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The Relationship between Corporate Environmental Practices and the Environmental Performance

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Abstract- Although considerable amount of the literature related to examination the link between environmental protection issues and the performance, different results and mixed outputs have been articulated by these studies, and previous research yet to investigate the relationship between multidimensional approach of corporate environmental activities and environmental performance. The purpose of this study was to disaggregate corporate environmental activities into six dimensions (green competencies, employees' involvements, environmental management systems, organizational competencies, strategic planning process, and stakeholders' integration) based on both stakeholders and resource- based view theories, and examine how each dimension would affect environmental performance among manufacturing industries. While all corporate environmental activities were proposed to have positive environmental effects, the results revealed that each dimension has a different effect on corporate environmental performance. Such results may assess the industrial corporation by directing their efforts to specific areas when trying to improve their environmental performance.

Index Terms- Corporate environmental practices, corporate environmental performance, Stakeholders theory, Congruence model, Eco-eccentric model.

I. INTRODUCTION

Since ancient time, there has been a growing interest in the role of the corporations in the society, and particularly, in the damage they being done to the natural environment (Ahmad, 2004). In 1972, the United Nations Conference on the environment represented the first international conference that addressed the environmental issues in a comprehensive fashion. It resulted in 109 recommendations related to the environmental issues should be taken by the governments (Balboa, 1973). Twenty years later, the Earth Summit on Environment and Development (Brazil) was the first time that leaders from more than 170 countries agreed that there is a need to protect the environment and not damage it (Quarrie, 1992). Such events have made the governments pay attention to the natural environment and maintain it. Additionally, the emergence of global environmental problems such as green gas emission and climate change that need an urgent solution have led to increased awareness of the society about the influences of corporations' activities on the environment.

Additionally, there is an expectation that the population of world will double during the next 40 years to reach approximately 11 billion (Shrivastava, 1995a, 1995b). To meet the needs of such population, environmental resource should be maintained and saved from the degradation. Unfortunately, several indicators show that the facts are going in the opposite side. Widespread damage to the world fishery (50% depletion during the last 50 years), wildlife, rain forests (42.000 square miles lost each tear), soil degradation by industrial agriculture, and desertification (26,000 square miles lost each year) (Shrivastava, 1995a).

As a reflection of previous event, several studies have investigated the role of environmental issues in the corporations' operations. Such investigation is considered in different fashions. Firstly, several studies have focused on the strategic aspects of environmental issues and the way to link this focus to the different aspects of organizational performance (Gamero, Dolores, & Azorín, 2009; Hart, 1995; López-Gamero, Molina-Azorín, & Claver-Cortés, 2009; Sharma & Vredenburg, 1998; Wagner, 2005). Secondly, another group of studies have focused on addressing the role that corporate environmental activities play in improving the environmental and financial performances of the corporations (Anton, Deltas, & Khanna, 2004; Baba, 2004; Bayoud, Kavanagh, & Slaugther, 2012; Daily, Bishop, & Steiner, 2011; Iraldo, Testa, & Frey, 2009; Shrivastava, 1995b). However, different results and mixed outputs have been articulated by these studies (Horváthová, 2010; Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003), which creates ground for further investigation.

One reason of the inconsistency in the results of previous studies is their separately use of different types of environmental indicators, which leads to difficulty to identify general relationship between those indicators and business performance (Wagner, 2003). This justifies the need of study that incorporates multiple indicators of environmental activities to reflect a great area of the whole environmental aspects (Delmas, 2001). González-Benito and González-Benit (2005) concluded that there is no single response for the question about the relationship between environmental and business performance, and such relationship must be disaggregated into more specific and concrete relationships. Moreover, Schaltegger and Synnestvedt (2002) believed that the reason of the confliction results is the lack of a clear theoretical framework to investigate the link between environmental and economic performance. For instance, Sarkis and Cordeiro (2001) concluded that the emission its self cannot represent the whole environmental aspects of the corporation, and suggested that the environmental related studies should use different environmental aspects to represent the whole environmental activities of the corporation.

Additionally, it has been argued that the relationship between environmental and business performance becomes clearer if we distinguished between the environmental

competencies (activities related to environmental protection) and environmental performance (the level of damage caused by corporation activities (Baba, 2004; López-Gamero, et al., 2009), as well as argued that a better environmental performance could be guided by different types of environmental practices that have different environmental influences on business performance (Christmann, 2000; González-Benito & González-Benito, 2005).

The current study contributes to the environmental related literature as following: (1) the study addresses the relationship between different environmental activities and the environmental performance, which has been treated separately in previous literature. This in line with the argument above that different environmental activities may have different impacts on the environmental performance (Christmann, 2000; González-Benito & González-Benito, 2005), and distinction should be made between the two concepts (Baba, 2004; López-Gamero, et al., 2009). (2) when previous studies limited their examination to specific theoretical models such as resource- based view, stakeholder theory, and social performance theories, this study extends the focus to include the concept of fit or congruency model that assumes that the effectiveness of corporations required that subparts or components must be consistently structured or managed (Nadler, Tushman, & Hatvany, 1980; Wyman, 2003), and also the eco- centric model that has been proposed by (Shrivastava, 1995a). (3) The previous empirical studies are mainly conducted in the industrialized countries such as Western Europe, USA, and Australia. Less attention was given to the developing countries, in particular to the Arab region. Therefore, this study may provide the industrial corporations' managers in Libya with clear insight into which environmental activity areas would improve their corporations' environmental performance.

