

The impact of ISO 14001 standards certification on firms' performance in the state of Kuwait

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ABSTRACT

Due to the great benefits of ISO 14001, many Kuwaiti private and public companies are preparing to gain the certification of ISO 14001. Studies that deal with the application of ISO 14001 in Kuwait are scarce. Accordingly, this study was performed to evaluate the effectiveness of ISO 14001 standards in Kuwait, using questionnaire-based survey distributed to some of the ISO certified companies in Kuwait. The results indicated that the respondents achieved many benefits from applying the standards including improved environmental performance and increased access to new markets. Most of the firms indicated that applying the ISO 14001 standards allows greater access to capital, increases public image, and helps reduce regulatory fines and permit costs. It was observed that environmental management system (EMS) implementation improved the environmental awareness among employees, customers, and owners.

Keywords: environmental management system (EMS); economics; environmental awareness; ISO 14001; Kuwait.

INTRODUCTION

Various types of management standards that deal with business activity are now widely applied worldwide. These standards include ISO 9001 that is applied in quality management, ISO 14001 that deals with environmental management, SA 8000 concerned with corporate social responsibility, and OHSAS 18000 that deals with the prevention of occupational hazards and the provision of health and safety regulations in the workplace (Heras-Saizarbitoria & Boiral 2013). ISO 14001 and ISO 9001 are the two main global management standards that are accepted and applied at the international level (Heras-Saizarbitoria & Boiral 2013). ISO 14001, the main concern of this current research, is defined by its promoters as "an effective tool to improve environmental practices and organizational effectiveness" (Boiral *et al.* 2018). The main objective of this standard is to improve organizations' systems and approach to environmental concerns with the environmental aspects (Murmura *et al.* 2018). Granly and Welo stated three motivations for enhancing environmental practices, namely, competitiveness, legitimation, and environmental responsibility (Granly & Welo 2014).

ISO 14001 contains a set of generic requirements for implementing an environmental management system. ISO 14001 standards were developed as a response to a request from customers, industries, and/or stakeholders with respect to certain environmental issues. World communities have reacted by adapting international and national laws to ensure compliance to environmental standards (Başaran, 2016; International Organization for Standardization, 2015).

Overview of ISO 14000 Standards

ISO 14000 standards were developed as a continuation of the standardization process that started with the ISO 9000 series (Al-Kahlout 2013). This ISO series has been introduced to help organizations enhance their environmental performance related to their operations and product standards by requiring them to implement a series of internal

management procedures (Marimon *et al.* 2011; Arimura *et al.* 2016; Gurvitsh 2017). The series includes a set of voluntary environmental management standards, technical reports, and guidelines, which help organizations to identify, manage, monitor, and control their environmental issues (Chiarini 2015). Applying this standard by the firms helps improve some executive actions of environmental management such as knowledge and implementation of authorization requirements, recording and use of information, management and training, plant maintenance, and process operation (Testa *et al.* 2014). Accordingly, organizations can minimize the impact of their operations on the environment and comply with the relevant regulations (International Organization For Standardization 2009; Kasim 2015).

The ISO 14000 series of environmental management system (EMS) standards was first issued in 1996, and the latest revision was released in 2015. This ISO 14000 series is developed for firms of any size or type in either public or private sectors to enhance their environmental compliance and help in continual improvement of environmental performance (Martínez-Costa *et al.* 2008; Heras-Saizarbitoria *et al.* 2011). These two main objectives are achieved through efficient environmental management. ISO 14001:2015 standards focus on environmental systems to achieve this. The other standards in the family deal with other specific approaches such as environmental performance, auditing standards, environmental labels, greenhouse, specifying requirements to accredit or recognize organizational bodies, environmental aspects in product standards, communications, and life cycle analysis, as well as environmental challenges such as climate change. The main objective of these standards is to provide a voluntary mechanism to monitor, manage, and improve performance regarding environmental requirements (Castka & Balzarova 2018). However, they will not replace regulations, legislation, and codes of practice with which organizations must comply (International Organization For Standardization 2009). ISO 14001 is the only certifiable standard in the ISO 14000 series, whereas the other standards in the series describe supporting functions, which maximize the effectiveness of the ISO 14001 EMS (Balzarova & Castka 2008).

This set of standards ensures that specific requirements related to environmental management system are fulfilled. Five main steps are to be followed in such environmental management system: a) planning, b) environmental policy, c) implementation and operation, d) checking, and e) management review (Tari *et al.* 2012).

