European Journal of Logistics, Purchasing and Supply Chain Management
Vol.4, No.1, pp.32-50, February 2016
Published by European Centre for Research Training and Development UK (www.eajournals.org)

FACTORS INFLUENCING GREEN SUPPLY CHAIN IN THE MINING SECTOR IN GHANA

James Adu Peprah, Isaac Opoku-Fofie and Kwabena Nduro

School of Applied Arts, Takoradi Polytechnic, Takoradi, Ghana

ABSTRACT: *The concept of green supply chain management (GSCM) is attaining high level significance given that it can help to minimize negative impact of mining activities on the environment and to ensure environmental sustainability. This research was carried out primarily to examine the factors influencing green supply chain management in the mining industry of Ghana. Data was collected using focus group discussion with the experts from the mining companies. Analysis of the data showed that the goods purchased by mining companies have negative effects on the environment. It was also concluded that procurement practices could be used to reduce the negative impacts of the companies' operation on the environment since the procurement departments of the companies have specific policies geared towards environmentally preferable purchases. The study further established that green procurement influence supplier selection through environmental regulations by Environmental Protection Agency of Ghana, suppliers' environmental emission among others. The study revealed that the most notable factors influencing green supply chain in the mining companies in Ghana include lack of knowledge and expertise involving green supply chain, lack of awareness of the potential economic benefits of green supply chain, lack of political commitment, lack of the learning capacity to evaluate green supply chain; high cost of environmental programs, ineffective sanction regime for environmental offenders among others. The study recommends that mining companies and its allies should organise joint seminars and workshops to sensitize the staff and suppliers on the benefits of green purchasing and the need to embrace it. The mining industry and EPA should also link up to train their supply/logistics/procurement practitioners on the issues of green procurement /supply chain.*

KEYWORDS: Green Supply Chain, Procurement, Mining, Ghana, Environmental Protection Agency

INTRODUCTION

Environmental degradation is a key issue of concern for governments, societies and business organisations in the world. According to UNEP (2011), environmental degradation heightens risks and reduces opportunities for the advancement of human well-being, especially for poor and vulnerable populations. Destructive environmental transformations are taking place in a progressively more globalized, industrialized and interconnected world, with a growing global population and unsustainable production and consumption patterns. The deprivation of ecosystem services is lessening development opportunities and could threaten future human well-being (ibid). With environmental problems such as global warming, ozone depletion, solid waste disposal and air pollution on the ascendency, business organisations are considered to be the source of most of the environmental problems (Rozar, et al., 2013). In Ghana key contributor to environmental degradation is the mining industry. However, these mining companies are considered as major contributors of income for economic growth of the nation (Ministry of Lands and Natural Resources, 2010).The mining sector has been an important part

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

of the Ghanaian economy, with gold accounting for over 90% of the sector. Ghana is the second largest gold producer in Africa and the 9th largest producer in the world. The sector directly contributed 38.3% of Ghana's total corporate tax earnings, 27.6% of government revenue and 6% GDP in 2011(Aryee, 2012). The Ministry of Lands and Natural Resources (2010) indicates that the mining sector in Ghana has contributed an average of 5.5% to Gross Domestic Product (GDP) and 42% of total merchandise export from the period 2000 – 2008, being the single largest contributor from 1991.

Regrettably from Priyadarshi (2012) mining has led to high levels of environmental deterioration. The negative impacts of mining in the world on the environment and health are immeasurable and often difficult to quantify (Munnik, et, al., 2010). Warhurst (1999) put the negative impact of mining on the environment as overwhelming. Gunson and Jian (2001) assert that coal mining leads to about 6000 deaths annually in China alone. While the land degradation caused by the gold mining is pronounced, chemical contamination from the gold extraction process imposes a double burden on the environment, with harmful health implications for mining communities and people residing in close proximity to such activities (Yelpaala, 2004). Studies by Camara, et al. (1997) indicate patterns of mercury intoxication during the gold amalgamation process. From Kitula (2006) the experienced in mining communities indicate that the most pressing problems in those regions are pollution of water sources from mercury and cyanide, dust, mine pits, cracking and the collapse of buildings. Although mining industry support the communities for economic reasons (Bloch and Owusu, 2012), it has been generally perceived as a socio-environmentally disruptive industry (Peck and Sinding, 2003). The severity of degradation of the environment through mining and its effect on entire organism call for serious introspection on how effectively the activities leading to the degradation can self-check itself. Through the impacts of supply chain operations on the environment, firms have been developing environmental management strategies in response to the changes of environmental requirements (Beamon, 1999).

According to Kusi-Sarpong, et. al,. (2014) improving sustainability, the mining industry has sought an attempt to go beyond its organizational boundaries in an effort to make their supply chain activities and designs more environmentally and socially sound. Green supply chain management (GSCM) recently is gaining importance because it is believed it can assist in minimizing the negative impact of the mining activities and also enhance the competitive advantage of the mining companies (Rozar, et al., 2013) to ensure environmental sustainability. Green Supply Chains will strive to achieve what any individual organisation on its own could not possibly achieve: minimized waste, minimized environmental impact while assuring maximized consumer satisfaction, and healthy profits. This study looks at the green supply chain management, the factors influencing such initiatives among mining companies in Ghana. The fact here is that the prospect for convalescing human well-being is dependent on the aptitude of individuals, institutions, countries and the global community to react to environmental change. Innovative and transformative policies and technologies could assist society to overcome current barriers to achieving sustainable development. A more balanced approach to addressing environmental issues could also help (UNEP, 2011).

Green Supply Chain Management (GSCM)

Hervani, Helms and Sarkis (2005) defined green supply chain management (GSCM) as "green procurement+ green manufacturing+ green distribution+ reverse logistics". To them referring to GSCM is when every activity within the scope of logistics and supply chain management is green based. Green supply chain management therefore can be explained as integrating

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

environmental thinking into supply-chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product as well as end-of-life management of the product after its useful life. From Rao (2006) and Srivastava (2007) green supply chain management (GSCM) is considered as an environmental innovation. It's aimed at minimizing or eliminating wastages including hazardous chemical, emissions, energy and solid waste along supply chain such as product design, material resourcing and selection, manufacturing process, delivery of final product and end-of-life management of the product. GSCM plays a vital role in influencing the total environment impact of any firm involved in supply chain activities and thus contributing to sustainability performance enhancement. As the saying goes when the last tree dies the last man dies, it therefore ethically and socially on the part of firms to act responsibly in their supply chain activities (Diabat, & Govindan, 2011). It is under these conditions that Vachon and Klassen (2008) comment that suppliers, manufacturers, and customers should collaborate to reduce hazardous environmental effects from manufacturing processes and products. For this study the concept of green supply chain management is based on the design that supply chain management acts as a bridge between an organisation and its supply base by incorporating environmental thinking into supply chain activities which are meant to minimizing or eliminating wastages in the environment. The key concern of this study as expressed already is to explore from mining industry's perspective the factors influencing green supply chain management.