II. THEORETICAL FRAMEWORK AND STUDY'S HYPOTHESES

Multidimensional of corporate environmental activities

It has been argued that corporate environmental activities refer to the efforts or activities taken by the corporation to reduce the harmful of its operations on the environment (López-Gamero, et al., 2009; Polonsky & Wood, 2001; Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010; Wagner, 2003). The corporate environmental activities can be derived from the environmental strategies of the corporations, as each environmental strategy incorporates a number of environmental practices (Buysse & Verbeke, 2003; Christmann, 2000; Hart, 1995; López-Gamero, et al., 2009; Sharma & Vredenburg, 1998). However, there is no commonly accepted division can represent the whole picture of environmental management practices' implementation (González-Benito & González-Benito, 2005). For instance, environmental management practices have been divided into organizational and technical practices (López-Gamero, et al., 2009). González-Benito and González-Benito (2005) divided environmental practices into organizational, operational, and communicational practices. These practices are also divided by Sarkis, et al (2010) into eco-design, source reduction, and managerial process management practices. Therefore, caution should be taken when determine the actual corporate environmental practices. For instance, depending on only chemical emission as a proxy of environmental practices can affect the results of the study (Sarkis & Cordeiro, 2001). This is due to the fact that the portfolio of practices of environmental issues plays a critical role in determination of the relationship between environmental proactively and the corporate performance (González-Benito & González-Benito, 2005). Therefore, there is a need to take into account a range of environmental practices as broad as possible.

According to the RBV, there are three main types of environmental strategies, which can be adopted by the corporation to actually engaging in practices related to green (Buysse & Verbeke, 2003; Hart, 1995). These strategies are pollution prevention, product stewardship, and sustainable development strategy. Buysse and Verbeke (2003) classified these strategies into five dimensions namely conventional green competencies, employee involvements, management systems and procedures, organizational competencies, and efforts made to reconfigure the strategic planning process.

The previous classification can be found implicitly in other classifications, such as Sarkis (1998) who provides five components that can represent environmentally conscious business practices can be applied by the corporations. These components include things as the design for the environment, life cycle analysis, total quality environmental management, and ISO14001. It can be accepted that such classification can incorporate the most known environmental practices, which can be reflected in the classification of Buysse and Verbeke (2003). For instance, the components of design of environment are found in the green conventional competencies, life cycle analysis is presented in the Buysse and Verbeke's (2003) classification, which explained under environmental management system and procedures, which include also some aspects of ISO14001. With regard to total quality environmental management that includes the support from top management, environmental planning, environmental measures, environmental quality management system and assurance; all these components are found in the classification of Buysse and Verbeke. Green supply chain management that includes things as the packaging, transportation, procurements, and material management are included under the green conventional comptencies and stakeholder integration in the classification adopted of this study.

This study follows the classification of Buysse and Verbeke for three reasons; (1) the classification represents the main components of natural RBV theory, which gives strong base of the consistency with the aim of the study. (2) Such resources are considers as sources of competitive advantages, which are rare, valuable, non-substitutable and inimitable. (3) Such classification incorporates the main requirements of ISO 14001, which introduced by the International Organization for standardization as a guideline that can be applied by the environmental management system in the corporation (Biltayib, 2006; Delmas, 2001; Melnyk, Sroufe, & Calantone, 2003; Watson, Klingenberg, Polito, & Geurts, 2004), which in turn lead to better environmental performance (Melnyk, et al., 2003). In addition to previous elements, the study considers the stakeholder integration as a sixth element of environmental practices. This because stakeholder integration with regard to environmental issues has been considered by several studies as a variable that influences both corporate environmental performance and the

competitiveness of the corporations (Journeault, 2010). Moreover, Hart (1995) highlighted that stakeholders' integration is a key resource to preempt the competitiveness of the corporation.

Corporate environmental performance

Eco- centric theory argued that corporations should not limited their objectives to maximize areas such profits, ravenous, or competitiveness, instead to, corporations should extend their goals to include addressing their activities' impacts on the environment (Shrivastava, 1995a). Such thought reflects measuring the outputs of environmental management activities, which can be indicated by corporate environmental performance. This consistent with the definition by Lankoski (2000), when defined corporate environmental performance as *" the level of harmful environmental impact caused by a firm so that the smaller the harmful environmental impact the better the environmental performance and vice versa"* (p.10). Furthermore, Wagner (2003) defined corporate environmental performance as *" the results of an organization' management on its environmental aspects"* (p.10).

Corporate environmental performance has been measured by the results of different activities. For instance, pollution prevention activities have been seen as indicators of corporate environmental performance (Cohen, Fenn, Naimon, & Service, 1995; Hart & Ahuja, 1996; Konar & Cohen, 2001; López-Gamero, et al., 2009; Ngwakwe, 2009; Stanwick & Stanwick, 1998; Wagner, 2007), energy and water usage (Wagner, 2005). The legal aspects such as the number of penalties (Cohen, et al., 1995; Ngwakwe, 2009) and the number of environmental lawsuits (Konar & Cohen, 2001) have been considered as indicators of corporate environmental performance.

Additionally, it has been argued that the eco- efficiency concept also can represent the outputs of corporate environmental activities (DeSimone & Popoff, 2000; Journeault, 2010; Wagner, 2003). The eco- efficiency concept emphasizes that corporations can achieve the efficiency in both economic and ecologic aspects in the same time. This can be achieved by the following principles (DeSimone & Popoff, 2000; Wagner, 2005); reduction of the material intensity of goods and services, reduction of the energy intensity of goods and services, elimination of toxic dispersion, enhancing materials recyclability, maximizing sustainable use of renewable sources, extension of product durability, and an increase of the service intensity of goods and service. Therefore, corporate environmental performance in this study means the results of corporation's environmental activities on the environment, which represented by the environmental scores of eco- efficiency.

