capture regulatory agencies by gaining authority and support from various categories of stakeholders (Dauvergne & Lister, 2012).

The primary responsibility of the regulator is to protect the public interest;

however, regulation capture occurs when the regulated industry influences or lobbies regulators into their perspective through reward systems (Cortese, 2011; Etzioni, 2009). A captured regulatory agency with governmental powers is problematic as it endangers public safety (Pai & Tolleson, 2011). Contrasting views exist on the prevalence of regulatory capture, whereas opponents refute the widespread perception of regulatory capture, proponents attest to the negative effect of the phenomenon (Cortese, 2011; Etzioni, 2009; Monks, 2010; Pautz, 2010).

Regulation Capture

Regulatory bodies perform essential functions that culminate into the public interest by balancing economic, social, and environmental development (Meghani & Kuzma, 2011; Monks, 2010). The core mandate of regulatory agencies includes monitoring and controlling business activities to ensure compliance with legislation in the interest of the public (Meghani & Kuzma, 2011; Pautz, 2010; Simon, 2010). Regulators' mandate includes protecting the public interest, the integrity, and credibility of policy outcomes; decisions are crucial. Regulators have the task of ensuring that the interest of the regulated entities aligned with sustainable development (Etzioni, 2009).

Conditions for regulation capture are products of industry factors and regulatory factors (Cortese, 2011). Industry factors include the complexity of the operating environment and regulatory problems. The availability of resources for lobbying may result in regulation capture. Other regulatory conditions, such as reliance on information, expertise, industry resources from the industry, and lobbying pressure may facilitate

regulation capture. Regulation capture occurs through dilution, weakening, and dismantling existing regulations (Etzioni, 2009). An unspoken but widely held opinion is that civil servants in regulatory and enforcement roles act unethically, creating a poor image of civil servants and the conduct (Pautz, 2010; Teschner, 2012). Integrity is at stake when a shortfall exists in performing the mandates of protecting the public interest (Monks, 2010).

Mineral Mining and Environmental Degradation in Ghana

Ghana has a rich history of mining dating to the 10th and 11th centuries (Garvin et al., 2009). As a nation with a mineral resource deposit, Ghana's mining sector has shown growth accompanied by developmental and economic gains (Aubynn, 2009). The mineral led growth is desirable as gold accounts for over 38% of national merchandise and the largest foreign exchange earner for Ghana (Garvin et al., 2009). The sector employs between 115,000 -215,000 people through large- and small-scale mining activities (Aubynn, 2009). The growth in natural resource extraction presents environmental challenges such as cyanide spillages and contamination in the host and surrounding communities (Akabzaa & Yidana, 2011; Armah et al., 2010). Activities of illegal miners continue to challenge regulators and the ecological balance of affected communities.

The mining sector in Ghana consists of large-scale mining (LSM) and artisanal and small-scale mining (ASM; Aubynn, 2009). Significant numbers of the artisanal and small-scale miners operate illegally, as they do not register with the relevant ministry and agency. In the light of the covert nature of illegal mining operations, enforcement of

environmental standards is haphazard and mostly ineffective (Nyame et al., 2009). Environmental degradation occurs when LSM companies' tailings drain into water bodies through accidents or negligence. ASM and illegal miners pollute the environment through indiscriminate disposal of chemicals from mining operations in water bodies (Nyame et al., 2009). The activities of ASM and galamsey operators are hazardous to the environment and difficult to manage (Nyame et al., 2009). Illegal miners operate under dangerous labor conditions with no consideration for the environment, reclamation, and the general population (Nyame &, 2010; Teschner, 2012). The ASM usually resort to crude methods of extraction, such as the use of harmful chemicals and explosives to extract ore from hard rocks (Nyame & Blocher, 2010; Teschner, 2012). Illegal miners also use crude equipment to prospect for minerals in river basins, which also serve as sources of water for domestic purposes. The harmful practices, coupled with the population growth of illegal ASMs, have worsened environmental degradation (Nyame & Blocher, 2010). Poor management of mining operations and practices during production and transportation requires effective governance of the mining sector (Ayee, Søreide, Shukla, & Le, 2011).

Ineffective law enforcement is an obstacle in addressing illegal mining and associated environmental degradation in Ghana. Corrupt officials allow violations of environmental regulations on extraction and processing techniques (Teschner, 2012). Other scholars attribute the state of environmental deterioration to faulty policies. Although the mining activities contribute to Ghana's economy, mining accidents and

chemical spillages into water bodies pose health risks (Ayee et al., 2011; Nyame et al., 2009).

Ghana has experienced growth through trade and natural resource exploration with attendant environmental challenges (Garvin et al., 2009). As a nation experiencing economic growth and rapid industrialization, developmental challenges such as environmental degradation persist in the absence of relevant legislation and enforcement. Contamination of water sources in Ghana's mining communities proves adverse to mining operations (Akabzaa & Yidana, 2011; Armah et al., 2010). Poor mineral mining operations in Ghana lead to environmental pollution (Armah et al., 2010). The improper disposal of industrial waste and pollution from chemicals such as cyanide and mercury present affect the livelihoods of communities, as well as regulators (Armah et al., 2010).

Pollution poses a threat to economic, social, and cultural development in Ghana (Armah et al., 2010; Aroh et al., 2010). Contaminated water sources, forests, and lands negatively influence food production and quality (Aroh et al., 2010; Frazzoli et al., 2010). Substantial vegetation loss from mining and deforestation presents difficulties to households in Africa (Nanang, 2010). Forest products' contribution to African households ranges from 27% to 40%, although few studies are available on the use of value of forest resource in West Africa (Pouloit & Treue, 2013). Forestry products exports contribute foreign exchange earnings in Ghana (Nanang, 2010).

Mining is a source of national income and development in Ghana. Researchers have highlighted the adverse environmental impact of poor of mining practices in Ghana.

Due to the health, social, and environmental challenges associated with poor mining practices there is a need for compliance with mining regulations and standards (Armah et al., 2010; Teschner, 2012).

Business Implications of Environmental Degradation in Ghana

Environmental degradation is relevant to the business and social aspects of life in Ghana (Akabzaa & 2011; Teschner, 2012). Environmental degradation from unsustainable mining activities adversely affects mining businesses, as well as communities and rural households' dependence on forest products (Nanang, 2010). Ground and surface water bodies serve as reliable sources of water for multiple uses (Akabzaa & Yidana, 2011). Rivers and other water sources serve agricultural and domestic purposes (Aroh et al., 2010; Frazzoli et al., 2010). Farmers and families use these water sources for agricultural and domestic purposes; as such, the contamination in mining communities raise food quality and health concerns (Akabzaa & Yidana, 2011; Aroh et al., 2010; Frazzoli et al., 2010; Wu, 2012).

The risk of environment-to-food chain contamination remains in environmentally degraded communities (Frazzoli et al., 2010). The mining areas serve as the nation's breadbaskets (food production areas) and host regions to mining operations (Akabzaa & Yidana, 2011; Armah et al., 2010). Residents suffer loss when contamination occurs (Armah et al., 2010). For instance, residents in Obuasi, which is home to Ashanti Goldfields in Ghana, can no longer depend on rivers and streams, which hitherto were reliable sources of water for domestic use.

As communities experience the outlined adverse effects of mining activities, protests and blockades occur. In extreme situations, the government retracts permits, and companies lose the social license to operate in the extractive sector (Prno & Slocombe, 2012). Considering the consequences of poor environmental operations, mining executives must explore innovative ways of adopting eco-friendly strategies and, more importantly, complying with EPA regulations and standards in Ghana's mining sector (Armah et al., 2010; Russo & Tenacati, 2009). Mining companies have a responsibility to comply with EPA regulations and standards to maintain the governmental permits and social license to operate in Ghana (Prno & Slocombe, 2012). There is a need to avoid poor environmental and stakeholder management in Ghana's mining sector

EPA Regulations, Standards, and AKOBEN Ratings in Ghana

In Ghana, two institutions are involved with the extractive sector, which are the Minerals Commission and the EPA. The Minerals Commission is responsible for issuing mining permits for concessions in Ghana, and the EPA is responsible for enforcing environmental sustainability in Ghana (Epaghana, 2010). Mining and mineral processing activities may generate more toxic and hazardous waste than any other industrial sector with dire health consequences for host communities and their environs (Epaghana, 2010; Nyame et al., 2009). The mandate of the EPA of Ghana includes addressing environmental threats to communities, reducing the risk of natural resource contamination, and monitoring mining activities in Ghana (Epaghana, 2010). Environmental governance challenges in Ghana include a lack of integrated strategies

and ineffective enforcement of environmental laws (Teschner, 2012).

Officials of Ghana's EPA determine mining companies' compliance with environmental regulations and standards through the AKOBEN ratings (Epaghana. 2010). AKOBEN ratings consist of a five-color scheme, which measures the environmental and social performance of companies (see Appendix D). Officials of EPA use the color codes to evaluate the operational performance of companies. The elements of company evaluation include compliance with mandatory regulations on permits, risk minimization from toxic materials or hazardous wastes, as well as the voluntary commitments of companies regarding social responsibilities and community relations (Epaghana, 2010). The conceptual framework of the evaluation system is color code red, which indicates poor performance by companies. Red implies poor management of toxic materials and hazardous wastes and discharges by companies. Companies can avoid the red color code by scoring a compliance rate of more than 98% for toxic parameters in the effluent during a 12-month period (see Appendices D).

Orange indicates unsatisfactory performance that is exceeding regulatory standards for conventional pollutants, nontoxic materials, and noise pollution (Epaghana, 2010). Blue represents good performance, which implies adequate compliance with environmental standards. Green indicates a very good performance that is responsiveness to public complaints (Epaghana, 2010). Gold implies excellent performance, which includes company responsiveness to public complaints and active corporate social responsibility policies (Epaghana, 2010).

In the AKOBEN program, scientific and technical measurements determine the environmental performance of companies (see Appendix E). The social performance of companies is not measured and expressed in numerical terms (Epaghana, 2010). Community members serve a role in the AKOBEN system by providing information to regulators (Epaghana, 2010). Environmental complaints form an integral part of the concept of community monitoring of mining and manufacturing operations (Epaghana, 2010). In that regard, AKOBEN includes the management of environmental complaints from community members. An overall complaints management policy and tracking system is a requirement in the AKOBEN system to facilitate the effective management of environmental complaints received (Epaghana, 2010).

The evaluation program involves the consideration of the long-term trend of company behavior (Epaghana, 2010). The AKOBEN team also considers incidents of unusual public complaints on a case- by- case basis. The evaluation of environmental complaints also includes the process of authentication by EPA inspectors. The verification process involves field visits, discussions with communities and companies, and even the collection of samples for technical review and analysis (Epaghana, 2010).

EPA inspectors conduct extensive reviews of environmental complaints. Officials of companies maintain a comprehensive record of all complaints and their responses. Officials of EPA check these details during the AKOBEN audit of companies (Epaghana, 2010). AKOBEN rating methodology includes the concept of social performance of companies. Evaluating the quality of social performance of companies is challenging

because no quantitative regulatory standards exist for social performance. Social performance is the highest ranking rating criteria in the AKOBEN program as it ultimately determines the achievement of the highest color rating (Epaghana, 2010).

EPA officials collect a company's corporate social responsibility policies and review them to gain insight into their corporate social responsibility (CSR) commitments (Epaghana, 2010). The AKOBEN team reviews community development projects and activities recommended for the year under review. Ratings of companies depend on their implementation of their recommendations for the year under audit. The AKOBEN rating does not impose any mandatory performance standards on companies. Company assessment depends on how well each company implements its own CSR policy (Epaghana, 2010).