Study Rational

There is growing evidence that supports the distressing effect of humans' activities on the environment. The major subject for society and businesses is the growing concern for the protection of the environment (Bhatia, 2006). For Wisner, et al., (2005) producing, packaging, moving, storing, repackaging and delivering products to the final customer can pose a significant threat for the environment in terms of what has to be discarded: carbon monoxide emissions, noise, traffic congestion and other types of industrial pollution. As a result, firms and their supply chain partners are working harder to decrease environmental effects of their actions and are adapting to a more proactive approaches to reducing the negative environmental consequences in their supply chains (Seman,et al., 2012).

Regardless of the benefits gained from GSCM adoption (Bhool & Narwal, 2013) there are still a large number of organizations in different industries and countries which are unwilling to adopt GSCM owing to many challenges that hinder its implementation (Elbarky, & Elzarka 2015). From research, according to Barve and Muduli (2013) a significant gap has been noted in studies that investigate the challenges and barriers of GSCM implementation in general. For instance Kamolkittiwong and Phruksaphanrat (2015) posit that the major factors affecting the implementation of GSCM in Thailand has not been investigated. Chang, Kenzhekhanuly and Park (2013) comment that given the rising environmental issues all over the world there is the lack of empirical research on GSCM practices in Republic of Korea. Liang and Chang (2008) mention that there is no previous research has tested an empirical link between GSCM efforts and subsequent improvements in economic performance in China. Rusli, Rahman and Ho (2012) posit that very few studies have been specifically conducted among manufacturers in Malaysia on GSCM. Rao (2002) comments that apart from sparse research in GSCM on Malaysian samples, there are also several gaps in the body of knowledge in GSCM. Huang, Tan and Ding (2012) also observe that very few studies, if any, have been carried out on GSCM and small and medium-sized enterprises (SMEs). Elbarky, (2015) comments that the gap also persists in GSCM research in the African and Middle East region. These studies have shown

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

how limited research in GSCM is and Ghana is not different, there are very few GSCM related research too. And as a matter of fact a major environmental impact of mining in Ghana is land degradation. There is a grand challenge in guaranteeing a balance between development and environmental sustainability. Ghana is not among industrially developed countries in the World, many Ghanaian mining firms are yet to fully grasp the impact of environmental emphasis in their activities. Moreover, green issues are new and still developing and as such continuous studies are needed to completely understand green supply chain management. With comparison to the developed countries, mining firms in developing countries like Ghana are still in the learning process on how to integrate the green supply chain management practices in their daily operations.

It is upon this backdrop that this study seeks to identify the factors influencing green supply chain management in the mining industry in Ghana by specifically examine the effects of procurement practices on the environment, the extent to which green purchasing influence on supplier selection and to find out the factors affecting green supply chain of mining firms in Ghana.

LITERATURE REVIEW

Theoretical Review

Theory of Altruism: Altruism is a subset of pro-social behaviour (Schwartz, 2007). According to Kaufmann, Panni and Orphanidou (2012) theory of altruism suggests that pro-environmental behaviour becomes more likely when an individual is aware of damaging consequences to others and when that person takes the detrimental influence of individualism in this context (Borden & Francis, 1978) hypothesized that: Person with strong selfish and competitive orientation are less likely to act ecologically. People who have satisfied their personal needs are more likely to act ecologically because they have more resources (time, money and energy) to care about bigger, less personal social and pro-environmental issues. Relating back to Schwartz work, the study of (Stern, Dietz & Kalof, 1993) examined the role that social altruism (concern of the welfare of others) and biospheric altruism (a concern for the non human elements of the environment) play in influencing green behaviour. In the same vein, (Mostafa, 2009) found that altruism has a significant positive influence on the intention to buy green products (as cited in Kaufmann, Panni & Orphanidou 2012).

Theory of Collectivism: Collectivism is explained as the theory and practice that makes some sort of group rather than the individual the fundamental unit of political, social, and economic concern. In theory, collectivists insist that the claims of groups, associations, or the state must normally supersede the claims of individuals (Gronbacher, 1998). Individualistic or collectivistic orientations have been found to influence a variety of social behaviours (Kim & Choi 2005). Likewise, person-level tendencies of individualism or collectivism appeared to influence their motivation to engage in environmentally conscious behaviours. McCarty and Shrum (1994, 2001) found a positive impact of collectivism on consumer beliefs about recycling and their recycling behaviour. This implies that collectivistic persons are more likely to engage in recycling behaviours because they tend to be more co-operative, willing to help others, and emphasize group goals over personal ones. By contrast, people with individualistic tendencies tend to view recycling less important (McCarty & Shrum, 2001) and are less likely to participate in behaviours for resource conservation (Dunlap & Van Liere, 1984). Similar

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

results were also found for ecological commitments (Li, 1997). Authenticating the findings of the aforementioned authors, Kim and Choi (2005) concluded that collectivism has an influence on the consumers' green buying behaviour.

Perceived Consumer Effectiveness (PCE): Perceived Consumer Effectiveness (PCE) refers to the extent to which individuals believe that their actions make a difference in solving a problem (Ellen, Weiner & Cobb-Walgren, 1991) introduced in 1974 (Kinnear, Taylor & Ahmed, 1974). Accordingly, Kim and Choi (2005) argued, that individuals with a strong belief that their environmentally conscious behaviour will result in a positive outcome, are more likely to engage in such behaviours in support of their concerns for the environment. Ellen, Weiner and Cobb-Walgren (1991) posit that concerns that consumers have about green issues might not lead to pro-environmental behaviours, but individuals with a strong belief that their actions have a positive outcome are more likely to act upon their concern about the environment. Hence, self-efficacy beliefs may influence the likelihood of performing green purchase behaviour. Several studies have indicated that perceived consumer effectiveness is a strong predictor of various types of green and ecologically conscious behaviours within consumers, stretching from recycling to the use of energy-efficient products (Lee & Holden 1999). Other studies have showed that it could be used as a strong predictor of green buying behaviours, which involved purchasing organic goods (Verhoef 2005), green products (Yeoshin & Choi 2005) and sustainable products (Vermeir & Verbeke 2006). Therefore, PCE has the ability to influence behaviours involving green purchases (Yeonshin, & Choi 2005), but the path that leads the consumer from a strengthened perceived consumer effectiveness to buying intention is far from a clear one.

This study is grounded in these theories, and these showcase the theoretical approach to the phenomena that the researchers proposed to study.