Eco- centric management model

This model is articulated by Shrivastava (1995a) as alternative to the traditional management model. She summarized that traditional management theories have several limitation regarding the environmental issues; (1) they have ignored the environmental issues and gave narrow concept to the environment, (2) neglecting the destructive aspects of the corporations and focusing instead on improving the corporations productivity to benefit stakeholders, (3) focusing on the risks related to the financial aspects, and neglecting the risks posed by technology, location, waste, and the impact on the natural environment, (4) they emphasize that humans have the right to exploit nature without any real concerns to protect the environment, such concerns are meaningful only as a condition of human interests.

Instead of previous assumptions of traditional management models, the eco- centric model suggests that corporations must address the ecological degradation inherit in risk societies. Corporations have to adopt a new orientation that focuses centrally on technological and environmental risks, and that doesn't treat risks as externalities but treat them as the core problem of the management. In the organizational aspects, the model assumes that all business functions should be more ecologically centered roles. Finance aims for long- term sustainability growth, instead of short- term profits. Accounting seeks to include the environmental cost of production, instead of externalizing them. Management seeks to provide meaningful work and safe working conditions, instead of single- mindedly pursuing labor productivity. Sharivastava calls that the traditional view of the organizations objectives and strategies should be changed. She added that objectives such as profits and revenues are incomplete and inadequate. Such objectives should include minimizing the negative effects of the corporations on the environment. In other words, the impacts of the firms' activities on the environment should be addressed.

Using 3M corporation as a case study, Shrivastava (1995b) demonstrated that environmental technology has significant contributions to both environmental performance (reduce waste, resources and energy consumption, and reduce pollution), and the competitiveness of the corporation.

The congruence model of organizational behavior

Depending on the open- system theory, Tushman and Anderson began building the congruence model in the mid 1970s (Tushman & Anderson, 2004). The main point of this model is that corporations to be effective, they must approach a state of congruency. They stated that:

"The components of any organization exist together in various states of balance and consistency-what we call "fit". The higher the degree of fit -"or congruence"- among the various components, the more effective the organization". p. 162.

This model emphasizes the importance of understanding the organizational work through the understanding the three elements of an organizations namely inputs, transformation process, and outputs. The heart of congruence model and the most focus on the transformation process, which draws on inputs from the environment, resources, and history to produce a set of outputs (Nadler, et al., 1980).

The concept of fit assumes that transformation process contains four organizational components, and degree of consistency or fit should be achieved to a successfully transfer of the input into outputs. These components are (Nadler, et al., 1980; Tushman & Anderson, 2004; Wyman, 2003); (1) the work or task, which represents the basic work to be done by the organization, (2) the individuals' characteristics of the workers such as their skills, knowledge, experience, expectations, behavior patterns, and demographics, (3) formal organizational arrangements, which include the various structures, processes, methods that are formally created to get individuals to perform

tasks, (4) informal organization, which refer to the emerging arrangements including structures, processes, and relationships. For the purpose of enhancing the performance, different types of fit should be achieved between the previous four elements as follow: individual/ organization fit, individuals/ task fit, individual/ informal organization fit, task/organization fit, task/ informal organization fit, and organization/ informal fit.

Three type of fit are considered in this study:

1. The fit between individual (employees' involvements) and task (environmental performance)

According to Tushman and Anderson (2004), this type of fit requires individual needs are met by the task, and that the individuals have the appropriate skills and abilities enable them to do their jobs. This can reflect the employees' involvements toward environmental issues, which identifies as the involvements of employees towards the environmental agenda laid down by top management for the improvements of corporate environmental performance (Baba, 2004). In the context of congruence model, the success to meet these involvements will lead to achieve the fit between employees' skills and abilities, the requirements required to perform the environmental activities, which resulted in enhancing the environmental performance.

2. The fit between formal organization (environmental management system, organizational competencies) and task (environmental performance)

The congruence model assumed that, the organizational arrangement that able to meet the demands of work and motivate the behavior in consistent with the work, will enhance the fit between formal organization and the work and reflect in enhancing the performance (Nadler, et al., 1980; Tushman & Anderson, 2004; Wyman, 2003). Basing on this assumption, it can be accepted that the existence of environmental management system and addressing the environmental issues in the functional areas of the corporation will lead to improve the environmental performance.

3. The fit between informal organization (strategic planning process, stakeholder integration) and work (environmental performance).

According to Tushman and Anderson (2004), this type of fit requires that informal organization structure should facilitate the task performance by meeting the demands of the task. In line with this thought, the consideration of environmental issues in the strategic process and allowing to the individual who response to environmental issues to participate in decision- making process will lead to improve environmental performance (Russo & Harrison, 2005).

The non-integration between the environmental management aspects and strategic planning resulted in some types of disconnection, when the general management system is responsible for strategic and operations planning and environmental management is solely responsible for planning and implementing the environmental activities (Wagner, 2007). One way to reduce this disconnection is to use cross- functional approach, which emphasizes that to the extent that individuals from each subunit provide important information, a decision process can be improved (Russo & Harrison, 2005).

It has been argued that the cross-disciplinary coordination and integration can help the corporation in pollution prevention and thus improve its environmental performance (Russo & Fouts, 1997; Shrivastava, 1995a).