The AKOBEN rating is an integrated evaluation tool used by officials of EPA–Ghana to assess companies' adherence to environmental regulations and standards in Ghana. The purpose of the AKOBEN rating is to encourage managers of companies to improve and maintain good environmental performance and minimize risks to the environment and the communities around their sites. Information on AKOBEN includes details on core areas of assessment.

Business Approach to Addressing Sustainability Issues

Environmental challenges, such as global warming, finite natural resources, and waste has necessitated redemptive actions that support environmental protection and reduce demands on natural resources (Schrettle et al., 2014). Several adaptive responses

to the effects of environmental degradation remain (Tschakert, Tutu, & Alcaro, 2013). Environmental challenges of climate change, food quality, and security, and depletion of water demand effective strategies to address unsustainable environmental practices (Diedrich et al., 2011). Issues of sustainability have drawn both international and national attention in policies and legislation, demonstrating recognition of the future risks of current patterns of consumption and waste (Cornell, 2011).

Most countries have sought to integrate sustainability into national policies and legislation in their bid to address issues of sustainability (Morrison-Saunders & Retief, 2012). As a dynamic and contested topic, sustainability requires political responses (Aubynn, 2009). Achieving environmental sustainability is a process that involves understanding the cumulative effects environmental degradation, as well as finding the equilibrium for the three elements of sustainability. An integrative approach that considers the economic, environmental, and social aspects of sustainability is essential in the race against degradation (Lamorgese & Geneletti, 2013).

A shift towards integrating the three elements of sustainability is necessary. However, mixed views exist on the relationship between environmental sustainability and financial performance of organizations (Jacobs, Singhal, & Subramanian, 2010; Luchs, Walker-Naylor, Irwin, & Raghunathan, 2010). Stakeholder' concerns have compelled business leaders to address sustainability issues as part of company strategy (de.Lange, Busch, & Delgado-Ceballos, 2012). In response to finding effective solutions for environmental sustainability, some researchers have emphasized society and

stakeholders' participation to address issues of environmental sustainability (Aaltonen, 2011; Diedrich et al., 2011). Other scholars have advocated that well-developed and enforceable legislations and international standards (Biermann et al., 2012; Dauvergne & Lister, 2012; Lahsen et al., 2010). The solution lies beyond greening, as endless consumption is the problem (Biermann et al., 2012; Choi & Ng, 2011). Other scholars advocated the teaching of business ethics in schools (Brennan et al., 2011).

Strategies to Improve Compliance with Mining Standards

Global environmental conditions have necessitated industry and company leaders, as well as the public, to adopt environmentally sound and ethical operations (Figge & Hahn, 2012). The need remains for responses to address the issues of environmental degradation, such as depleting natural resources and associated waste. Strategies by nature have long-term perspective and impact (Schrettle et al., 2014). No one right option addresses strategic matters; rather, the solution is a product of multiple sources of indicators and information. Strategies should involve a combination of the past and the future goals. Past success may inhibit strategic change; whereas, past failures can drive evaluation and motivation for change. The recognition for environmental change is incomplete without the commitment to adopt strategies that promote environmental sustainability. To develop strategies for environmental sustainability, managers must determine the components of internal and external driving factors that drive environmental sustainability (Schrettle et al., 2014). Managers need to determine the appropriate strategies and required knowledge base (Schrettle et al., 2014).

Environmental degradation and stakeholder pressures have led to the need to address challenges (Albino et al., 2012; Mallen & Chard, 2012). Issues of environmental sustainability are not public relations activities, but rather high priority organizational and societal concern. Leaders of organizations are under pressure to implement strategies that positively influences environmental sustainability (Albino et al., 2012). The need remains for organizational leaders to adopt strategies that address environmental degradation. Evaluation of past environmental failures may contribute to the development of effective strategies (Albino et al., 2012).

Green strategies involve the efficient use of natural resources, reduction in waste, and greenhouse gases in pursuit of environmental sustainability (Albino et al., 2012). Diverse views exist on the viability of green development, legislation, training, and regulation in pursuit of environmental sustainability (Albino et al., 2012). Some scholars are skeptical about the effectiveness of legislation is addressing challenges of environmental sustainability, while others believe that regulation is an option discourages innovation (Grajzl & Baniak, 2009; Monks, 2010). Some experts advocate that all the redemptive attempts are useful; however, the human consumption of natural resources requires control (Choi & Ng, 2011).

Business and academic interests in green development and environmental technology are high because they form part of the solution to the global environmental challenges (Albino et al., 2012). Green development presents opportunities for product differentiation (Albino et al., 2012). Green product development is an option in the

pursuit of organizational and national environmental sustainability, although the option cannot sufficiently address environmental sustainability (Choi & Ng, 2011; Dangelico & Pujari, 2010). The development of green products requires organizational commitments to the implementation of environmental strategies (Albino et al., 2012). Under green product development, organizations and industries can pursue sound environmental strategies, which aim at processes and organizational management. Reduction of resources in production, improving environmental, and business performance with specific timelines are viable green product development strategies (Albino et al., 2012).

Four strategic approaches exist to environmental sustainability under green development (Albino et al., 2012). The approaches involve process-oriented and management-oriented strategies. Process-oriented approaches include eco-efficiency and eco-material efficiency strategies (Albino et al., 2012; López-Gamero, Zaragoza-Saez, Claver- Cortés, & Molina-Azorín, 2011). Eco-material efficiency addresses the reduction of resources and waste in production. Eco-efficiency reduced water, material, and resources use, as well as recycling waste by specific timelines (Albino et al., 2012). Energy efficiency strategies address the reduction of greenhouse gases, energy use, energy efficiency, and renewable energy (Albino et al., 2012). The management-oriented strategies involve implementation of green management and supply chain management (Albino et al., 2012).

Green product development involves sustainable products, environmentally friendly products, sustainable and eco designs, and life cycle assessments (Albino et al.,

2012). Green-chain-supply strategies include environmental standards of suppliers and environmental information sharing with suppliers. Although green development is a potential measure in addressing aspects of environmental challenges, the need exists to focus on controlling endless human consumption of natural resources (Choi & Ng, 2011).

Green Human Resources Training

The adoption of human resources practices that demonstrate respect and concern for employees and their non-work-related commitments potentially motivate employees (Bui & Baruch, 2010). Intrinsic motivation is a tool for employee motivation (Dysvik & Kuvaas, 2010). Inspired employees contribute towards achieving organizational goals (Balakrishnan, Sprinkle, & Williamson, 2011; Bui & Baruch, 2010) Inspiring organizational culture promotes higher employee productivity. Managers need to combine rewards, relationships, and responsibilities to inspire employees. Business managers in small and medium enterprises may experience barriers to environmentally sustainable strategies because it may increase operation cost; however, managerial commitment is essential to the long-term viability of eco-friendly strategies (López-Gamero et al., 2011). Managers need to strike a balance between long- and short-term business interests to develop and affect society positively.

Organizations committed to environmental sustainability devote both physical and human resources to achieving environmental sustainability goals (López-Gamero et al., 2011). A focus on physical and financial resources is important, however, skilled human resources are critical to achieving green environmental management practices (Coelho et

al., 2011; Daily et al., 2012; Kannan, Diabat, Alrefaei, Govindan, & Geng, 2012). Investing in human capital pays off, as the development of human capital enhances competencies, knowledge, and skills (Aree, Zain, & Razalli, 2010; Kannan et al., 2012). Human resources as drivers of any greening organizational activities are critical to implementing green strategies and programs (Renwick, Redman, & Maguire, 2013; Wagner, 2011). Human resources knowledgeable in environmentally sustainable operations are crucial to green product development. Institutions that show higher levels of commitment to green development are able to develop a green product (Albino et al., 2012). The development of human capacity and knowledge base (green human resource) is crucial to achieving organizational, environmental sustainability goals (Teixeira, Jabbour, & Jabbour, 2012).

Environmental training draws attention, which is useful to the global combat against environmental degradation (Teixeira et al., 2012). Knowledge and skills are essential to the transformation of business operations and the advancement of environmental sustainability (Jackson, Renwick, Jabbour, & Muller-Carmen, 2011; Renwick et al., 2013; Teixeira et al., 2012). Green activities, such as the recycling of waste, are an efficient use of resources that require knowledge. Green human resource management provides organizations with the requisite knowledge and skills required to contribute to sustainable development (José & Jabbour, 2013). Upgrading knowledge, skills, and capacity are key to organizational pursuit of innovation and overall performance, in the long term (Jackson et al., 2011).

Managers must use enticing frameworks to retain trained green human resources in order to achieve maximum results, (Dysvik & Kuvaas, 2010). In the absence of enticing frameworks or motivating structures, skilled human resources may seek more rewarding work environments. Intrinsic motivation is a potent indicator of employee turnover as job satisfaction influences employee retention (Dysvik & Kuvaas, 2010). Intrinsic motivation is an indicator of employee turnover as job satisfaction influences employee retention (Dysvik & Kuvaas, 2010).The retention of skilled employees is vital in a specialized field such as environmental sustainability. Organizations need to address factors that affect job satisfaction and reduce employee turnover and dissatisfaction (Balakrishnan et al., 2011; Bui & Baruch, 2010). Developing such an organizational culture promotes the retention of skilled employees and improves productivity (Oraman, Unakıtan, & Selen, 2011). Strategies are needed to improve compliance with mining standards and regulations, the adoption of environmentally friendly business strategies, as well as the training and motivation of green human resources.

Transition and Summary

In Section 1, the discussion included the foundation of the business problem related to identifying best practices for middle managers to drive compliance with EPA regulations in Ghana's mining sector. The section began with an introduction of the study and subsequently a background of the problem. Details in Section 1 included the problem and purpose statements, a general overview of the research questions, the nature of the study, and the limitations and scope of the study.

The literature reviewed included environmental sustainability, mineral mining in Ghana, environmental strategies, responsible corporate behavior, and regulation. The section included the conceptual framework for the study, which is Ajzen's TPB. TPB is a relevant and appropriate conceptual framework for the study on how managers can drive compliance with EPA regulations on mining in Ghana.

Details in Section 2 will include the research method and design of the study. Section 2 will include details on (a) the role, (b) the selection of the participants, (c) population, and (d) sampling method. Section 2 will include (a) data collection, (b) analysis techniques, (c) data reliability, and (d) validity. Section 3 will include (a) details of the findings, (b) emerging themes from the analysis of data, and (c) the syntheses of findings from the study and literature review.

Section 2: The Project

The objective of this qualitative, phenomenological study was to explore how managers can drive compliance with EPA regulations and standards in Ghana's mining sector. Section 2 contains information on the research methodology, techniques, and tools used in the study. The aspects of the research discussed in this section include the (a) research method and design, (b) role of the researcher, (c) potential participants, (d) sampling technique, (f) data collection, and (g) data reliability and validity.

Purpose Statement

The purpose of this qualitative, phenomenological study was to explore how middle managers can drive compliance with EPA regulations and standards. The results of the study may contribute to the development and adoption of best practices for driving environmentally compliant mining operations in Ghana. The geographical location of the study was Ghana with 20 purposively selected middle managers from the mining sector. The selection criteria of participants included job roles, duration of employment in the mining sector, and the perception that they possessed the relevant insight sought in the study (Mantere, 2008; Ogbuagu, 2013; Rouleau & Balogun, 2011; Trotter, 2012).