The objective of ISO 14001:2015 is to enable all firms of any size or type to 1) identify and control the impact of its activities, products or services on the environment, and take the necessary action to correct such impact and to 2) set environmental objectives and targets, to achieve these objectives. ISO 14001 has five major elements that must be dealt with to achieve the required objectives (Su *et al.* 2015). These elements are policy statement, planning, implementation and operations, checking/ corrective action, and management review. These requirements of ISO 14001 do not include any mandatory steps. The use of a particular technology to achieve such requirements is not mandatory (Arimura *et al.* 2016).

The ISO 14001 standard can be applied by a wide variety of firms, whatever their current level of environmental compliance. However, the main objective is to comply with environmental legislation and regulations. A commitment to continual improvement in the environmental protection is also an important requirement.

ISO 14001 in the State of Kuwait

The Kuwait Environment Public Authority (KEPA) was established in 1995. The mission of this authority is to have control on environment affairs in the state of Kuwait. It is responsible for developing and implementing the environmental legislation that will protect the environment. The bylaws of KEPA include various standards and requirements streamlined to deal more effectively with today's increasingly complex and far reaching environmental problems. One important requirement for any new project is to prepare environmental impact report. Many companies in the state of Kuwait started to adopt international standards such as ISO 14001- Environmental Management System and OHSAS 18001 standard in developing the HSE Management system (Massoud *et al.* 2010; Kuriakose & Siddique 2015; Al-Mutairy *et al.* 2016). The number of firms that are registered in the Kuwait Chamber of Commerce & Industry is 780, 964, and 586 for Industrial activity, commercial activity, and Services, respectively. Out of these, only

153 have adopted the ISO 14001 standard. In spite of the fact that the ISO 14001 standard is the key player in the field of corporate environmental management (Boiral *et al.* 2018), very few (if any) research papers discuss the importance of this standard in the State of Kuwait and its relation with firms' performance. The aim of this current research is to fill in this research gap.

Benefits of EMS and ISO 14001 approaches

Implementing a formal and structured EMS offers many advantages for a company, including the following (Christini *et al.* 2004; D'Aveni *et al.* 2010; de Jong *et al.* 2014; Gray *et al.* 2015; Boiral *et al.* 2018):

- Improve environmental performance and ensure environmental compliance;
- Reduction in liability and risks;
- Direct and indirect costs savings from increased efficiency, improving the company's image, reductions in waste disposal and energy costs, and avoiding costs such as insurance premiums, cleanup costs, legal costs, and fines;
- Improve regulatory compliance;
- Open markets and reduced trade barriers;
- Ensure rigor and effectiveness of practices;
- Improve tracking, documentation, and management of environmental issues;
- Improve employee involvement, training, and knowledge;
- Increase internal visibility, awareness, and motivation for environmental issues;
- Improve relationships with stakeholders.

Since 1999, more than 2.7 million certifications to ISO 14001 were obtained. By 2015, this number has increased with a total of 319,324 certificates in 201 countries around the world (Hikichi *et al.* 2017b). Few of these certificates were issued to firms in developed countries and Arabic countries (ISO, 2017). Many Kuwaiti private companies and public government sectors started working forward to gain certification of the international environmental certificate for its benefits. By 2016, 153 Kuwaiti firms have been certified (ISO, 2017).

ISO 14001:2004 aims to help firms monitor their environmental performance (Hikichi *et al.* 2017b). However, the policy-makers, the stakeholders, and public do not have the necessary information to make precise judgment about organizational environmental performance issues. The aim of this research is to evaluate the effectiveness of ISO 14001 standard in the State of Kuwait. This was achieved through distributing a questionnaire among ISO certified companies in Kuwait.

METHODOLOGY

Based on the objective of the current research, a literature review of the main studies in the area of ISO 14001 has been performed. The research design was based on questionnaire. The target population consisted of ISO-Certified companies in the State of Kuwait. The questionnaires were distributed (by e-mail and/or in person) to 24 companies and the number of returned questionnaires was 16. The overall return rate was 66.7 percent, which is consistent with response rates of other studies about environmental practice (Boiral & Henri 2012; Campos *et al.* 2015; Heras-Saizarbitoria *et al.* 2016; Testa *et al.* 2016). After analyzing the collected data, follow-up interviews were conducted to clarify some areas of the questionnaire.