Moreover, having informal relationships with different stakeholder might facilitate the environmental performance by meeting the demands of the task. The concept stakeholder integration refers to the ability of establishing a positive collaborative relationship with a wide variety of stakeholders (Plaza-Úbeda, de Burgos-Jiménez, & Carmona-Moreno, 2010; Rueda Manzanares, Aragón Correa, & Sharma, 2008; Sharma & Vredenburg, 1998). The ability of the corporation to manage its relationships with its stakeholders can be a determinant of the company success (Bayoud, et al., 2012). They added that having good relationships between the corporation and its stakeholders can effect positively on both the environmental and economic performance of the corporation.

Stakeholders' theory

Stakeholder theory was originally detailed by Freeman and Reed (1983). The idea of the theory is that corporations should be run in ways that are sustainable. In other words, companies should be accountability not only to shareholders but also to the broader set of stakeholders. Flak and Dertz (2005) pointed out that the stakeholder theory is a primarily management instrument; the attributes of power, urgency, and legitimacy of claims defining the corporations' stakeholders. The theory assumes that the corporation can enhance the interests of its stockholders without damaging the interests of its wider stakeholders. Therefore, it takes into account both groups; stockholders and stakeholders.

In general, stakeholder theory can be classified into normative, instrumental, and descriptive approaches (Berman, Wicks, Kotha, & Jones, 1999; Donaldson & Preston, 1995; Freeman, 2010). The instrumental approach of the theory assumes that certain results will be gained if managers treated stakeholders in certain manner (Berman, et al., 1999). They added that corporations consider the stakeholder management as a toll to achieve the corporations' objectives, which can be profits, assure revenues,..etc. managing stakeholder interests can improve the overal performance of the corporation (Berman, et al., 1999; Berrone, Surroca, & Tribó, 2007; Céspedes-Lorente, Burgos-Jiménez, & Álvarez-Gil, 2003; Miles, Munilla, & Darroch, 2006). Therfore, this study relies on the assumption of the instrumental approach of stakeholder theory that the way corporation adopt to manage its stakeholders' interests helps the corporation avoid decisions that might promot stakeholders to undercut or thwart its objectives. It assumes that corporations operate in ways that minimize externalities, such as pollution emitted from industrial facilities (Horváthová, 2010).

Basing the previous discussion of eco-centric, congruency, and stakeholders' theory, this paper hypothesizes positive relationships between each of corporate environmental activities mentioned above and corporate environmental performance as following:

H1: there is a positive relationship between green conventional competencies and corporate environmental performance **[eco-centric model]**

H2: there is a positive relationship between employees' involvements towards environmental issues and corporate environmental performance **[congruence model, stakeholders' theory]**

H3: there is a positive relationship between organizational competencies and corporate environmental performance **[eco-centric model, congruence model]**

H4: there is a positive relationship between environmental management systems and corporate environmental performance **[congruence model]**

H5: there is a positive relationship between strategic planning process and corporate environmental performance **[congruence model]**

H6: there is a positive relationship between stakeholders' integration and corporate environmental performance **[congruence model, stakeholders' theory]**

2.6 Demographic factors

In addition to the above variables, several other demographic variables are used in the study because of their possible effects on the relationships mentioned in the conceptual framework. These variables are first of all, the corporation's size and its influence on the relationship between the corporate environmental performance and the competitive advantages since large corporations have greater possibility of engaging in corporate environmental activities as compared to smaller ones (Ahmad & Mousa, 2010; Aragón-Correa, Hurtado-Torres, Sharma, & García-Morales, 2008; Delmas, 2001; Inoue & Lee, 2010; Russo & Fouts, 1997; Sharma, 2000). This can be due to the fact that the large corporations, regardless of their pollution level, often worry about their reputation. Therefore, they respond to the stakeholders' pressure more than smaller corporations (Aragón-Correa, et al., 2008; Turban & Greening, 1997). Additionally, it is noticeable that small domestic corporations in Libya are mainly family- owned and are not listed on the stock exchange. This to some extent reflect the perceived importance of stakeholders (Buysse & Verbeke, 2003). It is also true that large corporations pay a greater attention to international customers, suppliers, and rivals than small corporations. Therefore, this study uses size as a control variable. The number of employees as a proxy to a corporation's size has been widely accepted in related literature (Ahmed, Montagno, & Firenze, 1998; Baba, 2004; Delmas, 2001; López-Gamero, et al., 2009; Sarkis, et al., 2010; Wagner, 2007). Therefore, the number of employees represents size in this study.

Secondly, in addition to size, the industry can play a critical role in the relationship between the corporate environmental activities and corporate performances. Ahmed, et al. (1998), concluded that industrial corporations seem to have higher concerns about the environment than those of in the service sector, and take greater effort in reducing their impacts on the environment. Such variability can also be between the corporations in the industrial sector. For instance, Nakao, et al. (2007) found that the relationship between corporate environmental performance and corporate performances depends on the type of industry. Moreover, the type of industry can be a determinant of the importance of stakeholders (Gomez-Mejia, 2008), and the influence of corporation's capability on its competitive advantages (López-Gamero, et al., 2009). They added that different industries have different impacts on the environment. Additional, the type of industry has been used by several studies to be control of the relationship between corporate environmental issues and corporate performances (Cavaco & Crifo, 2010; Delmas, 2001; Gamero, et al., 2009; Konar & Cohen, 1997; Salama, 2005; Sarumpaet, 2006; Wagner, 2003). Therefore, the type of industry will be considered as a control variable in this study. To control the differences between industries, the study will include industry dummies as suggested by (Cavaco & Crifo, 2010; Wagner, 2003).