Findings from the study may contribute to improving business practices by providing insight into the factors that drive EPA compliance in Ghana's mining sector. The results of the study may inform executives of mining companies on the business-related importance of compliance with Ghana's EPA regulations and standards. The potential social benefit of the study includes active compliance with Ghana's EPA

regulations and standards, which may reduce environmental degradation in mining areas in Ghana. As environmental degradation decreases, citizens in mining communities may experience reduced environmentally related health issues, which may decrease mortality and increase quality of life and living standards.

Role of the Researcher

The qualitative researcher serves as the main instrument for data collection (Bulpitt & Martin, 2010; Hanson, Balmer, & Giardino, 2011). My responsibilities included data collection, ensuring the accuracy and integrity of data, and adhering to the guidelines for conducting ethical research at Walden University (Aluwihare-Samaranayake, 2012; Sin, 2010). I reviewed the Belmont Protocol Report and completed a National Institute of Human web-based training course on how to protect human research participants to ensure ethical research (Appendix C).

I obtained permissions from prospective participants and conducted interviews using open-ended questions (Appendix A). My role included analyses and interpretation of the data collected, as well as the maintenance of participants' confidentiality. Participants determined suitable neutral venues for interviews to eliminate factors that may influence their responses during the interviews. A participatory approach helped develop dialogue with participants (Bradbury-Jones, Irvine, & Sambrook, 2010). I worked interactively and proactively with the participants in the collection, analysis, and interpretation of data. As themes and meanings emerged from the dialogue, participants validated that my interpretations and meanings formulated reflected their viewpoints.

The researcher must engage in personal reflection to reduce the risk of personal biases (Tufford & Newman, 2012). A journal of introspective activities enabled me to remain aware of the influence of potential inner biases and feelings on the research. Using semistructured interviews, I collected data and audio-recorded and transcribed interviews (Dworkin, 2012; Medeiros, 2012). No prior relationship existed with the mining sector and participants and I also had no previous knowledge of the work environment. The objective for this study was to explore, identify, and communicate best practices that could contribute to sustainable mining operations in Ghana.

Participants

I established access to the participants through personal and formal networking. Permission from Walden's University Institutional Review Board (IRB) preceded data collection to ensure the protection of participants. A community partner distributed research invitations only to prospective participants on my behalf. The preinterview process began with potential participants receiving introduction and recruitment letters. The recruitment letters included information on the purpose of the study, criteria for selection, data collection process, and benefits of the study. I sent 48 research invitations to prospective participants inviting them to participate in the study (see Appendix G). In all, 23 participants responded. The first 20 participants who had no objections to interviews participated in the study. Prior to participation, all potential participants who agreed to participate in the study signed a consent form (Appendix A). All participants received written notifications about the voluntary nature of participation and their rights

to withdraw from the study at any point in the study. A small sample of experienced middle managers in Ghana's mining sector participated in the study.

Face-to-face interviews proceeded at the convenience of participants. Participants who, however, could not participate in face-to face interviews had the option of telephone interviews, despite the mixed views on the use of telephone interviews (Block & Erskine, 2012; Irvine, 2011; Irvine, Drew, & Sainsbury, 2013; Roulston, 2011). To support the reliability of the telephone interviews, I recorded all telephone interviews and asked participants to validate the transcripts of the interviews. Participants answered questions on how managers may drive compliance with EPA regulations and standards in Ghana's mining sector. Participants participated voluntarily and received no compensation. Participants had the right to withdraw from the study at any time by notifying me personally, by telephone or e-mail, without penalties. The data files will remain secured with a password on a computer and a fireproof safe for a minimum 5 years before shredding of hardcopy data and destruction of digital files.

The study consisted of 20 middle officers from Ghana's mining sector. The selection of participants was purposive, based on the belief that participants possessed the pertinent insights sought in the study (Dworkin, 2012; Lasch et al., 2010; Ogbuagu, 2013; Rouleau & Balogun, 2011). Selected participants (a) worked in middle management, (b) had worked in the middle management position for at least a year, and (c) and had extensive knowledge about mineral mining operations and EPA regulations and standards in Ghana. Participants worked in production, regulatory, compliance, operations, and

project management positions. I was the only one who had access to data collected to protect the confidentiality of participants, organizations, and links that identified participants in the study (Marshall & Rossman, 2011). In compliance with sample sizes in qualitative studies, a small sample size of 20 participants participated in the study (Englander, 2012; Francis et al., 2010; Hanson et al., 2011; Mason, 2010). To ensure saturation, a sample size ranging from 15-20 participants is adequate in qualitative studies (Francis et al., 2010; Hanson et al., 2011). The study participants consisted of 20 middle managers with experience in the phenomenon (Lasch et al., 2010; Ogbuagu 2013; Rouleau & Balogun, 2011; Trotter, 2012).

Research Method and Design

The objective of this qualitative research was to explore the perspectives of middle managers on how to promote employee compliance in the mining sector. Considering the study objective, a qualitative research method was the most suitable method to collect and interpret data on the phenomenon of employee compliance (Ihantola & Kihn, 2011; Szyjka, 2012; Upjohn et al., 2013). A phenomenological design was appropriate for describing in detail participants' lived experiences (Anosike et al., 2012).

Method

Three primary research methods available to researchers are qualitative, quantitative, and mixed research methods (Ihantola & Kihn, 2011). Qualitative research is appropriate for the researcher whose objective is to explore and understand the

meaning that individuals or groups give to a social or human problem (Upjohn et al., 2013). Data collection in qualitative research is through interviews, participant observation, and documents. The quantitative researcher gathers numeric data to test theories and explain a phenomenon; a mixed method researcher uses the advantages of both qualitative and quantitative research methods (Lunde et al, 2013; Sinkovics & Alfoldi, 2012; Upjohn et al., 2013).

I chose the qualitative research method for the study because the approach was most appropriate in achieving the objective of the study. The intent was to explore how managers could promote employees' compliance with Ghana's EPA regulations and standards on mining (Sinkovics & Alfoldi, 2012; Szyjka, 2012; Upjohn et al., 2013). The qualitative research method was beneficial to the study because participants provided a broader and deeper perspective on how to enhance employee compliance with mining regulations and standards in Ghana (Petty et al., 2012). Qualitative research is an effective tool for the in-depth study of a social problem in a bounded system where the researcher has no control (Upjohn et al., 2013). Quantitative and mixed research methods were not research options because the purpose of the study was to develop insights, rather than gather numeric data, to explain phenomena (Lunde et al., 2013; Petty et al., 2012; Sinkovics & Alfoldi, 2012).

Research Design

Five qualitative research designs are available to a qualitative researcher (Morley, 2012). Ethnography involves seeking an understanding of the culture of people in their

natural setting. Grounded theory is appropriate when the researcher seeks to explain phenomena through the consistent comparison of data for similarities and variations (Morley, 2012). Phenomenological research involves the study of lived or business experiences of subjects through extensive interaction (Anosike et al., 2012). Narrative research is a collaborative study where the researcher and the participant fuse their views to construct a narrative (Morley, 2012). In the case study research design, the researcher has the flexibility to explore, describe, and analyze in-depth an activity, process, individual, or a bounded system (Amerson, 2011; Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mantymaki, 2011).

A phenomenological study approach was the most suitable design for the study because the objective was to explore and describe lived experiences, as well as, shared meanings of participants' experiences (Anosike et al., 2012; Chenail, Cooper, &Desir, 2010; Tufford & Newman, 2012). I eliminated case study, narrative, ethnography, and grounded theory designs because the study was about lived experiences. Ethnographic studies focus on shared cultural experiences; however, the objective of the study did not involve exploring the culture of people (Morley, 2012; Robinson, 2013; Szyjka, 2012; Upjohn et al., 2013). A case study design was not an option because no need remained to explore, describe, and analyze in-depth an activity or process in a bounded system (Amerson, 2011). Grounded theory was not appropriate for the study because the study did not involve advancing a theory (Morley, 2012). The narrative study approach was not suitable because the aim of the study did not involve collaboration with participants to

fuse their views in a narrative (McNamara, 2011; Morley, 2012).

Phenomenological studies are useful to researchers who seek to understand and grasp the meaning of lived experiences (Tufford & Newman, 2012). In phenomenological studies, scholars focus on the experiences and interpretations participants ascribe to the experiences (Flood, 2010). Phenomenology is a philosophy and research methodology that is used to explore the shared meanings of individuals,' experiences (Anosike et al., 2012).

Population and Sampling

Sampling in qualitative studies must remain pragmatic and flexible as the selection of participants creates the foundation for data gathering (Englander, 2012). The target population for the study was middle management officials from Ghana's mining sector. Responses from the target population provided insight into how managers could drive compliance with EPA regulations and standards in Ghana's mining sector. I selected middle management employees because they interact with both senior management and junior officers and, as such, develop insight into organizational operations related to both strategy and implementation (Mantere, 2008; Rouleau & Balogun, 2011).

In qualitative studies, sample sizes are small and reflective of the segment under study (Bleijenberg, Korzilius, & Verschuren, 2011; Lucas, 2013). Qualitative researchers must determine sample sizes based on the purpose of the study, the assessment of the diversity, and amount of information needed for the research (Francis et al., 2010). In

phenomenological studies, smaller but adequate sample sizes are necessary for data saturation (Lasch et al., 2010). Data saturation in qualitative studies ranges from 15-20 participants (Hanson et al., 2011; Lasch et al., 2010; Mason, 2010). Walden University recommends at least 20 participants for a phenomenological study. A purposive sample of 20 middle managers in Ghana's mining sector participated in the study. Purposive sampling is a suitable and effective tool for a qualitative examination of the small groups of participants in a study (Mason, 2010).

By using purposive sampling, I selected participants based on unique characteristics in relation to the matter under study (Lucas, 2013; Petty et al., 2012; Trotter, 2012). The selected sample reflected a diverse mix of experienced middle managers in Ghana's mining sector. The targeted population was middle managers in the mining sector, as they possessed the pertinent insights sought in this study (Dworkin, 2012; Lucas, 2013; Petty et al., 2012). The criteria for participant selection included functioning in middle management position for at least a year and having extensive knowledge about environmental regulations, compliance, and operations in the mining sector. An additional criterion was that participants should consent voluntarily to participate in the research by signing the Informed Consent Form. Interviews with participants took place at convenient and neutral venues.

Ethical Research

Confidentiality, informed consent, and risks are ethical concerns related to human research. In response to these ethical concerns, data collection began after approval from

the Walden University IRB (Walden University IRB approval #07-02-14-0292933). A community partner helped distribute research invitations only to prospective participants; thereafter, I wrote to introduce myself and seek permission and approval first from potential participants before conducting interviews with participants.

Prior to interviews, I informed participants that participation was voluntary, and they may withdraw from the study at any time. Preinterview sessions included notifying participants of the possibility of publishing the completed study. The first 20 participants who met the inclusion criteria and indicated their willingness to participate in the study completed consent forms. No participant name appeared in the consent or interview forms. All participants participated voluntarily and received no compensation. Participants had the right to withdraw from the study at any time by notifying me personally, by telephone or e-mail without penalties (Aluwihare-Samaranayake, 2012; Cohn, Jia, Smith, Erwin, & Larson, 2011; Gibson, Benson, & Brand, 2013; Horner & Minifie, 2010).

I sought the consent of participants to audio record interviews, and in the absence of participant's consent, took comprehensive notes on the interview. Individual responses and identities of participants remained anonymous (Aluwihare-Samaranayake, 2012; Gibson et al., 2013; Horner & Minifie, 2010). Participants did not receive incentives for participation in the study.

The credibility and reliability of the study are essential (Wisdom, Cavaleri, Onwuegbuzie, & Green, 2012). The research design reflected the procedures and

processes necessary for the IRB approval. I will store and secure participants' data with passwords on a computer and a fireproof safe for a minimum of 5 years before shredding of hardcopies and permanently deleting digital files.