EMPIRICAL REVIEW

Effects of Procurement Practices on the Environment

In recent years, academics and practitioners have become increasingly interested in how organisations and their suppliers impact on the environment, society and the economy (Walker, & Wendy 2006). Many researchers (Zhu et al., 2004, 2007; Ninlawan et al., 2011) studied green procurement: pressures, practices and performance within the Chinese automobile industry and Thailand electronics industry. They observed that increasing pressures from a variety of directions improve both their economic and environmental performance. Zhu et al., (2004) also focused on different dimensions of practices including green procurement, internal environmental management, eco design, customer cooperation, and investment recovery. Lamming and Hampson (2006) explored the concepts of environmentally sound management and linked them to green procurement practices such as vendor assessment, collaborative supply strategies, establishing environmental procurement policy and working with suppliers to enable improvements. In another studies (Chien & Shih, 2007; Ninlawan et al., 2011; Luthra et al., 2011) work on the implementation of green procurement practices in electronics industry and provide in-depth study about green procurement, green manufacturing, green distribution, and reverse logistics and investigate green procurement practices, measure green procurement performance, and explore green procurement pressure/driver.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

The key issue arising the interest of green procurement/ green supply chain according to The Responsible Purchasing Network (2015) is that procurement of products and services often results in extensive negative impacts on public health and the environment. As a matter of fact, procurement and its related activities comprise small as well as large scaled projects and therefore, affect the environment at varying levels. However, procurement activities at the same time can be leveraged to conserve resources, mitigate pollution and waste, and promote a healthy economy by identification, utilization and dissemination of standards and practices that minimize or eliminate destructive impacts without compromising performance or cost-effectiveness.

Besides, the strategic role of purchasing and supply as a lever for sustainable development is much more manifested now than before. Contemporary commercial practices show that business organizations and business partners are focusing their procurement strategies on reducing the environmental 'foot prints' of their procurement and supply chain activities. The need to improve organisational efficiency, reduce waste, overcome supply chain risk, and achieve competitive position has made companies to start considering environmental issues from a competitive view point (Humphreys, 2003). Procuring organizations and other supply chain partners are more seriously involved in designing and implementing sustainable procurement policies focusing on how environmental issues and issues relating to other aspects of the sustainable development pillars can be integrated in the procurement process activities (Hussein & Shale, 2014). There are a number of drivers for this increasing prominence of sustainability including an increased understanding of the science relating to climate change, pressure from various stakeholders upon the organisations for the implications of their activities, and greater transparency concerning both environmental and the social actions of organisation (ibid). Kalubanga (2012) in support posits that procurement managers are more relevantly positioned as they can impact (positively or negatively) the environmental and social performance, through for example product or service specification, evaluation and supplier selection, and evaluating performance of the provider either by developing the performance evaluation criteria or using that criteria to evaluate the providers fulfillment of the contract for which the provider was contracted.

Grankvist and Biel (2007) write that purchasing has a direct impact upon companies' ability to reduce their contribution to environmental and social problems. Combating environmental and social problems includes improving performance throughout complex supply chains. Preuss (2005) comments from a life cycle perspective, it is more or less impossible to envisage environmental protection initiatives without involving supply chain management. Studies of supply chain issues have raised the important question of the allocation of responsibilities between different actors in the supply chain. Another important question, moreover, is the extent to which they are able to fulfil this task. Among the actors in the supply chain, producers, retailers and purchasers play a critical role. Purchasers hold a particularly influential position because they serve as gate-keepers of an organisation, and influence the properties and amounts of the materials and components that enter it.

Green Purchasing Influence on Supplier Selection

Environmental performance of an organisation can be determined by its own environmental efforts and environmental performance of its suppliers (Akman & Pışkın, 2013). Deshmukh and Vasudevan (2014) from their study conclude that changes in the state of environment, subsequent public pressure and environmental logistics have come to enforce the shift in manufacturing and business practices. Their study further concludes that the concept of SCM

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

needs to be remodeled in the green context. Where the extension of the traditional supply chain will require the establishment and implementation of new performance measurement systems upon which the supplier selection criteria would have to be redesigned as per the need and the context. These new measurement systems developed will serve as the centerpieces of environmentally conscious implementation plans, based on continuous improvement, which will enable organizations to become and remain more competitive, while achieving sustainable processes and development (ibid). Akman and Pışkın (2013) comment that companies have to establish close and integrated relationships with their supplier to develop their environmental performance and help to appraise green performance of their suppliers. Galankashi et al (2013) on prioritizing green supplier selection criteria using fuzzy analytical network process attempted to provide an integrated step by step procedure to consider both classical and green key performance indicators within the supplier selection framework. Nielsen et al (2014) also write that green supplier selection (GSS) criteria arise from an organization inclination to respond to any existing trends in environmental issues related to business management and processes, so GSS is integrating environmental thinking into conventional supplier selection. Their study considered several parameters (evaluation objectives) to establish suitable criteria for GSS such as their production type, requirements, policy and objectives instead of applying common criteria. Akman and Pışkın (2013) on evaluating green performance of suppliers via analytic network process and TOPSIS agree that performance evaluation system for green suppliers is necessary to determine the suitability of suppliers to cooperate with a firm.

In the green supply chain literature, various techniques are used to evaluate and select green suppliers, such as Noci (1997) design a conceptual approach that firstly identifies measures for assessing a supplier's environmental performance and, secondly, suggests effective techniques for developing the supplier selection procedure according to an environmental view point. Hsu and Hu (2008) propose an ANP approach to incorporate the issue of hazardous substance management (HSM) into supplier selection. They presented an illustrative example in an electronics company to demonstrate how they select a most appropriate supplier in accordance with the requirements of hazardous substance for environmental regulations. Lee et al. (2009) apply the Delphi method to select the most important subcriteria for traditional suppliers and for green suppliers. They then developed a fuzzy extended AHP model to evaluate green suppliers for a TFT-LCD manufacturer in Taiwan. Tsai and Hung (2009) propose a fuzzy goal programming (FGP) approach that integrates activity-based costing (ABC) and performance evaluation in a value-chain structure for optimal green supplier selection and flow allocation. They provided an illustrative example via a green supply chain of a mobile phone.

Tuzkaya et al. (2009) also evaluate the environmental performance of suppliers with a hybrid fuzzy multicriteria decision approach: fuzzy ANP and fuzzy PROMETHEE methodology. They used evaluation criteria such as pollution control, green process management, environmental and legislative management, environmental costs, green product, and green image. These were done to foster the better understanding and the validation of the proposed methodology. Bai and Sarkis (2010) develop a formal model using rough set theory to investigate the relationships between organizational attributes, supplier development program, involvement attributes, and performance outcomes. The performance outcomes focused on environmental and business dimensions. Their methodology generated decision rules relating the various attributes to the performance outcomes. Kuo et al. (2010) propose a green supplier selection model which integrates artificial neural network (ANN) and two multi-attribute decision analysis (MADA) methods: data envelopment analysis (DEA) and ANP. The model is called ANN-MADA hybrid method. Fu et al. (2012) propose a formal structured managerial

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

approach for organizations to help evaluate the influence of relationships amongst green supplier development programs (GSDPs). Utilizing GSDP categorizations they acquire multifunctional managerial inputs within a telecommunication systems provider to evaluate the GSDPs.