Thirdly, since the corporations in Libya are classified into public and private corporations, therefore, it is important to control of the type of ownership. There are studies which consider the role of ownership in the relationship between corporate environmental issues and corporate performances (Earnhart & Lizal, 2006; Melnyk, et al., 2003; Wagner, 2007). Nevertheless, the role of ownership in such relationship is still inconsistent. While Wanger found no relationship between the nature of ownership and environmental or economic performances, scholars such as Earnhart & Lizal (2006), and Melnyk, et al. (2003) found that the nature of ownership plays a critical role in the relationship between corporate environmental issues and the overall performances of the corporations. For instance, Earnhart & Lizal(2006) concluded that the corporate environmental performance in state- ownership corporations is high when compared with other ownership types. They justified that by their assumptions about the goals of the private sector. Since profit maximization is the central goal of the private sector, therefore, these corporations might see the cost of environmental protection as a kind of loss. Consequently, they would reduce this cost by letting emission raise. Such results are consistent with Melnyk, et al. (2003). Based on these studies, this study considers the ownership as a control variable.

III. METHODOLOGY

Data set

This study conducted in the Libyan industrial sector, which characterized by its importance of Libyan economic since it represents approximately 99% of Libyan exports and employs around 91892 employees (General Information Authority, 2007). However, this sector has a big and clear impact on the surrounding environment of the plants spread in different geographical areas in Libya. For instance, ELabbar (2008) noted that the locations of some industrial plants cause many environmental problems related to wastewater, and there is no treatment of most remnants resulted from the operations of these plants. Furthermore, the presence of basic industrial plants such as cement factories, oil refineries, and steel and iron factories has affected negatively on the environmental condition at the Libyan coast (Agreement, 2009). Moreover, Biltayib (2006) sited that Libyan oil companies are lack of requirements that enable them to be certified by ISO 14001, and the current environmental management systems only assist those companies to achieve only some standards. Additionally, Goodland (2008) notes that Libya suffers from water shortage. He added that approximately 95% of

the country receives only between 0 mm and 25 mm of rainfall per year, which put the country at serious situation with regard to water sustainability. Therefore, this study can benefit the Libyan corporation and enhance their concerns about the environmental impacts of their operation not only on the well- being, but also on their ability to achieve their corporations' objectives. The sample of study includes 270 industrial corporations operated in different industrial sectors.

The instrument and measurements

The existence of public available data such as KLD, TRI, and other local databases has assistance many studies in the access of the data related to corporate environmental issues and the overall performance of the corporation (Inoue & Lee, 2010; King & Lenox, 2001; Salama, 2005; Sarkis & Cordeiro, 2001; Turban & Greening, 1997; Wagner, 2010; Watson, et al., 2004). However, in the absence of such databases, the self-perception of managers has been usually used to measure the corporate performance of the corporations in terms of their environmental and economic aspects (Christmann, 2000; López-Gamero, et al., 2009; Sharma, 2000; Sharma & Vredenburg, 1998; Wagner, 2007). In the case of Libya, this seems to be the only feasible approach because there is no publicly available data with regard to the environmental activities in Libya. Therefore, self-assessment questionnaire is used in this study to collect the data from Libyan industrial corporations.

Conventional green competencies construct is measured on 13 items adopted from González-Benito and González-Benito (2005), it considers both the product and process-focused practices. The respondents are asked to range on the seven- point scale measurement the level of importance paid by their corporations to these activities. The scales are ranging from 1"not at all important", to 7 "very strong important". This instrument also has been used by several related studies (Aragon-Correa, 1998; Buysse & Verbeke, 2003; Sharma & Vredenburg, 1998).

Using the same ranging scale, the study measures the remains environmental practices. Employees' involvements are measured basing on 12 items adopted from different sources (Baba, 2004; Figge, Hahn, Schaltegger, & Wagner, 2002; López-Gamero, et al., 2009; Sarkis & Cordeiro, 2001; Sharma & Vredenburg, 1998). Environmental management system is measured using 7 items included different related dimensions, which collected from previous related studies (Aragón-Correa, et al., 2008; Baba, 2004; Buysse & Verbeke, 2003; González-Benito & González-Benito, 2005; López-Gamero, et al., 2009; Sharma & Vredenburg, 1998). Organizational competencies are measured using 7 items adopted from Buysse and Verbeke (2003). The strategic planning process is measured using four items adopted from Buysse and Verbeke (2003), and Journeault (2010). Stakeholders' integration is measured using 12 items adopted from Plaza-Úbeda, et al. (2010)

Corporate environmental performance is measured using 12 items represent the overall corporate environmental performance of the corporation, which have been used by several related studies (Journeault, 2010; Wagner, 2003), the respondents are asked to evaluate their corporate environmental performance based on a 7 point Likart scale ranging from 1= no reduction to 7 = very strong reduction.

Finally, the size is measured by total number of employees, industry type is measured using classification includes 9 industrial sectors namely food and tobacco, textile, paper and publishing, energy, chemical, machines and equipments, electronic and electrical, transportation products, mineral products, the ownership is measured by classification the corporations into two types namely private and public owned corporations.

Analysis

This study performs multiple regression analysis to test the effects of the six corporate environmental competencies on the corporate environmental performance. Additionally, hierarchal regression analysis is operated to control variables.