Data Collection

Instruments

The primary instrument for data collection was the semistructured telephone and face-to face interviews. Focus meetings, participant observation, interviews, action research are different methods of data collection available to the qualitative researcher (Szyjka, 2012). The most suitable data collection method for the study was interviews because, the method involved direct contact with participants, which promoted a thorough phenomenological exploration (Szyjka, 2012). I interviewed participants in convenient neutral venues after they had completed the consent forms. Participants answered open-ended questions on how managers could promote compliance with EPA regulations and standards in Ghana's mining sector. Data collection involved the role of regulation, key business drivers for compliance with EPA regulations, and advantages of compliance with EPA regulations in Ghana. Participants who were not physically available opted for telephone interviews. Although social researchers are gradually considering e-mail interviews as a viable and beneficial option, e-mail threads were not options in this study (Block & Erskine, 2012; Brondani, MacEntee, & O'Connor, 2011). Interviews lasted between 45 minutes to one hour.

Using the interview questions in Appendix B, I conducted semistructured

interviews with participants. The open-ended questions allowed the participants to provide detailed responses. The purpose of the interview was to explore and describe how managers could drive compliance with EPA mining regulations and standards. An expert panel reviewed the interview questions to assess the reliability and validity of the interview questions and the interview process. The panel found no need for addition or deletion of questions. The first step entailed eight interview questions (Appendix B). In the second step, two individuals with extensive knowledge in the Ghana's mining sector reviewed the questions and found them suitable for the study. The third step involved using the first two steps to test the effectiveness of the interview questions and process for data collection on how managers could drive compliance with EPA mining regulations and standards in Ghana.

Interviews commenced when participants met the set criteria for participation and signed the consent forms. Participants received written commitments on confidentiality and noncoercion. Interviews took place in neutral environments conducive for participants to facilitate honest communication. The interviews lasted between 45 minutes to 1 hour. Participants responded to open-ended, nonleading, and probing questions. I transcribed verbatim audio recordings and notes from the interview sessions (Gordon, 2012; Tessier, 2012). To form a holistic interpretation of the data, participants validated emerging themes, and meanings (Mero-Jaffe, 2011; Qu & Dumay, 2011). Modifications and expansion to initial data interpretations ensured reliability and validity

of interpretations (Qu & Dumay, 2011). The recordings and transcripts of interviews will remain available by request from participants.

Data Collection Technique

An expert panel review of interview questions followed IRB approval to refine the interview questions. The review panel found the interview questions appropriate for the study. A copy of the interview questions for the data collection phase is in Appendix B data collection involved interviews with participants. Each prospective participant received a recruitment e-mail (Appendix F) stating the purpose of the study, criteria for participation, data collection processes, and contact details. Data collection involved the use of semistructured interviews and open-ended questions.

An advantage of the chosen data collection technique was that participants' were able to reveal broad perspectives and increase understanding of the business drivers for compliance. Participants' responses provided broad insight because of the non-restrictive nature of open-ended interview questions. The time consuming nature and dependency on participant's attitude are disadvantages associated with the data collection technique; however, the technique was useful in providing direction to the discussion and leaving the dialogues open to exploration (Medeiros, 2012) I scheduled appointments to describe and conduct interviews. Preinterview meetings with participants included a review of the questions developed for the interview process. Participant interviews followed pre-interview meetings and receipt of consent forms. The interview questions remained concise, brief, and open-ended. During the interview, participants answered initial

questions, after which subsequent questions followed to clarify or to provide further insight. Participants addressed each question uninterrupted to uncover participants' viewpoints, as well as previously unforeseen details.

I coded notes and audio recordings of interviews to maintain the participants' anonymity. Participants reviewed transcript of the interviews for validation. The checking of interview questions and sessions against the objective of study ensured consistency and data credibility (Fischer, 2009).

Data Organization Techniques

Data organization began after transcribing the interview responses. Labeling the audio files and transcripts helped ensure identification of information (Ritholz et al., 2011). Steps towards data preservation included backing up files on hard drives. A journal of introspective activities enabled me to remain aware of the influence of potential inner biases and feelings on the research (Aluwihare-Samaranayake, 2012; Sin, 2010; Tufford, 2012). I kept a journal of the interview process and created an Excel workbook with three sections to record data collected (Ritholz et al., 2011). The sections contained interview data and transcriptions, narratives, and field notes. A filing system with dates facilitated tracking data organization. The data organization process entailed recording each participant's interview and labeling each interview by date and place of interview. Recorded interviews bore letters such as *Participant C* in place of participant names. Recorded interviews bore letters from A to T.

Data files will remain secured with passwords on a computer and fire proof safe

for 5 years. No one had access to the protected data files as I transcribed and coded the audio recordings and notes by myself. Secured data files will remain for a minimum of 5 years before formatting and destruction.

Data Analysis Technique

I sought the perspectives of middle managers in Ghana's mining sector to address the main research question: How can managers drive employee compliance with EPA regulations and standards (AKOBEN) in Ghana's mining sector? The following interview questions guided data collection. The following interview questions complemented the central question.

Interview Questions

1. What is the business-related importance of compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector?
2. What are the three key business benefits of compliance with EPA regulations and standards (AKOBEN rating)?
3. What are the three key factors, which promote employee compliance with EPA regulations and standards in the mining sector?
4. How is employee compliance with EPA regulations and standards assessed?
5. What are the three main standard procedures and practices, which you have used to ensure employee compliance with EPA regulations and standards in the mining sector?

6. What is the role of organizational culture in driving employee compliance with EPA regulations and standards?
7. What incentive framework is available to promote employee compliance with EPA regulations and standards for mining in Ghana?
8. What are the key obstacles to complying with EPA regulations in mining operations?

Asking in-depth-interview questions helped address the main research question. I used Interviews questions (IQs) 1-2 to explore the business importance of compliance with EPA regulations and standards for Ghana's mining sector through. IQs 3-7 pertained to the factors as well as the systems, which promote employee compliance. IQ 8 helped explore obstacles to compliance with EPA regulations in mining operations. I gathered information from responses of 20 participants to the eight interview questions.

Qualitative data-analysis requires processes such as condensing data into themes, coding into categories information from data collected, as well as verifying themes until data saturation (Lasch et al., 2010). The process of data analyses followed an inductive multistep procedure for qualitative analysis and interpretation. Participatory analysis and interpretation is an interactive form of feedback and reflection that moves back and forth between the understanding of the researcher and the reality of participants (Bradbury-Jones et al., 2010). I converted all recorded interviews into textual form, record, and transcribe for analysis and coding. The first step in the process included participants reviewing the written transcriptions from the recorded interviews and journal notes to

validate the accuracy of the transcription. Based on feedback from participants on the initial transcripts, modifications occurred (Bradbury-Jones et al., 2010).

The second step involved a review of transcripts of the interviews to gain an understanding of the responses (Hammersley, 2010). The step required considerable time to gain a detailed understanding of the data (Hanson et al., 2011; Smith & Firth, 2011). The third step involved the extraction and highlighting of relevant key statements and phrases from the data collected (Smith & Firth, 2011). At this stage, I used Microsoft Excel 2010 to capture key statements and quotes for future reference. Microsoft Excel 2010 was appropriate for the study because it is a useful, easy, and cost-effective software tool to analyze data.

The fourth step involved creating meanings from participant responses. Interpretation included the meanings of participant responses that connect with the emerging data. The fifth step entailed clustering shared meanings from participants into themes and codes. Extracting keywords and meaningful statements for further comparison and analysis involved the use color codes (Gibbs & Taylor, 2010, para. 1). I clustered emerging themes and meanings from the data with the aid of the Excel workbook. The coding system helped me to identify recurring themes throughout the data and groups. Extraction and clustering of data to the point at which no new patterns emerged was to ensure theme saturation (O'Reilly & Parker, 2013).

The sixth step involved linking themes to develop a clear description of the phenomenon. By clustering, the connected themes insight of the phenomenon developed

regarding how managers can drive employee compliance with EPA regulations and standards in Ghana's mining sector. The seventh and final step involved presenting, interpreting, and incorporating findings from the analysis. The step included the comparison of findings to the research question for consistency. The step included determining how the data related to the research question and conceptual framework of the study. The control beliefs aspect of Ajzen's (1991) TPB relates to the presence of factors that promote or hinder performance of behavior. The analysis of data collected provided insight into factors and practices that were necessary to promote compliance, as well as elements which support noncompliance behavior (Ajzen, 1991). The final write-up contained a discussion of the wider implications of the findings for both business and social change (Chenail et al., 2010).

Reliability and Validity

Reliability

The reliability and validity of research findings are important (Sin, 2010; Tracy, 2010; Wisdom et al., 2012). Interview-based research raises reliability concerns of interviewer biases (Block & Erskine, 2012; Roulston, 2011). Reliability involves using data collection and analysis procedures, which, when replicated by other researchers, will result in similar findings (Ali &Yusof, 2011; Anderson, 2010). I ensured reliability in the study through member checking, triangulation, and by providing a detailed description of data collection and analysis procedures (Ali &Yusof, 2011; Barusch, Gringeri, & George, 2011; Szyjka, 2012). A copy of a developed interview protocol is in Appendix E.

In qualitative studies steps to ensure credibility, transferability, and dependability include triangulation, member checking, and rich, thick description and confirmability (Wisdom et al., 2012). I ensured reliability of the study by providing a detailed description of the data collection instrument, processes, techniques, and processes for data coding, analysis, and interpretation. By providing a detailed write-up on procedures and tools used, I established a clear audit trail for other researchers exploring the same phenomena (Ali & Yusof, 2011).

Another strategy I employed to ensure reliability was to record interviews for the purpose of word-for-word transcription of interviews and participant transcript review. Participants checked interview transcripts and data interpretation to ensure dependability and credibility of the study (Nicola, Oliver, & Graham, 2012). Tape recording interviews and maintaining field notes during data collection and analysis ensured accuracy in data collection and reliability (Hanson et al., 2011; Szyjka, 2012).

The focus of qualitative studies is to develop insight than generalizability as such external validity does not apply to this study (Nicola et al., 2012). Qualitative researchers establish credibility, transferability, confirmability, and dependability by using triangulation, member checking, and rich, thick description (Wisdom et al., 2012; Trotter, 2012). I established credibility, confirmability, transferability and dependability of the study through triangulation, member checking, and rich, thick description (Wisdom et al., 2012; Trotter, 2012).

I achieved triangulation by using various data sources such as interviews, recordings, and field notes to check and establish validity (Szyjka, 2012). Participants checked transcripts and data interpretation for possible errors in transcription, data interpretation, and code inconsistencies (Beverland & Lindgreen, 2010; Mero-Jaffe, 2011; Street & Ward, 2012; Wisdom et al., 2012). Participants reviewed themes, descriptions, and analyses to determine the accuracy and credibility of details, themes, and interpretation (Beverland & Lindgreen, 2010; Mero-Jaffe, 2011; Street & Ward, 2012).

Despite the drawbacks associated with member checking, the process brings validity and credibility to the interpretation process:

1. Enabled participants to correct and challenge misrepresentations and misinterpretations.
2. Reduced the possibility of participants' claims that the researcher misunderstood their information.
3. Provided opportunities to clarify what certain information meant.
4. Allowed further information gathering.
5. Allowed participants the opportunity to confirm the accuracy of data.
6. Enabled participants help shape research summary and conclusions.
7. Furthermore, continued feedback produced additional data for integration into conclusions of the study.