Büyüközkan and Çiftçi (2012) on green supplier selection, examine GSCM and GSCM capability dimensions to propose an evaluation framework for green suppliers and used a fuzzy hybrid MCDM model based on fuzzy DEMATEL, fuzzy ANP, and fuzzy TOPSIS techniques in order to evaluate green suppliers. Also they proposed application of the methodology for green supplier evaluation in a specific company in the automotive industry in Turkey. The major five evaluation criteria for green suppliers are organization, financial performance, service quality, technology, and green competencies. Green competencies criteria contain social responsibility, cleaner/environmental production and technologies, and environmental management system. Humphreys, et al (2003) categorize the green criteria into two groups of qualitative and quantitative. Depending on whether an organization is using a reactive or proactive environmental management strategy, one or both groups of criteria may be used at the same time. Quantitative environmental criteria are based on the cost in monetary terms where a potential supplier may incur costs investing in environmental management of its processes or it may be a source of environmental costs because of its destructive processes. Pollutant costs/effects under quantitative criteria refers to environmental costs caused by a potential supplier. Improvement cost as well represent the degree of commitment the supplier has in environmental management. The qualitative environmental criteria are more subjective criteria and their application depends on the weight given to each one depending on its importance to the organization or industry and total points score obtained on the bases of the measured parameters including management competences, green image, design for environment (DFE), environment management systems and environment competencies.

Humphreys et, al.(2003) comments that purchasing influence many areas including materials used in product design, product design processes, supplier processes, supplier evaluation and selection, materials delivery. With the importance of collaborative supply chain and centralized purchasing in environmental management performance it is understandable that deciding which suppliers to work in partnership with and how to select suppliers is a very critical decision for the organization performance. Incorporation of objective environmental criteria in the evaluation systems will ensure higher environmental performance in the collaborative supply chains (Humphreys, et al.,2003). Green supplier selection criteria may be developed with intent of focusing on meeting government regulations, focusing on process improvement, and focusing on buying company's environmental policy.

Factors Affecting Green Supply Chain

Organisations in competitive market make a choice prior to making a resolution to implement an environmental plan. Chang, Kenzhekhanuly and Park (2013) comment that environmental planning is an important task for firms as implementing it may invite the future costs as well as the benefits. Organisations will enjoy benefits like positive image, market share, and efficiency gains by executing environmental initiatives or the organisations may suffer from losses such as regulatory compliance costs and costs from implementing the environmental plan. Nevertheless, there are not only cost and benefit related issues involved at the process of implementing the environmental plan but also pressure groups that stress firms to implement environmental practices. Henriques and Sadorsky (1996) under their study put pressure groups as factors influencing GSCM into two: external pressures for example regulators, community,

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

consumer, suppliers; and internal pressures for instance shareholders, management, and employees. Liu et al.,(2012) also suggest that without the necessary learning capacity an organization is less likely to adopt environmental activities, no matter what pressures it faces. It states that internal pressures are the dominant pressure group among all. Organization's learning capacity is key to success as unique company structure, shared expertise, team work, and employee involvement are skill development tools which cannot be shared among organizations and a big advantage to easily implement GSCM practices. Russo and Fouts (1999) in addition write that learning capacity is improved by self-learning, on-the-job training, and continuous practice of professional skills. Moreover, organizational capabilities are closely related to environmental performance, and proactive environmental practices are easily adopted by organizations with greater capabilities. The study on pressures in China in (Zhu, Sarkis, Cordeiro & Lai, 2008) revealed the positive correlation between the learning capacity and adoption of GSCM practices. This finding was later supported by Liu et al. (2012).

Falk (2001) posits that political commitment and support are needed for facilitating progress in green procurement and it has been identified as an important factor influencing green procurement/GSCM. Christensen and Staalgaard (2004) suggest that many public and private organisations lack knowledge and expertise for evaluating different alternatives in terms of their environmental aspects and impacts. This may lead to that purchasers feel reluctant to priorities green procurement because they need concrete knowledge of which environmental requirements are relevant for a particular product group. Handfield et al., (2002) indicate that the challenges related to the evaluation include the uncertainty on how to define a green product and how to weight the relative importance of different life-cycle performance indicators. Besides, there is a perceived lack of concrete product selection guidance, resulting in problems in identifying greener product alternatives. In addition, there is a perception of lack of knowhow or resources for possible verification and follow up of the life cycle oriented information. This supports that idea that there are lacking of coordination and dissemination of best practices in various organisations and levels be it national governmental procurement, local municipal procurement practices, as well as success cases from businesses from different sectors.

Walker et al., (2008) on factors affecting GSCM or green procurement identifies lacking of managerial support and practical tools, as well as training, as an extra factors affecting green procurement. Bouwer et al., (2006) conversely, look at the private companies to implement green procurement practices lack regulatory demands and clear regulatory framework for criteria development, evaluation and incorporation, as well as for comparing alternatives and for following up the supplier performance. Bowen (2001) point out that compared to single criteria considerations, the life cycle perspective adds to the complexity of green procurement in that the number and scope of purchasing criteria is increased and needs to cover various stages of a product life cycle. The scope is extended to include not only the characteristics of the product per se, but also how it has been produced and distributed, as well as its environmental impact during use and disposal stages. In addition to lacking awareness, cost issues and lacking clarity in regulation, business companies mention poor supplier commitment and industry specific factors.

Insufficient individual capacity is another factor challenging the implementation of GSCM. The capacity aspect can be related to knowledge, insights on environmental issues, environmental education. The feeling of inability or inadequacy can as well stem from a lack of enthusiasm or intellectual understanding. Russell (1998) advised managers, including

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

purchasing managers to have a variety of attitudes toward environmental issues, and sometimes also have an ambivalent perception regarding the potential and immediate costs and gains of green purchasing initiatives. Education and especially training of purchasers in public and private organisations needs to become more widespread in incorporating GSCM elements in the operations of mining companies.