IV. RESULTS

Preliminary analysis and assumptions check

After assuring the reliability and validity of the questionnaire, 490 questionnaires have been mailed or delivered by hand in some cases to Libyan corporations in nine industrial sectors for the purpose of getting 270 respondents as a representative sample of the study. After using the reminders and telephone calls to follow- up the respondents, 164 questionnaires were returned, which represent a response rate of 33%. After screening the returned questionnaires, nine questionnaires appeared to be unusable because the proportion of unanswered question exceeds 10% (8 questions). This rule is suggested by Cavana, Delahaye, & Sekaran (2001), who notes that the general rule of eliminating a questionnaire is when the proportion of missing data exceeds 10% of the total response. At the end, 155 questionnaires considered to be useable returned questionnaires of this study, which represent a response rate of 31% of distributed questionnaires, and 57% of the sample of the study.

The outliers test is conducted using SPSS (18) program to investigate the values of Mahalanobias distance (Hair, William, Barry, & Anderson, 2010; Stevens, 1984) , which resulted in values located between 38.465 and 98.782. Then, we compared these values with the critical value on Chi-square at 0.05. By doing so, the results indicated that all values are less than the critical value 101.879, which gives a clear indicator that each case is not significantly separated from the rest of data. using the same program, test of non-response bias is conducted, Armstrong & Overton (1977; Bluman, 2011; Hair, Money, Samouel, & Page, 2007) suggested using the *P* value to determine if there are any differences between two samples. The results of independent- samples T test show that the P value "2 tailed" is greater than 0.05 for all variables, which indicates that there is no enough evidence to accept that there is systematic differences between the early and late respondents.

After checking the outliers and non- response bias issues, check has been conducted to identify wither assumptions of multiple regression (normality, linearity, and homoscedasticity) are meet (Bluman, 2011; Hair, Black, Babin, Anderson, & Tatham, 2006; Hair, William, Barry, & Anderson, 2010; Pallant, 2007). Normality is checked using two types of normality tests; histogram with normal curve, and skewness and kurtosis. Both tests proved that assumption of the normal distribution of data is

met. Proceeding linearity is relied on Normal Probability Plot of the regression standardized residual, which has been suggested by several authors (Lattin, Carroll, & Green, 2003; Pallant, 2007), which showed that all the points lie in a reasonably straight diagonal line, therefore the assumption of normality is met and no major deviations from normality. Homoscedasticity is conducted using scatter plot, which suggested by several literature (Hair, et al., 2007; Hair, et al., 2010; Pallant, 2007). Conducting this test resulted that there is no existing of systematic pattern such as curvilinear, or the existence of the residuals in one side, which lead to accept that the assumption of homoscedasticity is met.

Correlation analysis

Conducting correlation analysis is based on Cohen's Guideline of Correlation Strength (Cohen, 1988). The analysis resulted that corporate environmental performance has positively significant but small correlations with each of green conventional competencies, environmental management systems, and stakeholders' integration. These relationships seem to be significantly at the 0.05 level for both green conventional competencies and environmental management systems, and significantly at the 0.01 level for stakeholders' integration. In the contrary, the relationships between corporate environmental performance and each of employees' involvements, strategic planning process, and organizational competencies seem to be negligible and there are not relationships between these constructs and corporate environmental performance.

Regression analysis

In this stage we consider the environmental competencies as independent variables, when corporate environmental performance represents the dependent variable, conducting the multiple regression analysis resulted in the table 1.

Table 1
Results of Multiple Regressions between environmental competencies and corporate environmental performance
Model Summary

				Change Statistics				
R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
.462[a]	.213	.182	1.16392	.213	6.692	6	148	.000

a.Predictors: (Constant), SI, GCC, SP, OC, EMS, EI.
b. Dependent Variable: CEP

From the tables 1 we can examine the first three steps of the multiple regression of this model.

First, Hair, et al. (2007) suggested that F can be considered statistically significant when its value does not exceed 0.05. Therefore, since the sig. F value in this model is .000 we can accept the assumption that the model is statistically significant and the sample unlikely to produce a large R^2 when the population R^2 is actually zero.

Second, determining the fit of model by using R^2 resulted that approximately 0.21 of the variation in the dependent variable corporate environmental performance (CEP) is explained by the independent variables. We built this result based on the recommendations of Hair, et al. (2010), who notes that R^2=0.20 can be found statistically significant with a power of 0.80 when the sample size is 100 and the number of the independent variables is 10 in the 0.05 significantly level. He added also that R^2=0.15 can be found statistically significant with a power of 0.80 when the sample size is 100 and the number of the independent variables is 10 in the 0.01 significantly level. Since the sample size of this study is 155 and number of independent variables is 6, R^2=0.21 can be considered as statistically significant value and demonstrated the goodness of the model.

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.391	6	9.065	6.692	.000[a]
	Residual	200.497	148	1.355		
	Total	254.888	154			

a. Predictors: (Constant), SI, GCC, SP, OC, EMS, EI.
b. Dependent Variable: CEP

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.998	.388		7.721	.000
	GCC	.331	.092	.379	3.603	.000
	EI	-.190-	.096	-.217-	-1.979-	.050
	EMS	.182	.095	.210	1.924	.056
	OC	-.215-	.086	-.266-	-2.501-	.013
	SP	-.040-	.081	-.053-	-.498-	.619
	SI	.225	.083	.225	2.712	.007

a. Dependent Variable: CEP

Third, Hair, et al. (2007) suggested using t- test to determine which independent variables have statistically significant coefficients. As shown in the coefficients table above, the significant independent variables are green conventional competencies with beta value of 0.379 and significant 0.000, then organizational competencies with beta value of 0.266 and significant 0.013, and finally stakeholders integration with beta value of 0.225 and significant 0.007. All these variables have significant contributions in explaining CEP. Therefore, all of H1, H3, and H6 are supported. In the contrary, all of employees' involvements, environmental management system and strategic planning process don't have statistically significant coefficients because their significantly values exceed 0.05. This leads to the fail to support each of H2, H4, and H5.