Transferability of study findings is critical to qualitative researchers (Marshall & Rossman, 2011). Qualitative researchers can focus on transferability by providing rich descriptions of the populations studied, the demographics, and geographic boundaries of the studies (Thomas & Magilvy, 2011). I provided detailed descriptions of the sample population, geographic boundaries, the context for data collection, and study findings to ensure confirmability and transferability. The rich descriptions may provide information for readers from other mining sectors subject to analogous regulations to determine the transferability of findings and conclusions of the study. Extraction and clustering of data continued to the point at, which no new patterns emerged to ensure data saturation (Hanson et al., 2011; Lasch et al., 2010).

I obtained an independent assessment of the transferability of the study findings by using an expert panel. No need remained for a pilot study; however an expert panel reviewed and commented on the accuracy and trustworthiness of the draft study findings. The expert review panel only assessed study findings and did not have access to collected data and participant information.

Transition and Summary

The objective in Section 2 was to provide details on the research methodology and rationale. The study involved interviews of 20 middle managers in Ghana's mining sector. I explored interview data to determine how managers can drive employee compliance with EPA regulations and standards in Ghana's mining sector. Section 3 includes discussions on the findings, emerging themes from the analysis of data, and the

syntheses of findings from the study and literature review. The section concludes with business and social implications, as well as, the possible areas for future studies.

Section 3: Application to Professional Practice and Implications for Change

This section contains a presentation of findings gathered from an analysis of data collected from face-to face, telephone, and open-ended semistructured interviews with middle managers in Ghana's mining sector. The results from participants' responses provided an in-depth understanding of the phenomenon of driving compliance with EPA regulations in Ghana's mining sector.

Overview of Study

The purpose of this phenomenological, qualitative study was to explore and describe business drivers for employee compliance with environmental regulations in Ghana's mining sector. The criteria for selecting participants included (a) position in middle management, (b) minimum of a year's experience in the middle management position, and (c) extensive knowledge about mineral mining operations and EPA regulations and standards in Ghana. Through the interview questions, I explored participants' perceptions on the business importance of complying with environmental regulations and standards, as well as the business benefits of employee compliance with regulations. Other questions involved the factors that drove or obstructed employee compliance with environmental regulations and standards in Ghana's mining sector.

Three major themes emerged from combining similar codes. The three themes included (a) business benefits of compliance, (b) factors that promote employee compliance, and (c) obstacles to compliance. Interview Questions 1 and 2 involved the exploration of the business importance and benefits of compliance with EPA regulations

and standards for Ghana's mining sector. Interview Questions 3-7 were used to explore the factors that promoted employee compliance.

Through Interview Question 8, I explored obstacles to compliance in the mining sector. Overall, participants revealed a convergent understanding of driving compliance with EPA regulations and standards in Ghana's mining sector. All participants acknowledged that driving employee compliance was necessary for business continuity.

Presentation of the Findings

The central question was the following: How can managers drive employee compliance with EPA regulations and standards (AKOBEN ratings) in Ghana's mining sector? Through the interview questions, I sought to address the central research question by exploring the experiences of middle managers in Ghana's mining sector and the meanings attributed to their experiences. A purposive sample of 20 middle managers participated in interviews to provide insights pertinent to the central research question. Participants provided insight on the business importance and benefits of compliance with environmental regulations and standards first, followed by factors that promote or obstruct employee compliance in the mining sector. The presentation includes emerging themes from the analyses of data collected.

Business Benefits of Compliance with Environmental Regulations and Standards

Understanding the business importance and benefits of compliance with EPA regulations and standards is key to compliant behavior (Azjen, 1991; Manzini et al., 2011). In the first two questions, I explored the business importance and benefits in

compliance with environmental regulations and standards in Ghana's mining sector. Interview Question 1 pertained to the business importance of compliance with EPA regulations and standards. Interview Question 2 pertained to the description of the business benefits of compliance with environmental regulations in Ghana's mining sector. From participants' responses, the following themes emerged to describe participants' perceived business importance and benefits of compliance with environmental regulations and standards in Ghana's mining sector:

- Business continuity and sustainability
- Enhancement of corporate image
- Financial benefits
- Governmental and social license to operate
- Employee health and safety
- Business practices improvement

Business continuity and sustainability. Participants (85%) linked the importance of compliance with environmental regulations and standards to business continuity. Compliance with environmental regulations helps reduce the adverse effects of mining operations. The participants indicated a connection between compliance with EPA regulations and business continuity. Observing environmental regulations eliminates adverse effects such as (a) community agitations, (b) regulatory penalties, and (c) withdrawal of governmental permits and social license to operate (Prno & Slocombe,

2012). Participant E stated, “Compliance with EPA regulations and standards ensures smooth-business operations.” Participant C made a similar claim,

> Compliance with EPA regulations ensures business sustainability and the likelihood of future mining concessions in other areas. Violations of environmental regulations endanger the likelihood of future mining concessions as stakeholders such as regulators and community leaders investigate records of mining companies for environmental conduct.

Participant A asserted, “Compliance with EPA regulations and standards allows for smooth running of the mining business because once there is compliance, mining operations run without interruptions.” Participant E expressed a similar view, stating “Compliance with EPA regulations and standards ensures smooth-business operations”.

Enhancement of corporate image. I found enhanced corporate reputation as a benefit of environmentally responsible business operations. Positive corporate image has a direct influence on governmental support and social license to operate (Prno & Slocombe, 2012; Russo & Perrini, 2010). All participants recognized the business importance and benefits of compliance with environmental regulations and standards in Ghana’s mining sector. Participants (90%) connected compliance with environmental regulations and standards to enhancing corporate image of mining companies. Participant E stated, “Another benefit of compliance with EPA regulations and standards includes good corporate image on the local, national, and international level as both local and international auditors assess multinational mining companies.” Participant C stated,

"Compliance with EPA regulations and standards improves corporate image…Bad corporate image of mining companies adversely impacts their ability to acquire more mining concessions or land resources." Participant S indicated, "Improvement of corporate image is a business benefit of compliance with EPA regulations and standards." Participant G added, "Compliance with EPA regulations and standards serves to improve corporate image and stakeholder relationship."

Financial benefits. Business leaders may not find issues of compliance with regulations and environmentally sustainability attractive because they do not perceive financial benefits (Quairel- Lanoizelee, 2011)**.** Failure to pursue environmentally responsible business operations, however, may result in financial loss to the organization (Russo & Perrini, 2010). The perception that compliance with EPA regulations and standards in Ghana's mining sector provided financial gains resonated in participants' responses. All participants linked compliance with EPA regulations and standards to company finances. Participants' views on the financial importance of compliance with EPA regulations and standards ranged from the savings on the cost of fines, halting production, and investor relations. Participants (70%) expressed that compliance with EPA regulations and standards saved mining companies financial cost. The perception of 70% of participants was that compliance eliminated the cost of penalties. Participant G expressed, "Complying with EPA regulations is of financial importance because it (Compliance) eliminates incidents of fines and penalties for noncompliance…Compliance has financial benefits." Participant P indicated, "When a company violates mining regulations in a

location, part of the sanctions include halting production and moving equipment from work site until the violations have been rectified. For the days that production halts, the company loses financially."

The participants (40%) indicated that compliance with EPA regulations facilitated investor interest in the mining. Study participants asserted that compliance with EPA regulations and standards improved company share values on local and international stock markets. Participants expressed that investors avoid or withdraw from mining companies that have regulatory problems, poor corporate image, and negative media coverage business. Participant F indicated, "Some benefits of compliance with EPA regulations include improving share values on the local and international stock exchanges." Participants K added, "Compliance with environmental regulations and standards has a ripple effect. Compliance helps build good corporate image; a good corporate image enhances the trust relationship between banks and mining companies. The good relationship also improves accessibility to financial instruments." Participant F asserted," Compliance with regulations enhances bank trust and accessibility to bank loans, and better insurance premium facilities."

Governmental and social licenses to operate. Significant consequences of permit and license withdrawal necessitate cordial relationships with key stakeholders, such as government and society to ensure business continuity (Aaltonen & Kujala, 2010; Mutti et al., 2012; Neville et al., 2011). A majority of the participants viewed compliance with EPA regulations and standards as a requirement for the continuation of government

permits and social license to operate. Participants (90%) perceived that compliance was the main behavior that validated governmental and social license to operate. Compliance with EPA regulations prevents withdrawal of legal and social permits to operate. Participant F advanced, “Compliance with EPA regulations and standards provides rapport with the community, as well as, governmental and social license to operate.” Participant K asserted, “Another advantage of compliance is the social license to operate in the community and the legal backing or permit for business operation.” Participant B stated, “The third benefit of compliance is that it (compliance) helps avoid legal issues with regulatory bodies.” Participant L added, “Compliance with EPA regulations prevents withdrawal of legal permits to operate.” Participant S indicated that compliance with EPA regulations prevents regulatory sanctions. Participant H added that compliance eliminates community agitation and conflicts. Participant O emphasized, “Compliance with EPA regulations and standards established cordial relationship between companies and host communities.” Regardless of company size or location, participants described compliance with EPA regulations and standards as key to governmental permits and social license to operate in the mining sector of Ghana. Governmental permits and social license to operate are essential to the mining business (Prno & Slocombe, 2012). Withdrawal of permits or social license to operate in the mining sector can adversely influence company finances (Prno & Slocombe, 2012; Russo & Perrini, 2010).

Employee health and safety. Participants (30%) perceived employee health and safety as a business benefit of compliance with EPA regulations and standards.

Participants considered compliance with regulations and standards as a means of protecting employee health and safety, as well as improving working conditions. Participants (30%) expressed that protecting employee health and safety safeguards business investment. The views of participants were that compliance with EPA regulations and standards also created safe working conditions in the mines. Participant I indicated, “Employee recruitment and training is expensive, what is the use of training your employees, and poor health conditions keep them away from work, because sick people cannot work?” Participant H indicated,

> Compliance with environmental regulations and standards employees and community members are both exposed to the health hazard of non-compliance. Dust and noise pollution affects all living things in and around mining sites. Leakages and traces of untreated mining chemicals into water bodies in communities adversely affect people. Cracks in building (over pressure) resulting from the blasts in the mines can affect anybody in the community.

Improved business practice. Participants indicated that compliance with EPA regulations and standards improved business practice. The perception of the minority group of the participants (20 %) was that compliance with EPA regulations improved business practice as employees needed to satisfy the requirements stated in the regulations and standards. Participant B indicated, “Compliance with EPA regulations and standards improves business practices, and mining operations, for instance, re-vegetation of land after use is emphasized in the standards as such, reclamation of land

through re-vegetation has become an integral part of mining operations." Participants (15%) viewed the improvement in business practice in terms of improved reclamation practices and innovation. Participant K asserted, "Compliance with environmental regulations and standards improves administrative competencies." Another participant added,

> Before AKOBEN, there was nothing like an oil separator in my company. As a result oil easily mixed with water and could leak into nearby streams but with the advent of AKOBEN, we have developed a system to better control oil and sediments in general.

The theme on business importance and benefits coincides with the literature on sustainability and environmentally responsible corporate behaviors. Contrary to the perception that compliance with environmental regulations increase expenditure, benefits, such as good corporate image and improved investor interest exist for companies that adopt environmentally sustainable strategies (Quairel- Lanoizelee, 2011; Russo & Perrini, 2010). Sustainable business development requires balancing economic, environmental, and social elements (Moldan et al., 2012). Compliance with EPA regulations and standards ensures business continuity through the continuation of governmental permits and social license to operate (Prno & Slocombe, 2012).