The companies were asked to answer a variety of questions to assess how ISO 14001 certified companies in Kuwait perceive the effectiveness of the ISO 14001 standard. The target group for the survey was environmental managers/senior managers of the companies. The questionnaire was designed to clarify:

- Organizational incentives to apply for ISO 14001 certification;
- Financial and human resources required to design and implement an ISO 14001 EMS;
- The effectiveness of an ISO 14001 in terms of costs and benefits.

The questionnaire included the following five sections for the reasons indicated above.

Company information

In order to study the economic factors, the firms were grouped by the size of the organization in terms of both capital and number of employees.

- a) Small: less than KD. 2 million/ under 100 employees.
- b) Medium: between KD. 2 to 5 million / between 100 to 500 employees.
- c) Large: more than KD. 5 million / over 500 employees.

Questions also included whether the organization is a public (governmental) or private, local/international, and the type of activities carried out.

Incentives for certification

Seven areas were identified as motivation for applying for certification: competitive advantages, regulatory effectiveness, environmental performance, financial impacts, management effectiveness, stakeholders, and public image.

ISO 14001 implementation

The aim of this part was to identify the obstacles encountered during implementation of ISO 14001. In addition, questions were designed to know the environmental objectives and targets, and environmental aspects and impacts.

ISO 14001 effectiveness

The aim of this section of questionnaire was to recognize the actual benefits and effectiveness of applying the ISO 14001 standard. The companies were queried about the impacts of applying the standards on their business' performance in the following areas: competitive advantages, regulatory performance, environmental performance, management performance, communication, environmental awareness and education, and financial effectiveness.

Costs and benefits of certification

In order to know the financial implications of applying the standard, the firms were inquired whether they conducted the cost-benefit analyses. Moreover, the firms were asked about the effect of applying the standard on improving their competitive advantage.

RESEARCH RESULTS & ANALYSIS

Companies' information

As illustrated in Table 1, the majority of questionnaire responses were received from large sized facilities (87.5 %), which were classified as per the annual revenues of more than KD 5 million. Two of the respondents (12.5 %) declared having a small number of employees (less than 100 employees). The responses indicated that the main activities of the organizations are industrial (50 %), services (37.5 %), and both industrial and services (12.5 %). The data indicates that 37.5 % of the surveyed companies have more than 500 employees, 50 % have a number of employees between 100-500, and 12.5 % of the companies have less than 100 employees. Overall, 69 % of the certified organizations are private, whereas only 31 % (5 out 16) of them are publicly held.

Table 1. List of Respondents of ISO 14001 certified companies in Kuwait.

Company Name	Company Size		Private or Public	Activities	Local or International
	Capital (in millions)	No. of Employees			
Kuwait Oil Company	≥ 5	≥ 500	Public	Industrial	Local
Kuwait Oil Tanker Company	≥ 5	≥ 500	Public Profitable	Industrial Services	International
Petrochemical Industries Company	≥ 5	≥ 500	Public	Industrial	Local/International
Kuwait Aviation Fuelling Company	≥ 5	100 to 500	Public	Services	Local
Metal and Recycling Company	≥ 5	100 to 500	Private	Trading Industrial	Local/International
National Petroleum Services Co	≥ 5	100 to 500	Private	Services	Local
Gulf Cables & Electrical Industrial Co	≥ 5	≥ 500	Private	Industrial	Local/International
Kuwait Insulation Material Manufacturing Co	≥ 5	100 to 500	Private	Industrial Trading	Local/International Branch Agency
Kuwait Drilling Fluids & Oil Services	2 to 5	100 to 500	Private	Services Industrial	Local/International
Public Warehousing Company- Agility	≥ 5	100 to 500	Private	Services	International
Refrigeration and Oxygen Company	2 to 5	100 to 500	Private	Industrial	Local
Packaging & Plastic Industries Co.	≤ 2	100 to 500	Private	Industrial	Local
Al-Diwan United [Switchgear Factory]	2 to 5	≤ 100	Private	Industrial	Local
National Cleaning Company	≥ 5	≥ 500	Private	Services	International
Watania Environmental Services	2 to 5	≤ 100	Private	Services	Local
National Aviation Services	≥ 5	≥ 500	Private	Services	International

The questionnaire data suggests that companies working in the industrial sectors are the most common companies (62.5 %) to adopt ISO 14001. It is observed that four out of 5 public facilities are oil sector companies. Of the respondents, 94 % were ISO 9001 certified as well as ISO 14001 certified. This suggests that such firms might have a competitive advantage in implementing ISO 14001. Further, 10 out of 16 companies were OHSAS 18001 certified. Thus, most of the companies prefer to be certified by ISO 9001 and ISO 14001 (Figure 1).