METHODOLOGY

From Bryman (2001) the preference of a research method depends upon the aim of the inquiry and use of the findings. The research method adopted for this study is qualitative method instead of quantitative method from the fact that qualitative method is accommodating for examining questions like how and why of research instead of calculating exact figures using quantitative methods. The qualitative method was instrumental in serving the rationale well given that the objectives were to examine the effects of procurement practices on the environment, the extent to which green purchasing influence on supplier selection and to find out the factors affecting green supply chain of mining firms in Ghana. These objectives can best be answered through qualitative method. The study used focus group discussion which share many common features with less structured interviews, but has more to it than merely collecting similar data from many participants at once. A focus group is a group discussion on a particular topic organised for research purposes. The discussions were guided, monitored and recorded by the researchers. This strategy was employed for its ability to generate information on joint views and the implication that lie behind those views. It's very valuable in generating a rich understanding of partaker's experiences and beliefs. The idea for adopting focus group discussion was also based on the fact that statistical data was not required for any numerical purposes rather for a depth and insight understanding of the factors affecting green supply chain in the mining sector in Ghana.

The study population consisted of the staff of the mining companies in Ghana during their conference and exhibition in early January 2015 and early February 2015 seminar on environment. The selection was purposive and was on the willingness of members who were experts on the topic to participate during their long break. Six and seven members agreed for the first and second time respectively to be part of the discussion. The discussions were structured around a set of cautiously predetermined questions but the discussions were free-flowing. Participants comment stirred and sway the thinking of others. All the discussions were recorded and transcribed. Transcriptions were analysed by summarising and comparing the views of the participants.

FINDINGS AND DISCUSSION

Effects of Procurement Practices on the Environment

On the question of operations of mining companies can be harmful to the environment, the study revealed that the views expressed by participants were not different from others that the mining industry was associated with a lot of negative environmental impacts. This confirmed Priyadarshi (2012) view that the nature of mining processes creates a potential negative impact on the environment both during the mining operations and for years after the mine is closed. With the procurement of goods and services by the mining companies having harmful impacts

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

on the environment, the discussions disclosed that goods purchased by the mining companies have negative effects on the environment. The Responsible Purchasing Network (2015) from the literature validated this finding that procurement of products and services often results in extensive negative impacts on public health and the environment. With the discussion on how can procurement help to reduce the negative environmental impact the participants concluded that procurement has the capacity to reduce such negative effects. This is supported by current role of purchasing and supply as a level for sustainable development where many contemporary commercial practices show that business organizations and business partners are focusing their procurement strategies on reducing the environmental 'foot prints' of their procurement and supply chain activities. From Humphreys et al., (2003) the idea is the need to improve organisational efficiency, reduce waste, overcome supply chain risk, and achieve competitive position has made companies to start considering environmental issues from a competitive view point. The study in attempt to understand the extent to which individual companies are using procurement to ensure environmentally preferable purchase, discussed specific policies implemented by their procurement departments. The participants concluded on the following: buying from environmental friendly companies and companies with high environmental reputation; ensures goods were well packaged and have the right seals; Dangerous good must be accompanied with Material Safety Data Sheet (M.S.D.A); hazardous are stored in a confined area to protect the environment; and goods are purchased in the right container in order to prevent spillage; organise seminars for their procurement, logistics and supply chain managers on green issues and the environment.

Green Purchasing Influence on Supplier Selection

From the discussions on green procurement influencing supplier selection, the participants debated the factors extensively depending on individual company's vision and mission. The conclusion revealed the following factors influencing supplier selection for green procurement: environmental regulations by Environmental Protection Agency (EPA) of Ghana; followed by suppliers environmental emission; cost of environmentally friendly packages; mode of transporting the goods purchased; environmental partnership with suppliers; cost for disposal of hazardous material; cost of environmentally friendly goods; potential liability for disposal of hazardous materials; focusing on process improvement; focusing on buying company's environmental policy. From the discussions it was clear that all the factors mentioned were important however, the participants were of the view that the most important factor influencing supplier selection at the mining companies was environmental regulation by the E.P.A. The importance of this factor may stem from fear of liability litigation and fines and subsequent negative publicity. It may also be the intent of focusing on meeting government regulations. Besides, these results are in harmonious with Monczka and Trent's (1995) conclusion that one of the most important future concerns for purchasing management is the impact of environmental regulation on purchasing activities. In addition, this particular objective of this study findings are as well in conformity with Humphreys et al., (2003) who comments that purchasing influence many areas including materials used in product design, product design processes, supplier processes, supplier evaluation and selection, materials delivery. With the importance of collaborative supply chain and centralized purchasing in environmental management performance it is understandable that deciding which suppliers to work in partnership with and how to select suppliers is a very critical decision for the organization performance. Incorporation of objective environmental criteria in the evaluation systems will ensure higher environmental performance in the collaborative supply chains (ibid).

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Factors Affecting Green Supply Chain of Mining Companies in Ghana

On the factors affecting green supply chain of the mining companies in Ghana the discussion concluded on the following factors: lack of knowledge and expertise involving green supply chain and its related activities in the mining companies in Ghana; lack of awareness of the potential economic benefits of green supply chain/purchasing; lack of political commitment; lack of the learning capacity to evaluate green supply chain; high cost of environmental programs affect green supply chain/purchasing; green management costs affects green supply chain/purchasing; uneconomical recycling; uneconomical reusing of waste affect green supply chain/purchasing; poor national environmental regulation; unwillingness to implement the regulations involving environmental policy by policy makers; lack of supplier awareness affect green supply chain/purchasing; lack of management commitment affect green supply chain/purchasing; information tools affect green supply chain/purchasing; lack of company-wide environmental standards or auditing programs; ineffective sanction regime for environmental offenders. These factors established are supported by Chang, Kenzhekhanuly and Park (2013) on cost and benefits involving implementation of the environmental plan, Henriques and Sadorsky (1996) on external and internal pressures, Russo and Fouts (1999) on learning capacity, Falk (2001) on political commitment and support, Christensen and Staalgaard (2004) lack knowledge and expertise, Walker et al., (2008) on managerial support and practical tools. These findings implied that many purchasing professionals do not have the capacity themselves when it comes to green supply chain and the companies do not fully recognize the potential economic benefits of green supply chain/purchasing. And many purchasing professionals seem to be deterred from green supply chain/purchasing programs due in part to a misconception that such programs are expensive to initiate and implement. The irony is that a proper implementation of green supply chain/purchasing programs have the ability to create economic value, such as reduced disposal and liability costs, while conserving resources and improving the company's public image. Kopicky et al., (1993) argued that recycled material is usually less expensive to purchase than comparable virgin materials and sometimes can lower capital and operating costs for manufacturing facilities. Stilwell, et al (1991) further comments that firms that participate in recycling programs could receive tax credits and exemptions from the governments.