Factors that Promote Employee Compliance

A number of factors promote or hinder the performance of a behavior (Ajzen, 1991). Compliance with EPA regulations and standards is mandatory and requires the

coordination of factors that drive compliance (Prno & Slocombe, 2012). The general perception of participants was the presence of requisite factors to promote employee compliance. I was able to explore and understand participants' perspective on factors that promote employee compliance through Interview Questions 3, 4, 5, 6, and 7. I used Interview Question 3 to explore the three key factors that promote employee compliance within the mining sector. The participants provided responses to interview question 4 that addressed how participants assessed employee compliance with EPA regulations and standards. In response to Question 5, participants indicated three main procedures or practices, which they used to ensure employee compliance with EPA regulations and standards. I addressed the role of organizational culture in promoting employee compliance with EPA regulations and standards through interview question 6. Participants' responses to Interview Question 7 addressed the incentive frameworks that promote employee compliance with EPA regulations and standards. From participants' responses, the following themes emerged to describe practitioners' experiences of factors that promote employee compliance in Ghana's mining sector.

- Audits and supervision
- Awareness creation and training
- Alignment of company policies with EPA regulations
- Corporate image
- Reward framework
- Organizational culture

Audits and supervision. The participants pointed to supervision and inspections of employee activities and work areas as critical to employee compliance with EPA regulations and standards. Participants (85%) expressed that checks on employee activities to determine alignment with company procedures and regulatory requirements promoted compliance. Participants viewed audits as essential to compliance with environmental regulations and standards. Participant G emphasized, "What gets checked is what gets done." Participant O indicated, "Encouraging internal audits across departments in mining companies drive employee compliance."

Participants (85%) viewed supervision, monitoring, and scheduled audits as essential to promoting employee compliance. Periodical reports on employees' compliance to management helps identify and rectify noncompliant behaviors. Scheduled or random in-house mock assessments to determine employee compliance and competence help promote compliance with EPA regulations and standards in Ghana's mining sector. Participant B stated,

> Monitoring and evaluation reports are other means to assess employee compliance. For instance, noise levels (vibrations) are monitored to determine whether employees are complying with noise level standards. Again, monitoring wells record chemicals in use to ensure that they (chemicals) do not exceed national and international standards.

Awareness creation and training. Environmentally responsible practices, such as waste management, reclamation activities, and efficient use of resources require

knowledge (Albino et al., 2012). Upgrading knowledge, skills, and capacity is key to organizational pursuit of innovation and overall performance, in the long term (Jackson et al., 2011). Participants (80%) perceived employee training and awareness creation as crucial to promoting employee compliance with EPA regulations and standards. Participants indicated that environmental awareness programs in mining companies promote employee compliance. Participant B asserted, "Environmental awareness creation by the mining companies promotes employee compliance with EPA regulations and standards." Participant J indicated,

> Getting people to understand why EPA regulations and standards must be complied with and the implications of their actions on the corporate image, employees and community members promote compliance. For example, explaining to employees that when hydrocarbons end up in the soil, its (chemical) effect cannot be reversed promptly promotes employee adherence to EPA regulations and standards.

Mandatory inclusion of challenging areas in reports ensures employee compliance with EPA regulations. Training employees to handle spillages, surface runoffs, waste segregation, and general housekeeping issues is key to promoting employee compliance with environmental regulations and standards in Ghana's mining sector.

Safety and environmental training equip employees with knowledge, which promotes compliance with EPA regulations and promotes a sense of responsibility (Coelho et al., 2011; Teixeira et al., 2012). Commitment to environmentally responsible

production requires skilled human resources (Coelho et al., 2011; Daily et al., 2012; Kannan et al., 2012). Development of human capacity and knowledge base (green human resource) is crucial to achieving environmentally responsible goals (Jackson et al., 2011; Renwick et al., 2013; Teixeira et al., 2012).

Alignment of company policies with EPA regulations and standards. A small group of participants (25%) emphasized the alignment of company policies with EPA regulations as a factor that promotes employee compliance. Participants (15%) indicated that clarity in the regulatory requirements facilitates compliance with the regulations in question**.** Participant G stated, “Again, company policies, which align with EPA regulations promote employee compliance.” Participant P reiterated, “Aligning Company operating procedures and practices to EPA requirements ensures employee compliance.” Participant D added, “Posting of signage to inform personnel about regulations and standards contributes to employee compliance. “ Participant T asserted, “Strict adherence to company policies, which align with EPA regulations, promote employee compliance with environmental regulations and standards."

Corporate image. In exploring factors that promote employee compliance, 55% of the participants supported the perception that the need to maintain or improve corporate image drive employees to comply with EPA regulations and standards. Participant S stated, “Peaceful coexistence with members of host community, as well as, regulators is essential for good corporate image.**”** Participant E indicated, “It is always a good idea to be in the best books of the community, and you cannot achieve that by

violating environmental regulations and standards." Participant K reiterated, "In mining, you aim for new reserves, and stakeholders, especially community leaders will always check the company's environmental compliance records on previous work areas. Corporate image is critical in mining operations."

Incentive framework. Majority of participants (85%) supported incentive framework as a factor that promotes employee compliance with EPA regulations and standards. The views on incentive framework included tying employee bonus to compliance with EPA regulations, providing days off for employees with outstanding compliance records, and publicizing the names and pictures of individuals and departments of compliance champions in all work areas (housekeeping champions). Recognizing employees and departments with distinguished records on compliance emerged as an incentive to employee compliance with EPA regulations and standards. Other participants pointed to punishing or shaming employees or departments that performed poorly in compliance with EPA regulations and standards to serve as a deterrent to other employees. Participants (45%) suggested tying employee bonus to compliance with EPA regulations in Ghana's mining sector as a factor that promotes compliance. Participants (10%) suggested monetary incentives. Participants (15%) advanced that random checks on employees and work areas can inspire employee to comply with regulations. Inspired employees contribute towards achieving organizational goals and compliance (Balakrishnan et al., 2011; Bui & Baruch, 2010). In the absence of enticing frameworks or motivating structures, skilled human resources may seek more

rewarding work environments. The retention of skilled employees is vital in a specialized field such as environmental sustainability. The participants indicated that effective incentive frameworks promote employee compliance. Commitment to environmentally responsible production requires skilled human resources (Coelho et al., 2011; Daily et al., 2012; Kannan et al., 2012).

Organizational culture. An organizational culture that promotes shared values and responsibilities is instrumental in achieving organizational goals (Rijke et al., 2012). Leaders can drive responsible environmental operations through organizational culture (Warrick, 2011). Organizational cultures that promote employee awareness of environmental compliance can help drive employee compliance with EPA regulations. All respondents indicated that the organizational culture of companies contributed significantly to employee compliance with EPA regulations and standards. Participants (95%) emphasized those organizations with environmentally responsible work culture promoted employee compliance with environmental regulations and standards. Participants indicated that some mining companies with environmental cultures link employee bonus with compliance with EPA regulations and standards. Participant F stated,

> Organizational culture is critical to employee compliance with EPA regulations and standards. Strong organizational cultures that are environmentally responsible drive employees to comply with EPA regulations and standards. Some mining

leaders connect employee bonus to key performance indicators, which include compliance with EPA regulations to promote employee compliance.

Participants G and T added that when the organizational culture supports compliance with regulations or clean culture, employees are hesitant to be the odd ones out and are compelled to comply with the regulations and standards.

Organizational culture relates to literature on incentive frameworks, training, and mechanisms that trigger environmentally responsible business operations. The participants indicated that effective incentive frameworks promote employee compliance. Inspired employees contribute towards achieving organizational goals (Balakrishnan et al., 2011; Bui & Baruch, 2010).

Obstacles to Compliance with EPA Regulations and Standards

Noncompliance with EPA regulations presents challenges to mining companies, such as a withdrawal of governmental permits and social agitations (Prno & Slocombe, 2012). Poor compliance history complicates future permits for reserves and concessions (Prno & Slocombe, 2012). I used Interview Question 8 to explore obstacles to employee compliance with EPA regulations and standards. The following themes emerged as obstacles to compliance with EPA regulations and standards in Ghana's mining sector:

- Profit-making goal of companies
- Budgetary constraints
- Employee training and awareness
- Regulators

Profit-making goals of companies. Company leaders may not perceive the financial benefits of adopting environmentally responsible strategies and operations (Quairel-Lanoizelee, 2011). Failure to pursue environmental business operations may lead to financial loss (Russo & Perrini, 2010). Participants provided perspectives on obstacles to compliance with EPA regulations and standards. The perception of 65% of participants was that profit-making goals could obstruct the need to comply with environmental regulations and standards. Participants indicated that the objective of businesses owners is to satisfy shareholders; as such, compliance with environmental regulations and standards may not be a priority. Participants (65%) indicated that the leader might have a perspective that compliance with environmental regulations and standards increases expenditure and reduces profits in organizational cultures that do not support responsible environmental operations.

Budgetary constraints. Resources and information may vary in companies; however, business leaders must find ways of integrating environmentally responsible strategies into their operations to ensure business sustainability (Preuss & Perschke, 2010; Russo & Tencati, 2009). Participants (40%) identified budgetary constraints as a key obstacle to compliance with EPA regulations and standards. The perception of participants was that the compliance requirements such as disposing of waste and land reclamation involve high cost, which poses challenges with budgetary constraints. For example, budgetary constraints may limit the acquisition of adequate tools and materials for monitoring core activities such as blasting and disposal of waste materials from

mining activities. Resources and information limitations can hinder the ability of managers in small- and medium-sized companies to adopt socially responsible corporate strategies and practices (Russo & Tencati, 2009).

Training and awareness. The participants indicated the lack of adequate employee training and awareness as obstacles to compliance with environmental regulations in Ghana's mining sector. The perception of participants (60%) was that inadequate training and awareness could influence employee behavior towards compliance. Adequate employee knowledge of the need and impact of compliance can reduce accidents and incidents of violations of environmental regulations and standards. Employee training is critical to driving employee to comply with environmental regulations and standards (Jackson et al., 2011; Renwick et al., 2013; Teixeira et al., 2012).

Staff strength of regulators. Enforcement compliance with environmental regulations protects the public interest; however, that may not reflect as the primary goal of businesses (Meghani & Kuzma, 2011; Simon, 2010). Staffs of regulatory bodies keep the balance between economic, social, and environmental development by monitoring and controlling business activities (Meghani & Kuzma, 2011; Pautz, 2010; Simon, 2010). The staff strength of regulatory bodies affects the ability to perform regulatory activities. Inadequate numbers of regulatory officers hamper inspection and monitoring activities in the sector. The participants (30%) indicated that the staff strength of the regulatory body could obstruct compliance in the mining sector. The low-staff strength of the regulatory

body can affect matters related to compliance in the mining sector.

Differences in the requirements of regulators can obstruct compliance with regulations in the mining sector. Participants (20%) asserted that a lack of clarity and differences in various regulatory bodies in the mining sector might generate obstacles to compliance with regulations in the mining sector. The theme on obstacles to compliance with EPA regulations and standards aligns with literature on responsible corporate behavior, organizational culture, as well as reward frameworks. Leaders need to develop strategies and organizational cultures that support environmentally responsible production, notwithstanding insufficient resources and information (Laudal, 2011; Loucks et al., 2010; Russo & Tencati, 2009).