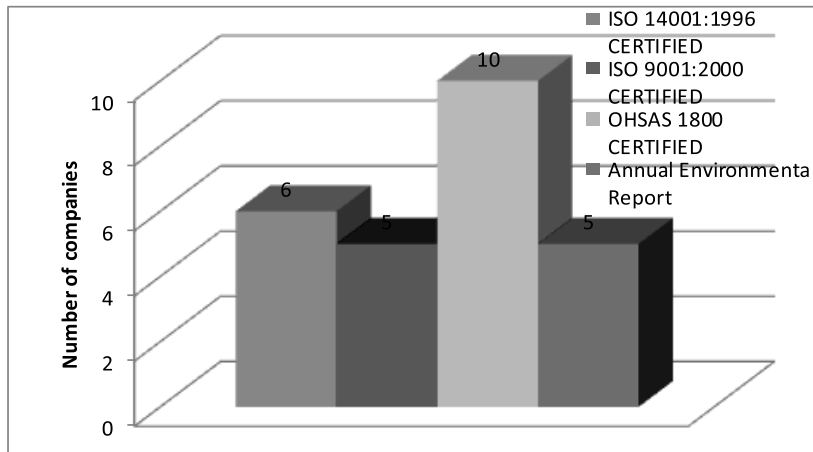


Fig. 1. ISO 9001, ISO14001, & OHSAS 18001 certificate relation.

Incentives for seeking certification

As illustrated by Figure 2, the primary incentive in seeking certification is to improve environmental performance. This is achieved by pollution control and reducing environmental risks. The results show clear evidence that implementing the standard had resulted in a clear improvement in the organization’s environmental performance. The second priority of the companies is to improve internal management practices. This was acquired by ensuring compliance with government environmental regulations, while improving competitive advantage comes as the last priority.

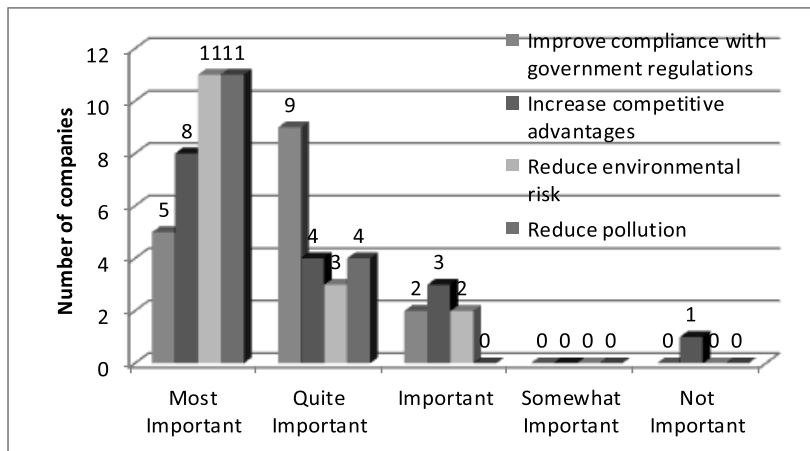


Fig. 2. Response of those surveyed to the question: “Indicate how important each of the indicated environmental criteria were in your company’s incentive to become ISO certified”.

On the other hand, the data illustrated by Figure 3 suggests that there are several aspects such as seeking permit flexibility that did not serve as the main corporate decision to those considering ISO 14001 certification. Response to Stakeholders requests (Customers, Buyers, Shareholders, etc.) also did not have the same importance of improving environmental performance (Figure 4). However, satisfaction of the customers’ requirements has the first priority from the point of view of most companies.