SUMMARY OF FINDINGS

The study concluded that the goods purchased by mining companies have negative effects on the environment. It was also concluded that procurement practices could be used to reduce the negative impacts of the companies' operation on the environment since the procurement departments of the companies have specific policies geared towards environmentally preferable purchases. The study also concluded that green procurement influence supplier selection through environmental regulations by Environmental Protection Agency of Ghana; suppliers environmental emission; cost of environmentally friendly packages; mode of transporting the goods purchased; environmental partnership with suppliers; cost for disposal of hazardous material; cost of environmentally friendly goods; potential liability for disposal of hazardous materials; focusing on buying company's environmental policy. The participants revealed that the most important factor influencing supplier selection in mining companies is the environmental regulation by the E.P.A. The study as well concluded that the most notable factors influencing green supply chain in the mining companies in Ghana include lack of knowledge and expertise involving green supply chain, lack of awareness of the potential

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

economic benefits of green supply chain, lack of political commitment, lack of the learning capacity to evaluate green supply chain; high cost of environmental programs; green management costs; uneconomical recycling, uneconomical reusing of waste; poor national environmental regulation; unwillingness to implement the regulations involving environmental policy by policy makers; lack of supplier awareness; lack of management commitment; ineffective sanction regime for environmental offenders.

CONCLUSION

The study of factors affecting green supply chain in the mining sector of Ghana is, mainly overlooked and to the researchers' knowledge, the first comprehensive study on factors affecting green supply chain in the mining industry in Ghana. The findings from the discussions suggest that activities of the mining industry have negative impact on the environment and the supply chain activities and its related elements can turn on environmental preferable practices to have a positive impact on the environment. The findings should guide policymakers/management to address the problem at the mining companies with a more comprehensive targeted approach and design of accurate measures for implementation of green supply chain policy. Theoretical essence for this study of factors affecting green supply chain in the mining industry in Ghana is to create the awareness in research from the theory of altruism, theory of collectivism and perceived consumer effectiveness (PCE).

Whilst the findings of the study could be applied in most cases, there were some noteworthy exception predominantly not many staff were involved, the timing and the time could have better schedule for only the project. However, these did affect the discussion and its results therefore the findings of this study.

RECOMMENDATION

The current heightening of national concerns on the negative impact of mining activities on the environment calls for serious introspection on how best this threat can be resolved. The proposition under this study is the creation of awareness on what factors are preventing the mining industry from implementing green supply chain and how supply chain activities can self-check itself in mitigating the negative impact on the environment. The focus needs to be placed on the following:

- Mining companies and its allies should organise joint seminars and workshops to sensitize the employees and suppliers on the benefits of green purchasing and the need to embrace it. The implementation flow of green supply chain becomes easier when the workers and suppliers are aware of the benefits of a green purchasing.
- Mining industry and EPA should link up to train their supply/logistics/procurement practitioners on the issues of green procurement /supply chain. When education and training is very much tied to the environmental regulations and the policy, practitioners involved in operative ordering most likely will be aware of green supply chain's impact on the environment and they may presume to use. This will improve awareness and knowledge with green supply chain/procurement processes amongst practitioners and staff employed in the mining companies.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

- The mining companies should recognize the value or the significance of environmental issues it affects on the communities involves and inculcates this culture to its employees who will implement the green vision in the company.
- Monitoring compliance trends should be a key part of the EPA. The outcome of monitoring compliance should be used to transform the ineffective sections of EPA regulations and make enforcement more effective.
- There should be early supplier involvement to understand the essence of green to the society where the suppliers also would consider making the supply of green products affordable so as to attract consumers (miners) to procure green products. This will go a long way in reducing the greenhouse–effect (global warming) because consumers will use environmentally friendly commodities.
- The study suggest for future studies must use quantitative design to authenticate or otherwise the validity of the findings.

REFERENCE

Akman, G & Pışkın, H (2013). 'Evaluating Green Performance of Suppliers Via Analytic Network Process And TOPSIS' Journal of Industrial Engineering Volume 2013 (2013), Article ID 915241 http://dx.doi.org/10.1155/2013/915241

Aryee, B. N. (2012). 'Contribution of the Minerals and Mining Sector to National Development: Ghana's Experiment'. GREAT Insights, 1 (5).

Bai, C. & Sarkis, J., (2010). 'Green supplier development: analytical evaluation using rough set theory,' Journal of Cleaner Production, vol. 18, no. 12, pp. 1200–1210

Barve, A. & Muduli, K. (2013). 'Modelling the challenges of green supply chain management practices in Indian mining industries'. Journal of Manufacturing Technology Management. 24(8), p. 1102-1122.

Beamon, B. M., (1999). 'Designing the green supply chain', Logistics Information Management,

Vol. 12, No. 4, pp 332-342.

Bhatia, S.C. (2006). Environmental chemistry. New Delhi: CBS

Bhool, R., & Narwal, M. S. (2013). 'An analysis of drivers affecting the implementation of green supply chain management for the Indian manufacturing industries'. International Journal of Research in Engineering and Technology, 2(11), 2319-1163.

Bloch, R. & Owusu, G. (2012). 'Linkages in Ghana's gold mining industry: Challenging the enclave' thesis. Resources Policy 37, 434–442

Bordon, R.J. & Francis, J.L.,(1978). Who cares about ecology? Personality and sex difference in environmental concern. Journal of Personality, 46(1), pp. 190-203.

Bowen FE, Cousins PD, Lamming RC, Faruk AC. (2001). The role of supply management capabilities in green supply. Production and Operations Management 10(2): 174–189.

Bouwer M.; Jonk M.; Berman T.; Bersani R.; Lusser H.; Nappa V.; Nissinen A.; Parikka

K.;Szuppinger, P. & Viganò C. (2006). Green Public Procurement in Europe 2006, Conclusions and Recommendations, Haarlem, the Netherlands: Virage Milieu & Management

Bryman, A. (2001). Social Research Methods. Oxford University Press

Büyüközkan & Çiftçi, C (2012) "A novel hybrid MCDM approach based on fuzzy DEMATEL, fuzzy ANP and fuzzy TOPSIS to evaluate green suppliers," Expert Systems with Applications, vol. 39, no. 3, pp. 3000–3011, 2012.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Camara, V., Filhote, M., Lima, M., Alheira, F., Martins, M., and Dantas, T., (1997). Strategies for preventing adolescent mercury exposure in Brazilian gold mining areas..ToxicolIndHealth , 13(2-3): 285-97.

Chang, B., Y., Kenzhekhanuly Y., & Park, B., (2013). A Study on Determinants of Green Supply Chain Management Practice International Journal of Control and Automation Vol. 6, No. 3,

Chien, M. K., & Shith, L. H., (2007). An Empirical Study of the Implementation of Green Supply Chain Management Practices in the Electrical and Electronics Industry and their Relation to Organizational Performances. 4(3), 383-394

Christensen, L., & Staalgaard, P., (20040. Support for purchasing and follow-up of green textiles business-to-business (in Danish). No 902 2004 - Danish Ministry of the Environment - Environmental Protection Agency.