Relating Findings to a Larger Body of Literature

The findings in the study connect to literature regarding responsible environmental corporate behaviors and strategies to improve compliance with mining standards. Previous researchers have advanced the importance of environmentally responsible strategies, enforcing regulations, as well as, effective governance in Ghana's mining sector (Aubynn, 2009; Ayee et al., 2011, Teschner, 2012). The results of the study confirmed the need for managers in Ghana's mining sector to promote employee compliance with environmental regulations irrespective of company size and resources (Dangelico & Pujari, 2010; Russo & Tencati, 2009). Participants affirmed the need to integrate and sustain environmentally responsible operations and compliance with environmental regulations within Ghana's mining sector. The withdrawal of

governmental and social licenses adversely affects business sustainability and as such necessitates cordial relationships with key stakeholders (Aaltonen & Kujala, 2010; Mutti et al., 2012; Neville et al., 2011). Governmental permits and social license to operate are essential to business sustainability as such business strategies must include the expectations of key stakeholders (Akhakpe, 2012). Business strategies that gain stakeholder support could mitigate the use of limited organizational resources to address governmental and local community problems (Akhakpe, 2012; Prno & Slocombe, 2012).

Contrary to views that environmentally responsible corporate behavior adversely affects company profits, findings of the study confirmed literature on the significant business benefits of compliance and environmentally responsible operations (Quairel - Lanoizelee, 2011; Russo & Perrini, 2010). Findings of the study confirm the importance of organizational culture in achieving organizational goals. The findings of the study confirm that managers can use organizational cultures, to promote environmentally responsible corporate behavior and compliance with environmental regulations. The results of the study indicated that the critical role of employee training and awareness to the development of green human resources that champion environmentally responsible corporate behavior (Albino et al., 2012). The study findings confirmed the role of effective incentive framework as a critical factor in the retention of skilled employees and the achievement of organizational goals (Balakrisnan et al., 2011; Bui & Baruch, 2010).

An area of improvement in Ghana's mining sector is the need to create a direct link between factors such as employee compliance and incentive frameworks. Actively

linking employee compliance to incentive frameworks could yield to the promotion of employee compliance with environmental regulations and standards (Jackson et al., 2011; Teixeira et al., 2012). Additionally, employee training and clean production could minimize the adverse business and social effects of non-compliance behavior (Albino et al., 2012; Prno & Slocombe, 2012; Teixeira et al., 2012). Over time, the effective combination of training and incentive frameworks could minimize stakeholders' agitation and the stigmatization associated with mining (Prno & Slocombe, 2012).

How Data Relates to Conceptual Framework

Findings of the study coincide with TPB beliefs, which relate to the likely consequences of behavior, expectations of others, and the presence of factors that promote or hinder performance of the behavior (Ajzen, 1991). Reward framework, organizational culture, training, and alignment of company policies with EPA regulations coincide with TPB belief on the presence of factors and the consequences of behavior. Behaviors, such as failing audits and violations of standards relate to the belief on the consequences of behavior. Corporate image matches the belief that relates to the expectations of others. Managers can explore these factors to assess and motivate employees to align with expected daily task, as well as discourage noncompliance.

Findings of the study confirm the need for managers to balance the three interconnected elements of sustainability, economic, environmental, and social (Manzini et al., 2011). The study findings confirmed the critical role of organizational cultures in achieving organizational goals (Frank, 2011; Warrick, 2011). Mining leaders can achieve

the requisite balance for business sustainability by investing in employee training and effective incentive structures to ensure the retention of knowledgeable and motivated staff to achieve organizational objectives (Coelho et al., 2011; Daily et al., 2012; Frank, 2011). Managers of mining companies can communicate to employees the expected behavior regarding compliance with EPA regulations and standards of mining within the context of TPB beliefs. The study findings indicate the importance of factors, such as organizational culture, supervision, employee training, and incentive frameworks to promoting employee compliance and discouraging violations. Managers can focus on the consequences of behaviors, expectations of vital stakeholders, and the presence of key factors to promote employee compliance with environmental regulations and standards.

Applications to Professional Practice

I focused the qualitative, phenomenological study on Ghana's mining sector. Participants provided perspectives on driving employee compliance in Ghana's mining sector, as well as expanded thinking for the future. Openness and consistent dialogue may foster a new connected insight (Bouchier, 2012). According to participant perspectives shared in the study, employee compliance with EPA regulations is the responsibility of business leaders, employees, and regulators. The collaboration between relevant stakeholders can ensure employee compliance with EPA regulations and standards in Ghana's mining sector (Albino et al., 2012; de.Lange et al., 2012; Mallen & Chard, 2012). Findings indicated that (a) audits and supervision, (b) employee training and awareness creation, (c) incentive frameworks, (d) organizational culture, (e) alignment of

company policies with EPA regulations and standards, and (f) corporate image promote employee compliance with EPA regulations and standards.

Leaders and managers of mining companies can realize the benefits of meeting EPA regulations by consciously creating organizational cultures imbued with environmentally responsible values (Rijke et al., 2012; Warrick, 2011). Managers can drive employee compliance with EPA regulations through organizational cultures that acknowledge and reward employee compliance and discourage noncompliant behavior (Fassin et al., 2011; Oraman et al., 2011; Warrick, 2011). Aligning company policies with EPA regulations can reinforce the importance of employee compliance with EPA regulations and standards in Ghana's mining sector.

Supervision and audits of employees and work areas can promote employee compliance. Scheduled and random audits are necessary to ensure employee compliance, even when company policies align with EPA regulations and standards. Investment in employee training and awareness is a profitable venture, which can result in financial gains for mining companies (Coelho et al., 2011; Daily et al., 2012). Employee training can provide employees with the requisite knowledge and tools to comply with EPA regulations and standards in Ghana's mining sector (Jackson et al., 2011; Kannan et al., 2012).

Implications for Social Change

The implications for positive social change include the potential to induce integrated approaches to sustainable mining operations. Participants indicated that

compliance with environmental regulations positively affects employees and community members, as well as the relationship between mining companies and host communities. Integrated approaches to mining strategies and policies may promote employee compliance with EPA regulations and standards, as well as clean production. Improved employee compliance with environmental regulations and standards may reduce poor mining practices and the adverse effects on host communities. Reduction in environmental degradation will advance environmental and social good.

Sharing the results with stakeholders of Ghana's mining sector can assist members with exploring ways of enhancing employee compliance with environmental regulations in the sector. The findings can provide company executives with the basis to start or improve policies, frameworks, or strategies that promote compliance in the sector. Enhanced compliance with environmental regulations and standards will improve companies' social impact on the community, environment, and other stakeholders of the sector. All participants of the study will receive a copy of the final report to highlight the factors that promote compliance and to inform future actions and decisions in the sector.

Recommendations for Action

Despite the sustainability efforts of leaders from mining companies in Ghana, mining operations can improve to maximize business benefits and reduce environmental degradation. The results of the research will benefit the leaders of mining companies in designing and implementing programs to promote employee compliance with environmental regulations and standards. The findings may also benefit policy-makers in

addressing emerging challenges of environmental degradation associated with mining operations in Ghana.

Based on the findings of the theme on importance and benefits of compliance with EPA regulations and standards, I recommend that mining executives embrace and promote environmentally responsible operations essential to business continuity and sustainability. Compliance with environmental regulations and standards support business permits and social license to operate (Prno & Slocombe, 2012). Violations of EPA regulations and standards jeopardize the possibility of future mining concessions and reserves. Sanctions resulting from violations have adverse implications on production, corporate image, and company profits (Prno & Slocombe, 2012).

Based on the theme of factors that promote employee compliance with EPA regulations and standards, I recommend that decision-makers in mining companies institute organizational cultures that support environmentally responsible mining operations. An organizational culture induces employees to align behavior with corporate values and to work towards corporate goals (Rijke et al., 2012; Warrick, 2011). Organizational cultures should include incentive frameworks that can inspire employee compliance with EPA regulations and standards and deter violations of regulations. Mining leaders and employees should establish organization cultures that involve green human resources development, environmentally strategies, and clean operations.

Based the third theme on obstacles to compliance with EPA regulations and standards, managers and employees need to work together to minimize the adverse

influence of budgetary limits. Mining leaders need to balance profit-making goals with investments in employee training and awareness. Managers should intensify employee training and awareness in environmentally responsible mining operations and compliance with environmental regulations as knowledgeable and empowered employees are assets to the Ghana's mining sector. Participants will receive a summary of the study, and I will share findings from the research through the publication of the study in the ProQuest/UMI dissertation database, the Ghana Chamber of Mines, as well as, literature conferences in the mining sector.

Recommendations for Further Study

The study was limited to middle managers' perception on how to promote employee compliance with EPA regulations and standards in Ghana's mining sector. A limitation of this study was the sample size of 20 participants; a similar study in the future with a larger sample size may provide useful information. Another limitation of the study was the target group; middle management employees, a future study may include junior officers to provide additional insights into compliance with EPA regulations in the mining sector. A phenomenological study of a different sector will allow researchers to gain insight beyond Ghana's mining sector. Participants recounted positive experiences with compliance with EPA regulations and standards; however, some participants expressed concerns about working with different regulators and regulations within the mining sector. Future researchers could use multiple case studies to explore how to overcome obstacles associated with varied regulatory demands in Ghana's mining sector.

The findings from this research could provoke innovative thinking and processes that enhance the business benefits of compliance with environmental regulations and standards.

Reflections

I focused on exploring, describing, and analyzing the perceptions of experienced middle managers in Ghana's mining sector. Sustainability remains core to business viability (Brennan et al., 2011; Bridoux, Coeurderoy, & Durand, 2011). My passion for balancing business operations and environmental sustainability formed the basis for the study. My findings have the potential to contribute to business practice by improving employee compliance with EPA regulations and standards business practices in Ghana's mining sector. Incidents of environmental degradation in mining areas may reduce as a result of the study findings. As environmental conditions improve, members of mining communities may experience reduced environmentally related health challenges with concomitant increases in their quality of life that could benefit their communities (Frazzoli et al., 2010; Wu, 2012).

Conducting the research was inspirational because I gained a new perspective on the future and mining in Ghana. The use of open-ended interview questions helped increase the understanding of business factors that drive compliance with EPA regulations and standards in Ghana's mining sector. A check on personal biases ensured that participants freely and objectively expressed in-depth perceptions of the phenomenon of compliance with environmental regulations and standards. The participants pointed to

organizational cultures entrenched in sustainable business operations in the mining sector. Participants openly discussed driving factors and obstacles to compliance with environmental regulations and standards in Ghana's mining sector.

Summary and Study Conclusions

In this qualitative, phenomenological study, I explored the perceptions of middle managers in Ghana's mining sector on how to promote employee compliance with EPA regulations and standards. Three themes emerged from the study (a) business benefits of compliance, (b) factors that promote employee compliance with EPA regulations and standards, and (c) obstacles to compliance with EPA regulations and standards. I found that, in the competitive environment of mining, compliance with EPA regulations and standards has business benefits. All participants indicated that compliance with EPA regulations and standards ensures business sustainability. Participants pointed to supervision and audits, employee training, organizational culture, and incentive frameworks as factors that promote employee compliance. The study population of middle managers within Ghana's mining sector helped me to explore and describe approaches to promoting employee compliance with EPA regulations and standards in Ghana's mining sector.

All participants agreed that compliance with environmental regulations and standards had business importance and benefits. In general, 85% of participants indicated that compliance with environmental regulations and standards directly affected business sustainability and corporate image. The meaning of the results underscores the need for

leaders of mining companies in Ghana to promote and enhance employee compliance with EPA regulations to realize business benefits. Compliance is the bridge between mining companies, stakeholders, and the environment.