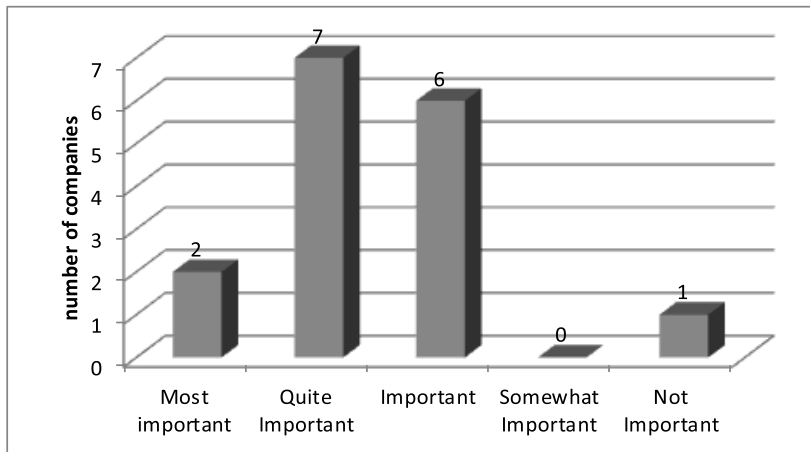


Fig. 3. Response of those surveyed to the question: "Indicate how important each of the indicated *regulatory relief* were in your company's incentive to become ISO certified".

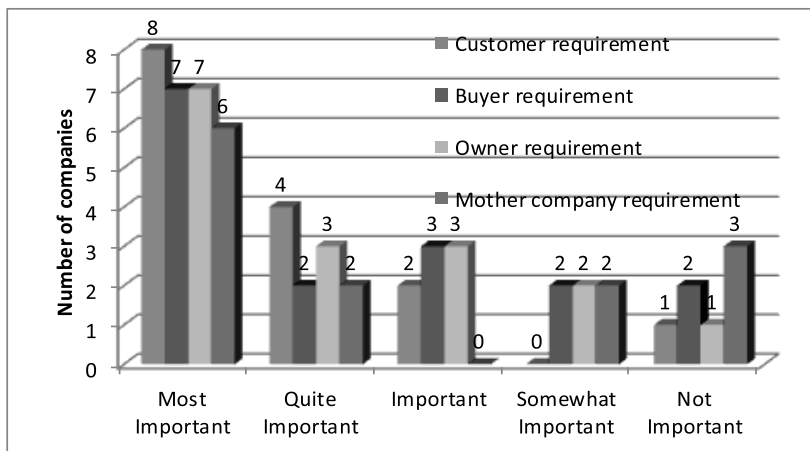


Fig. 4. Response of those surveyed to the question: "Indicate how important each of the indicated *stakeholders requirement* were in your company's incentive to become ISO certified".

Regarding the incentives for ISO 14001 certification, most of the responses indicate that firms had decided to apply the standards for reasons other than reducing their environmental responsibilities. The desire of the companies to increase their business' efficiency and overall competitive advantage was an important incentive for most organizations (75 %) to obtain ISO 14001 certification (Figure 5). The data indicates that competitive advantages were of great importance to the companies when applying ISO 14001. Access to both local and international markets came next with respect to importance. These results agree with that of many other researchers (Nishitani 2009; Gomez & Rodriguez 2011; Psomas *et al.* 2011).

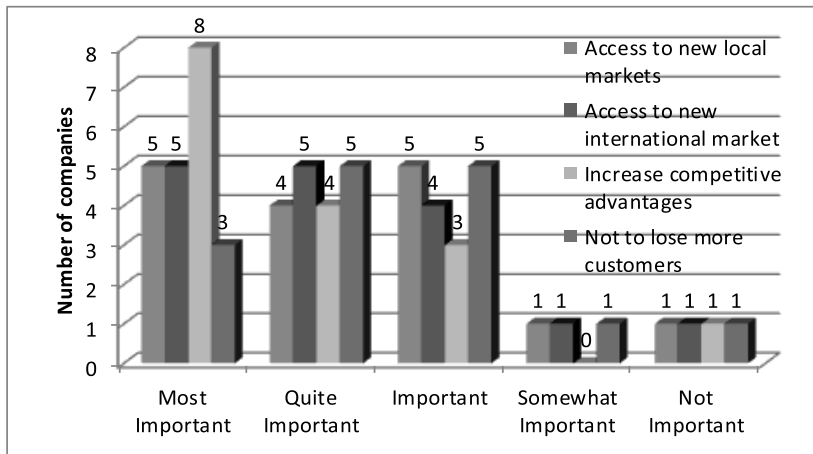


Fig. 5. Response of those surveyed to the question: “Indicate how important each of the indicated *competitive advantages* were in your company’s decision to become ISO certified”.

ISO 14001 implementation

Involvement in implementation of ISO 14001 EMS

The response of those surveyed to the question related to the involvement in the implementation of EMS standard indicate that the Environmental Managers (62.5 %) and Senior Managers (50 %) were “Most Involved” in the process. Other key contributors included are the Employees.