Deshmukh. A. J & Vasudevan, H (2014). "Emerging Supplier Selection Criteria in the Context of Traditional Vs Green Supply Chain Management", International Journal of Managing Value and Supply Chains,Vol.5, No. 1, pp.19-33

Diabat, A. & Govindan, K. (2011). An analysis of the drivers affecting the implementation of green supply chain management. Resources, Conservation and Recycling 55 (2011) 659–667.

Dunlap, R.E., Van Liere, K.D., Mertig, A.G. and Jones, R.E., (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. Journal of Social Issues, 56(3), pp. 425-442.

Elbarky, S. & Elzarka, S., (2015). A Green Supply Chain Management Migration Model Based on Challenges Faced in Egypt Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management Dubai, United Arab Emirates (UAE), March 3 – 5, 2015

Ellen, P.S., Wiener, J.L. & Cobb-Walgren, C., (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviours. Journal of Public Policy and Marketing, 10 (2), pp. 102-117.

Fu, X., Zhu,Q., & Sarkis, J. (2012). "Evaluating green supplier development programs at a telecommunications systems provider," International Journal of Production Economics, vol. 140, no. 1, pp. 357–367, 2012

Galankashi M. R., Moazzami, A., Madadi, N., Haghighian R. A. & Helmi,A. S. (2013). "Supplier Selection for Electrical Manufacturing Companies Based on Different Supply Chain Strategies", International Journal of Technology Innovations and Research, pp.1-13

Grankvist G., Biel A. (2007). Predictors of purchase of eco-labelled food products: a panel study.*Food Qual. Prefer.* 18 701–708. 10.1016/j.foodqual.2006.11.002

Gronbacher, G. M. A (1998). "The Need for Economic Personalism" 1, no. 1 (Spring 1998):1–34

Gunson, A. J., & Jian, Y. (2001). Artisanal Mining in The People's Republic of China. Mining, Minerals and Sustainable Development (74).

Handfield, R, Walton, SV, Sroufe, R, & Melnyk, SA. (2002). Applying environmental criteria to supplier assessment: A study in the application of the Analytical Hierarchy Process. European Journal of Operational Research, 141, 70-87

Henriques, I. & Sadorsky, P. (1996). The Determinants of an Environmentally Responsive Firm: An Empirical Approach. Journal of Environmental Economics and Management, 30, 381-395.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Hervani A. A., Helms M. M., & Sarkis J., (2005) "Performance measurement for green supply chain management," Benchmarking: An International Journal, vol. 12, no. 4, pp. 330-353. Huang, X., Tan, B.L. & Ding, X. (2012) 'Green supply chain management practices: an investigation of manufacturing SMEs in China', International Journal of Technology Management and Sustainable Development, Vol. 11, No. 2, pp.139–153

Humpreys, P. K., Wong, Y, K., & Chan, F. T. S. (2003) "Integrating environmental criteria into the supplier selection process," Journal of Materials Processing Technology, vol. 138, pp. 349–356, 2003.

Humphreys, P.K. (2003). Integrating environmental criteria into supplier selection process; Journal of Materials processing technology (138), 349-356

Hussein, I. M. R & Shale, I. N. (2014). Effects of Sustainable Procurement Practices on Organizational Performance In Manufacturing Sector In Kenya: A Case of Unilever Kenya Limited. European Journal of Business Management, 1 (11), 417-438.

Kalubanga, M. (2012). "SUSTAINABLE PROCUREMENT: Concept, and Practical Implications for the Procurement Process". International Journal of Economics and Management Sciences, Vol. 1, (No. 7,), pp. 01-07.

Kaufmann, H. R., Panni, M. F., & Orphanidou, Y. (2012). Factors Affecting Consumers' Green Purchasing Behavior:An Integrated Conceptual Framework. Amfiteatru Economic , XIV (31),50-69.

Kamolkittiwong, A., & Phruksaphanrat, B., (2015) An Analysis of Drivers Affecting Green Supply Chain Management Implementation in Electronics Industry in Thailand Journal of Economics, Business and Management, Vol. 3, No. 9.

Kim, Y & Choi, S. M. (2005). "Antecedents of Green Purchase Behavior: an Examination of Collectivism, Environmental Concern, and Pce", in NA - Advances in Consumer Research Volume 32, eds. Geeta Menon and Akshay R. Rao, Duluth, MN : Association for Consumer Research, Pages: 592-599.

Kinnear, T.C., Taylor, J.R. and Ahmed, S. A., (1974). Ecologically concerned consumers: who are they? Journal of Marketing, 38 (2), pp. 20-24.

Kitula, A. (2006). "The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District". Journal of Cleaner Production , 405-414.

Kopicky, R.J., Berg, M.J., Legg, L., Dasappa, V., Maggioni, C., (1993), Reuse and Recycling: Reverse Logistics Opportunities, Council of Logistics Management, Oak Brook, IL

Kuo, R. J., Wang, Y. C.& Tien, F. C., (2010) "Integration of artificial neural network and MADA methods for green supplier selection," Journal of Cleaner Production, vol. 18, no. 12, pp. 1161–1170, 2010.

Kusi-Sarpong, S., Sarkis, J., Wang, X & Filho, W. L. (2014) Sustainable Supply Chain Management Practices in Ghana's Mining Industry. Working Paper WP2-2014

Lamming, R., and Hampson, J. (1996). The environment as a supply chain management issue." British Journal of Management. Vol 7 (S): 45-62.

Lee, A. H. I., Kang, H. Y., Hsu, C. F., & Hung, H. C (2009)"A green supplier selection model for high-tech industry," Expert Systems with Applications, vol. 36, pp. 7917–7927

Lee, J.A. and Holden, S.J.S., 1999. Understanding the determinants of environmentally conscious behavior. Psychology & Marketing, 16 (5), pp. 373-392.

Li, L.Y., (1997). Effects of collectivist orientation and ecological attitude on actual environmental commitment: The moderating role of consumer demographics and product involvement. Journal of International Consumer Marketing, 9(4), pp. 31-35.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Liang, S. & Chang, W.L. (2008). 'An empirical study on relationship between green supply chain management and SME performance in China, International Conference on Management Science and Engineering , pp.611–618, California State University, Long Beach, CA, USA

Liu, X., Yang, J., Qu, S., Wang, L., Shishime, T.,& C. Bao, C. (2012). "Sustainable Production: Practices and Determinant Factors of Green Supply Chain Management of Chinese Companies", Business Strategy and the Environment, vol. 21, (2012), pp. 1–16.