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Appendix A: Consent Form

July ….. , 2014

Dear Potential Participant,

You are invited to take part in a research study entitled *Business Drivers for Environmental Regulations Compliance in Ghana' Mining Sector*. The research will explore the business factors, which drive compliance with Ghana's EPA regulations and standards for mining. The data gathered may provide insight into how managers could promote compliance with EPA regulations and standards and socially responsible mining operations in Ghana's mining sector. The proposed study holds the potential to provide insight into promoting compliance with EPA regulations and standards from the perspective of middle managers in mining companies with extensive knowledge in environmental regulation, compliance, and operations in Ghana's mining sector. The researcher is inviting officers who have been in middle management position for at least a year in Ghana's mining sector, who reside in Ghana to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

A researcher named Georgina A. Ahorbo, a doctoral student at Walden University, is conducting this study.

Background Information:

The purpose of this study is to explore how managers drive compliance with EPA regulations and standards in the mining sector. Data from the study will provide a better understanding of drivers for compliance with EPA regulations in Ghana's mining sector.

Procedures:

If you agree to be in this study, you will be asked to:

Participate in a one-on-one interview with the researcher, responding to questions related to your knowledge of promoting compliance with EPA regulations and standards in the mining sector. The post interview activities include the conversion of interview recordings into text for your confirmation and your confirmation as to whether the text is the reflection of responses during the interview session.

Here are some sample questions:

- What are the three main standard procedures and practices, which you have used to ensure employee compliance with EPA regulations and standards in the mining sector?
- How is employee compliance with EPA regulations and standards assessed?

Voluntary Nature of the Study:

This study is voluntary. Your decision on whether or not to be in the study will be respected. If you decide to join the study now, you may change your mind at any time.

Refusing or discontinuing with the study involves no penalty.

Risks of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress or becoming upset. Being in this study would not pose risk to your safety or wellbeing. There is no risk of injury or harm associated with participating in the study interview. The duration of the interview session will be limited to an hour. The interview will be audio taped to maintain the accuracy of all data collected. There is no potential conflict of interest.

Payment:

Participation in this study is voluntary; there will be no form of payment for participation.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by having them in locked filing cabinets and password coded files on the researcher private computer. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone [redacted] or email [redacted]. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 001-612-312-1210. Walden University's approval number for this study is **07-02-14-0292933** and it expires on **07/01/15.**

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Written or Electronic *Signature

Researcher's Written or Electronic * Signature

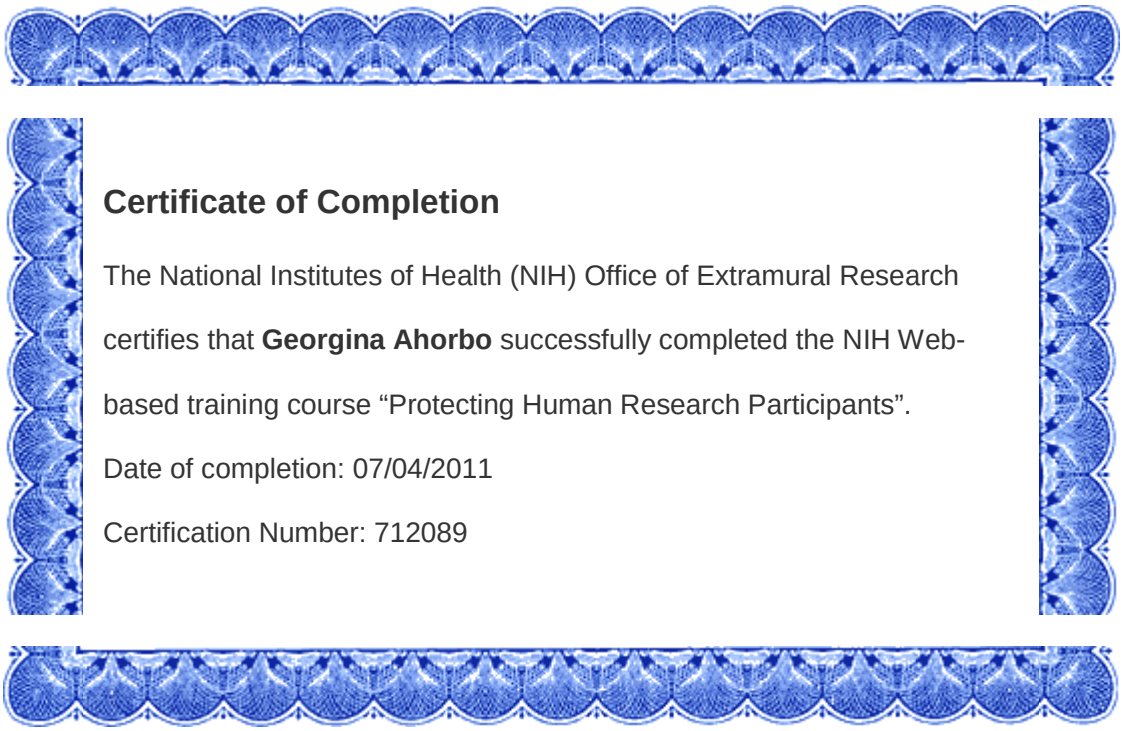
Electronic signatures are regulated by the Uniform Electronic Transactions Act. Legally, an electronic signature can be a person's typed name, their email address or any

other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

Appendix B: Interview Questions

1. What is the business-related importance of compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector?
2. What are the three key business benefits of compliance with EPA regulations and standards (AKOBEN rating)?
3. What are the three key factors, which promote employee compliance with EPA regulations and standards in the mining sector?
4. How is employee compliance with EPA regulations and standards assessed?
5. What are the three main standard procedures and practices, which you have used to ensure employee compliance with EPA regulations and standards in the mining sector?
6. What is the role of organizational culture in driving employee compliance with EPA regulations and standards?
7. What incentive framework is available to promote employee compliance with EPA regulations and standards for mining in Ghana?
8. What are the key obstacles to complying with EPA regulations in mining operations?

Appendix C: NIH Certificate



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Georgina Ahorbo** successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 07/04/2011

Certification Number: 712089

Appendix D: Environmental Quality Standards- Mining Sector

Environmental Quality Standards--Mining Sector

Water Quality Standards-Ghana Water Company/GSB Guidelines	
Parameters	Standard
Colour (TCU)	15
pH	6.5-9
TDS (mg/l)	1000
TSS (mg/l)	50
Arsenic Dissolved (mg/l)	0.01
Copper Dissolved (mg/l)	1
Cyanide Free (mg/l)	0.01
Effluent Guidelines-Conventional Pollutants-Mining Sector-EPA Ghana	
Parameters	Standard
BOD (mg/l)	50
Colour (TCU)	150
Conductivity (µS /cm)	1500
pH	6-9
TDS (mg/l)	500
TSS (mg/l)	50
Arsenic Dissolved (mg/l)	0.1
Arsenic Total (mg/l)	1
Cadmium Dissolved (mg/l)	0.1
Copper Dissolved (mg/l)	5
Cyanide Free (mg/l)	0.2
Cyanide Total (mg/l)	1
Cyanide WAD (mg/l)	0.6
Mercury Dissolved (mg/l)	0.005
Ambient Air Quality-EPA Ghana	
Parameters	Standard
Particulate Matter-24 hr (ug/m3)	150
PM10	70
Vibrations and Overpressure Standards-Surveillance Point-EPA AKOBEN Guidelines	
Parameters	Standard
Overpressure level (dBL)	120
Vibration level (mm/s)	5

Appendix E: Phenomenological Interview Protocol

A. Phenomenological Introduction

1. Research Question

How can mangers drive employee compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector?

2. Conceptual Framework

Ajzen's (1991) theory of planned behavior (TPB) will be the conceptual framework to explore potential benefits of eco-efficient business strategies in Ghana's extractive sector.

B. Protocol Purpose and Intended Use

1. Protocol to be used by the researcher to guide and inform all study data collection, analysis, and findings and conclusions preparation efforts
2. Researcher will use the protocol to ensure reliability of phenomenological methods, findings, and conclusions

C. Data Collection Procedures

1. Data to be collected from the semistructured interviews with middle management officers in Ghana's mining sector.
2. Researcher will recruit interviewees from (a) Ghana's mining sector.
3. Specific contact persons to be identified after letters are sent and responses received to finalize sites and interviewees

3. Expected preparation activities to take place prior to site visits to conduct interviews

    a. . Preparation of informed consent forms for each interviewee

    b. Review and finalization of planned interview questions

4. Data collection tools

    a. Digital audio recordings

    b. Researcher field notes

D. Outline of Phenomenological Report Contents

1. Overview of study

2. Presentation of the findings

3. Applications to professional practice

4. Implications for social change

5. Recommendations for action

6. Recommendations for further study

7. Reflections

8. Summary and study conclusions

E. Phenomenological Interview Questions

1. What is the business-related importance of compliance with EPA regulations and standards (AKOBEN rating) in Ghana's mining sector?
2. What are the three key business benefits of compliance with EPA regulations and standards (AKOBEN rating)?

3. What are the three key factors, which promote employee compliance with EPA regulations and standards in the mining sector?
4. How is employee compliance with EPA regulations and standards assessed?
5. What are the three main standard procedures and practices, which you have used to ensure employee compliance with EPA regulations and standards in the mining sector?
6. What is the role of organizational culture in driving employee compliance with EPA regulations and standards?
7. What incentive framework is available to promote employee compliance with EPA regulations and standards for mining in Ghana?
8. What are the key obstacles to complying with EPA regulations in mining operations?

F. Data Analysis Techniques and Tools

1. Coding

2. Analysis tool

    a. Microsoft Excel

G. Study Dependability, Credibility, and Transferability Methods

    1. Dependability methods

    a. protocol use

    b. database creation

    2. Credibility and transferability methods

a. The use of an expert panel and assessment of explanations, as well as, research bias identification (credibility)

b. Detailed description of the sample population, geographic boundaries, the context for data collection, and study findings. (Transferability)

Appendix F: Letter of Introduction

Dear prospective participant,

The mineral mining sector in Ghana contributes significantly to the national economy. Gold accounts significantly for national merchandise. Poor mineral mining operations present business and environmental challenges. Managers in mining companies can avoid high-risk business situations by driving operations, which are environmentally responsible and compliant with the state environmental regulations. I invite you to participate in a study titled:

Business Drivers for Environmental Regulations Compliance in Ghana's Mining Sector.

If you agree to participate in the study, you can reach me through by email: [redacted], and on mobile phone number [redacted] to schedule appointments for a pre-interview and interview sessions at your convenience. The purpose of the pre-interview appointment is to explain the interview process and questions, after, which you will complete the attached consent form. A summary of the findings will be sent to you after the study is complete. Thank you for your consideration in participating.

Sincerely,

Georgina A. Ahorbo (Mrs)

Curriculum Vitae

EDUCATION: D.B.A., Walden University, Minneapolis, MN

Expected in 2014, Specializing in Social Impact Management

M.B.A., University of Leicester, Leicester, England

August, 2007, Management

Diploma, University of Leicester, Leicester, England

April, 2005, Management.

Diploma, Kwame Nkrummah University of Science and Technology, Ghana. July, 1998, Data Processing

EXPERIENCE: Presently working at The Ghana School of Law.

Computer Analyst, Course Contact for the Commonwealth Legislative Drafting Course for African Members States, and Course Contact for Post – Call Law Course applications.

- Ghana School of Law

  Part-time lecturer for the Career Magistrates course (2004 - 2006)

- Global Computer & Engineering Services

  IT Officer (Feb.- Dec. 2000)

- Kwame Nkrumah Univ. Science & Technology Library

  Graduate National Service (Feb. – Sept. 1999)

  United States Information Service (USIS) Accra

  Intern (Aug. 1997-Jan1999)

- Ekumfi Dunkwa Junior High School

  National Service Teacher (Dec 1994 - Sept. 1995)