Additionally, hierarchal multiple regression analysis was used to assess the ability of corporate environmental competencies to affect corporate environmental performance, after controlling for size, industry type, and property. Using two blocks of variables, the results indicated that R^2 change= 0.202, which indicated that even when the effect of control variables are statically controlled for, corporate environmental activities explain additional 20 per cent (0.202*100) of the variance in corporate environmental performance. ANOVA test indicated that the model is significant [F (9, 145) = 8.705, p< 0.05].

V. DISCUSSION AND FINDINGS

Overall findings

Basing on eco-centric model, congruence mode, and stakeholders theory, this study attempts to disaggregate the corporate environmental activities into six dimensions (green competencies, employees' involvements, environmental management systems and procedures, strategic planning processes, and stakeholders' integration) and examines the effects of each dimensions on corporate environmental performance.

While all corporate environmental activities were proposed to have positive influences on corporate environmental performance, the results revealed that some of these activities don't support the pre- propositions. This came in line the argument that different environmental activities may have different impacts on the environmental performance (Christmann, 2000; González-Benito & González-Benito, 2005), and distinction should be made between the two concepts (Baba, 2004; López-Gamero, et al., 2009). The results indicated that green conventional competencies have positive effects on corporate environmental performance, which can be considered as an indicator to support the eco- centric model (Shrivastava, 1995a) and in consistence of the results of (Shrivastava, 1995b). Such result is also consistent with similar studies that considered green supply chain management (Eltayeb, Zailani, & Ramayah, 2011; Iraldo, et al., 2009; Lin, 2011; Zhu & Sarkis, 2004).

The second positive relationship is found to be between stakeholders' integration and corporate environmental performance. This gives a support of both stakeholder theory (Freeman & Reed, 1983) and congruence model (Nadler, et al., 1980). The stakeholder theory assumes that organization should consider the interests of stakeholders when they operate. Moreover, the assumption of the instrumental approach of stakeholder theory that the way corporation adopt to manage its stakeholders' interests helps the corporation avoid decisions that might promot stakeholders to undercut or thwart its objectives. This result is in consistency with the previous literature that indicate enhancing the relationship between the corporation and its stakeholders will influence positively on its performance (Bayoud, et al., 2012; Vachon & Klassen, 2008). Regarding Libyan industries, this can be due to the emergence of the environmental law No 15 in 2003 that enhances the corporations' awareness about the environment (Ahmad & Mousa, 2010). One of the most attracted result by Ahmad and Mousa is that the disclosure of environmental information by the Libyan industrial corporations has enhanced 6 times between 2004 and 2010. The recent study provides another indicator the awareness of environmental issues regarding stakeholders is improved in Libya, which might led to improvements in their corporate environmental performance.

In addition to the previous positive relationships, the positive propositions of some environmental activities (employees' involvements, environmental management systems and procedures, organizational competencies, inclusion the environmental issues in the strategic planning process) are failed to be supported in this study.

For employees' involvements, the coefficients part in the table above shows that for each unit increase in the employees' involvements there is an expected decrease of 0.190 in corporate environmental performance. The relationship is negatively

directed. Moreover, testing the t-values (t= -1.979, p=.05) indicated that employees' involvements don't contribute to the improvements in corporate environmental performance. Although this result is inconsistence with the congruence and stakeholder theory, such result can be justified by the fact that an organization may have well- written policies concerning the involvement, and top management may even believe it is being practiced, but this policies and beliefs are meaningless until the individuals perceive them as something important to them or their presence in the corporation (Rashid, Wahid, & Saad, 2008). In other words, these involvements should be perceived by employees as something valuable and may affect the employee's job. Moreover, some previous studies have found that the issues related to employees are not always lead to improvements in corporate environmental performance. For instance, Baba (2004) came with similar findings and concluded that the improvements in employees' involvements didn't improve the corporate environmental performance of small and medium size Malaysian corporations. She added that employees might follow whatever policy lay down by the top management, and therefore, they do what they are asked to do, and not involving in the decision making process. Furthermore, study of Russo & Harrison (2005), could not support that there is a positive relationship between the environmental manager's salary and compensations related to environmental performance , and the reduction of emission. Additionally, Zhu and Sarkis (2004) found that environmental training of employees does not lead to improve corporate environmental performance.

In addition to employees' involvements, the results of a study failed to support that there is a positively significant relationship between environmental management systems and procedures and corporate environmental performance. such results inconsistence with congruence model (Nadler, et al., 1980) that assumes the fit between the organizational arrangement that able to meet the demands of work and motivate the behavior in consistent with the work, will enhance the fit between formal organization and the work and reflect in enhancing the performance . However, it came in line with some previous studies. For instance, Horváthová (2010) noted that environmental certification or the adoption of environmental policy is not necessary associated with better environmental performance. Moreover, Kamande (2011) having environmental management systems affect negatively on profits of Kenyan manufacturing firms. This is can be attributed to the reason beyond establishing such environmental systems. Corporation might establish environmental management system to comply with environmental regulation (compliance- based), instead of improve quality of service and efficiency (commitment- based) (Kamande, 2011). Watson, et al. (2004) argued that since the financial performance of EMS implementers and non-implementers is not substantially different, the implementation of an EMS strategy produces zero benefit. Additionally, Wagner (2003) found that having EMS certification does not influence both the environmental and/or economic performance.