Luthra, S. Kumar, V. Kumar, S. & Haleem, A. (2011). "Barriers to implement green supply chain management in automobile industry using interpretive structural modeling technique-An Indian perspective", Journal of Industrial Engineering and Management, 4(2), 231-257

McCarty, J. A. & Shrum, L.J., (1994). The recycling of solid wastes: Personal and cultural values and attitudes about recycling as antecedents of recycling behavior. Journal of Business Research, 30 (1), pp. 53-62.

McCarty, J. A. & Shrum, L.J., (2001). The influence of individualism, collectivism, and locus of control on environmental beliefs and behavior. Journal of Public Policy and Marketing, 20 (1), pp. 93-104.

Ministry of Lands and Natural Resources. (2010). A report on Ghana's mining sector for the 18th session of the UN commission on sustainable development. Accra: Government of Ghana.

Monczka, R., & Trent, R. (1995).Purchasing and Sourcing Strategy: Trends and Implications . Tempe, AZ: Center for Advanced Purchasing Studies.

Mostafa, M., (2009). Shades of green: A psychographic segmentation of the green consumer in Kuwait using self-organizing maps. Expert Systems with Applications, 36(8), pp. 11030-11038. Munnik, V. Hochmann, G. Hlabane, M. & Law, S. (2010) The Social and Environmental Consequences Of Coal Mining in South Africa, Cape Town

Nielsen, I. E., Banaeian, N., Golinska, P., Mobli, H., & Omid, M. (2014). Green supplier selection criteria: From a literature review to a flexible framework for determination of suitable criteria. In P. Golinska (Ed.), Logistic operations, supply chain management and sustainability (pp. 79–100). Springer

Ninlawan, C., Seksan, P., Tossapol, K., & Pilada, W., (2011). "The Implementation of Green Supply Chain Management Practices in Electronics Industry", Proceedings of the International Multiconference of Engineers and Computer Scientists

Noci, G. (1997). Designing "green" vendor rating systems for the assessment of a supplier's environmental performance, European Journal of Purchasing and Supply Management, 3 (2), 103–114.

Peck, P. & Sinding, K. 2003: Environmental and social disclosure and data richness in the mining industry. Business Strategy and the Environment 12,131-146.

Preuss, L. (2005). "Rhetoric and reality of corporate greening: a view from the supply chain management function." Business Strategy and the Environment 14(2): 123-139. Priyadarshi, N (2012). Effects Of Mining On Environment In The State Of Jharkhand, India Circular Road, Ranchi-834001 Jharkhand

Rao, P (2006). "Greening the supply chain: a new initiative in South East Asia", International Journal of Operation and Production Management, vol. 22, no. 6, pp. 632-655

Rozar, N. M., Mahmood, W. H., Ibrahim, A., & Razik, M. A. (2013). A Study of Success Factors in Green Supply Chain Management in Manufacturing Industries in Malaysia. Journal of Economics, Business and Management, 3 (2), 2-7.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Rusli, K. A., Rahman, A.A., and Ho, A. A (2012) "Green supply chain management in developing countries: a study of factors and practices in Malaysia", UMT 11th International Annual Symposium on Sustainability Science and Management, 09th- 11th July 2012, Terengganu, Malaysia, pp. 278-285, 2012.e-ISBN 978-967-5366-93-2

Russel, T (Ed.). (1998). Greener Purchasing - Opportunities and Innovation: Greenleaf Publishing

Russo, M. V. & Fouts, P. A., (1997). "A resource based perspective on corporate environmental performance and profitability", Academy of Management Journal, vol. 40, no. 3, pp. 534-59

Vachon, S. & Klassen, R.D., (2006) "Extending green practices across the supply chain: the impact of upstream and downstream integration", International Journal of Operations & production Management, Vol. 26, No. 7, pp 795-821.

Verhoef, P. C. (2005), "Explaining purchases of organic meat by Dutch consumers", European Review of Agricultural Economics, Vol. 32, pp. 245-267.

Vermeir, I. and Verbeke, W. (2006), "Sustainable food consumption: exploring the consumer "attitude - behavioural intention" gap", Journal of Agricultural and Environmental ethics, Vol. 19 No. 2, pp. in press.

Schwartz, S. H. (2007a). Universalism values and the inclusiveness of our moral universe. Journal of Cross Cultural Psychology, 38, 711-728..

Seman, NAA, et al., (2012) Green Supply Chain Management: A Review and Research Direction. International Journal of Managing Value And Supply Chains, 3 (1).

Stern, P., Dietz, T. and Kalof, L., (1993). Value orientations, gender, and environmental concern. Environment and Behavior, 25(3), pp. 322-348.

Srivastava, S.K., (2007) "Green supply-chain management: a state-of-the-art literature review",

International Journal of Management Reviews, Vol. 9, No. 1, pp 53–80.

Stilwell, J; Canty, C; Kopf P.; Montrone, A; Packaging for the Environment. A partnership for progress. American Management Association. New York. (1991).

The Responsible Purchasing Network (2015) Green 101: Policies. http://www.responsiblepurchasing.org/purchasing_guides/all/policies

Tsai, W. & Hung, S. (2009) 'A fuzzy goal programming approach for green supply chain optimization under activity-based costing and performance evaluation with a value-chain structure', International Journal of Production Research, Vol. 47, No. 18, pp.4991–5017

Tuzkaya, G., Ozgen, A., Ozgen, D, & Tuzkaya, U. R., (2009) "Environmental performance evaluation of suppliers: a hybrid fuzzy multi-criteria decision approach," International Journal of Environmental Science and Technology, vol. 6, no. 3, pp. 477–490

UNEP (2011) Global Responses; CHAPTER 17,
http://www.unep.org/geo/pdfs/geo5/GEO5_report_C17.pdf

Walker, H. and Wendy, P. (2006); Sustainable procurement: emerging issues,; International Public Procurement Conference proceedings, 21-23 September, 2006.

Walker, H, Di Sisto, L, & McBain, D. (2008). Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. Journal of Purchasing and Supply Management, 14(1), 69-85.

Warhurst, A. (1999). Mining and the Environment: Case-Studies from the Americas. VA: May: Stylus Publishing.

Wisner, J., Keong, G., & Tan, K. (2005)."Principles of Supply Chain Management: A Balanced Approach". (International student edition ed.). Australia: Thomson South-Western.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

Yelpaala, K. (2004). Mining, Sustainable Development and Health in Ghana: The Akwatia Case-Study. U.S.A: Brown University. Zhu, Q., Sarkis, J., Cordeiro, J.J. & Lai, K., (2008) "Firm-level correlates of emergent green supply chain management practices in the Chinese context", Omega, 36, pp 577-591.

Zhu, Q. & Sarkis, J., (2004) "Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises", Journal of Operations Management, 22, pp 265-289.

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)