Therefore, this study justified the fail to find positive relationship between environmental management systems and corporate environmental performance by that Libyan corporations might adopt environmental management systems as a way to complain with environmental regulations, and that the cost associated with the implementation of such management system may does not encourage the Libyan industrial corporations to implement environmental management systems in more commitment- based approach to realize its benefits to the environmental performance of the corporation. Such explanation came in line with the result of Biltayib (2006), who sited that Libyan oil companies are lack of requirements that enable them to be certified by ISO 14001, and the current environmental management systems only assist those companies to achieve only some regulation standards. The time of implementation of environmental management system plays a main role in determining the benefits associated with such implementation (the implementation may still newly in the first stage), therefore, these corporations might not have had the chance to full implantation of these systems, which in turn lead to don't realize the environmental benefits related with establishing such systems (Russo & Harrison, 2005).

Moreover, the relationship between organizational competences and corporate environmental performance seems to be unsupported. This result indicated that addressing the environmental consideration in the functional areas of the corporation will not enhance the environmental performance of the corporation. This result is failed to support the assumption of congruence provided by (Nadler, et al., 1980), which proposed that the organizational arrangement that able to meet the demands of work and motivate the behavior in consistent with the work, will enhance the fit between formal organization and the work and reflect in enhancing the performance . It also does not support the eco-centric theory provided by Shrivastava (1995a), which assumes that all business functions should be more ecologically centered roles. The same argument of environmental management system can be applied to the organizational competencies, since industrial sector in Libya is strongly influenced by government regulation, therefore, considering the environmental issues in the functional areas can be a reflect of environmental regulation and not for the purpose of reducing environmental impacts.

Additionally, this study failed to support that there is a positive relationship between addressing the environmental issues in the strategic planning process and corporate environmental performance. This lead to fail to support the assumption of informal organization/ work fit in the congruence model (Nadler, et al., 1980) . The results indicated that there is no significant relationship between strategic planning and corporate environmental performance because the significance = 0.619 (>.05), which suggests that strategic planning process does not contribute to corporate environmental performance. However, this results came in line with the results of (Russo & Harrison, 2005), who found that cross- functional coordination by integrating the environmental issues in the strategic planning process doesn't has any significant improvements in the environmental performance.

For all unsupported hypotheses, the study relies on the assumption provided by Poole and Van de Ven (1989) and stated by Sroufe, Melnyk, and Vastag (1998), that when the hypotheses failed to support the theory, one justification can be presented is that the paradox may reflect temporal differences. They added that firms in one stage of development behave differently from firms observed at another point in time or stage in development.

This argument can be applied in the context of this study, since most environmental related studies have been conducted in countries with stage of development that considered being higher than the stage of the development in Libya, therefore, this could be one reason to the differences between the results of this study and the results of some related studies. Additionally, the country specific laws and regulations have been considered as other reasons to the conflict results of previous environmental related studies (Hart & Ahuja, 1996; Horváthová, 2010; Konar & Cohen, 2001). For instance, Horváthová (2010) found that the relationship between environmental issues and corporate performance seems to be positively in common low countries in more frequently form than civil law countries. This is justified by the fact that environmental regulations in common law countries are stronger than such regulations in civil law countries such as Libya.

VI. Conclusion and limitations

The relationship between the environmental issues and the performance has received considerable attention in previous studies. However, still there is no a strong agreement about this relationship. Such gap can be attributed to the lack of a clear theoretical framework to investigate the link between environmental and performance (López-Gamero, et al., 2009; McWilliams, Siegel, & Wright, 2006; Schaltegger & Synnestvedt, 2002). The recent study contributes to state explicitly and test the relationship between each practice of environmental issues and the overall output resulted in environmental performance. Although such relationships have been dealt with in spritely fashion, this study represents the whole picture which gives clear understanding of the relationship. The study demonstrated that different corporate environmental activities have different impacts on corporate environmental performance. When the relationship seems to be positively between each of green conventional commences and stakeholders' integration, and corporate environmental performance, such relationship couldn't supported for employees' involvements, organizational competencies, environmental management systems, and strategic planning processes. Such results may assess the industrial corporation by directing their efforts to specific areas when trying to improve their environmental performance. In line with the results, the most important areas are the process and production practices, and stakeholder integration.

Although the previous mentioned contributions of the study, several limitations should be mentioned. Firstly, since the study used self- reported questionnaire failed by managers in the sample of study, future study should be done using more direct objective measurements. Secondary, since the study conducted in Libya that considers as a developing country, so, caution should be taken when generalize the results of the study, and the results may be generalized only to similar environment and stage of development. Thirdly, as mentioned by previous studies (González-Benito & González-Benito, 2005; López-Gamero, et al., 2009), the environmental management activities are multidimensional nature, therefore, the implied approach may also be inadequate and may not fairly reflect a corporation's overall environmental activities.

With regard to congruence model, this study tested only three types of fit, therefore, more work has to be done regarding the applications of this model in empirical investigation. Finally, the path process of the relationship between environmental issues and performance might does not stop at corporate environmental performance; therefore, extra work has to be done with these issues. One example is linking this model to competitive advantages by investigating the relationships between environmental activities, corporate environmental performance, and competitiveness of the corporations.

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