Other potential contributors include Marketing/Public Relations managers and regulatory officials. However, they were generally less or not involved in the preparation and/or the implementation of a facility’s EMS (Figure 6A). Moreover, as illustrated by Figure 6B, the results show that involvement of external stakeholder was quite low in the EMS implementation. Most participants indicated that community members, the external shareholders, lawyers, distributors, and regulatory officials had minor involvement in the EMS development or implementation processes (Figure 6B). On the other hand, customers/clients had a considerable involvement. However, some researchers state that it is necessary to have the whole company involved in implementation process (del Castillo-Peces *et al.* 2018).

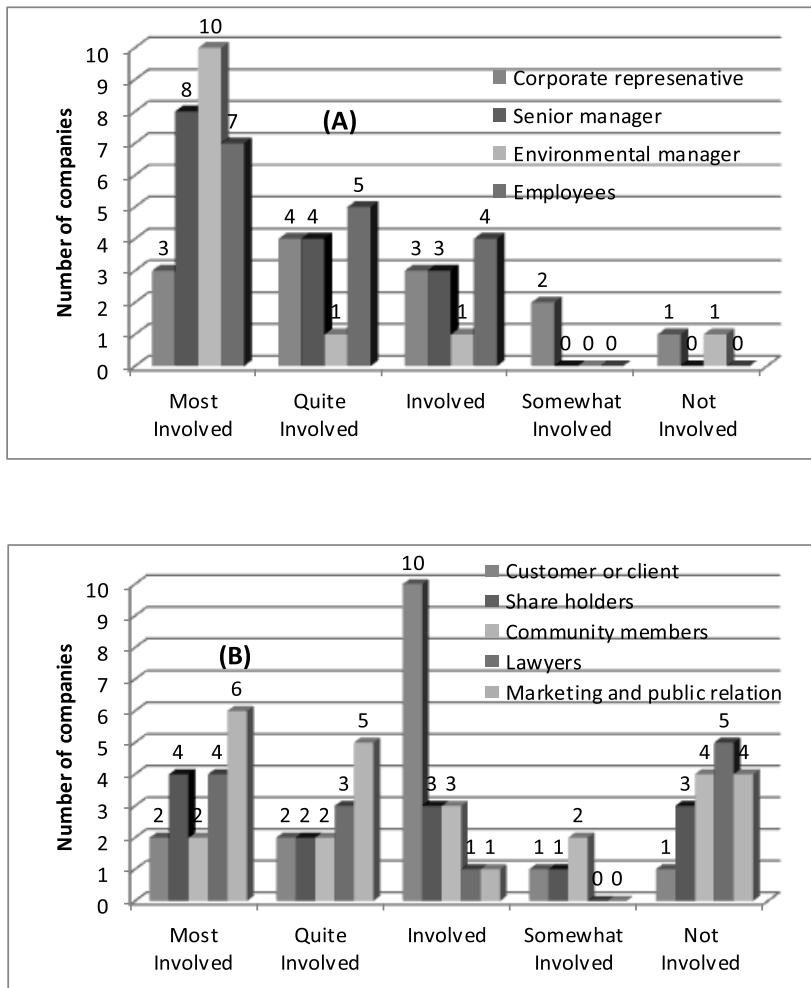


Fig. 6. Response of those surveyed to the question: “Indicate the level of involvement in designing your company’s ISO 14001 EMS”.

Constraints to certification

The majority of the respondents indicated that the constraints mentioned in the questionnaire had not hindered the ISO 14001 EMS implementation. As depicted by Figures 7A and 7B, the following were “Not a Constraint” to certification:

- Lack of top management support (87.5%);
- Lack of personnel to implement EMS (62.5 %);
- Lack of time to implement EMS (62.5 %);
- Lack of understanding of ISO EMS benefits (62.5 %);
- Design cost of ISO EMS (64 %);
- Consultation and registration cost (68.8 %);
- Potential legal penalties from disclosure (75%).

Figure 7C illustrates the response of participants to a question related to different regulatory constraints. The results suggest that 75% of the participants did not consider legal penalties as a threat when applying the standards. Moreover, the data indicates that the legal uncertainties and costs of implementing the standard did not present a problem to the company. Over 50% indicated that the legal uncertainties were “Not a Constraint”.

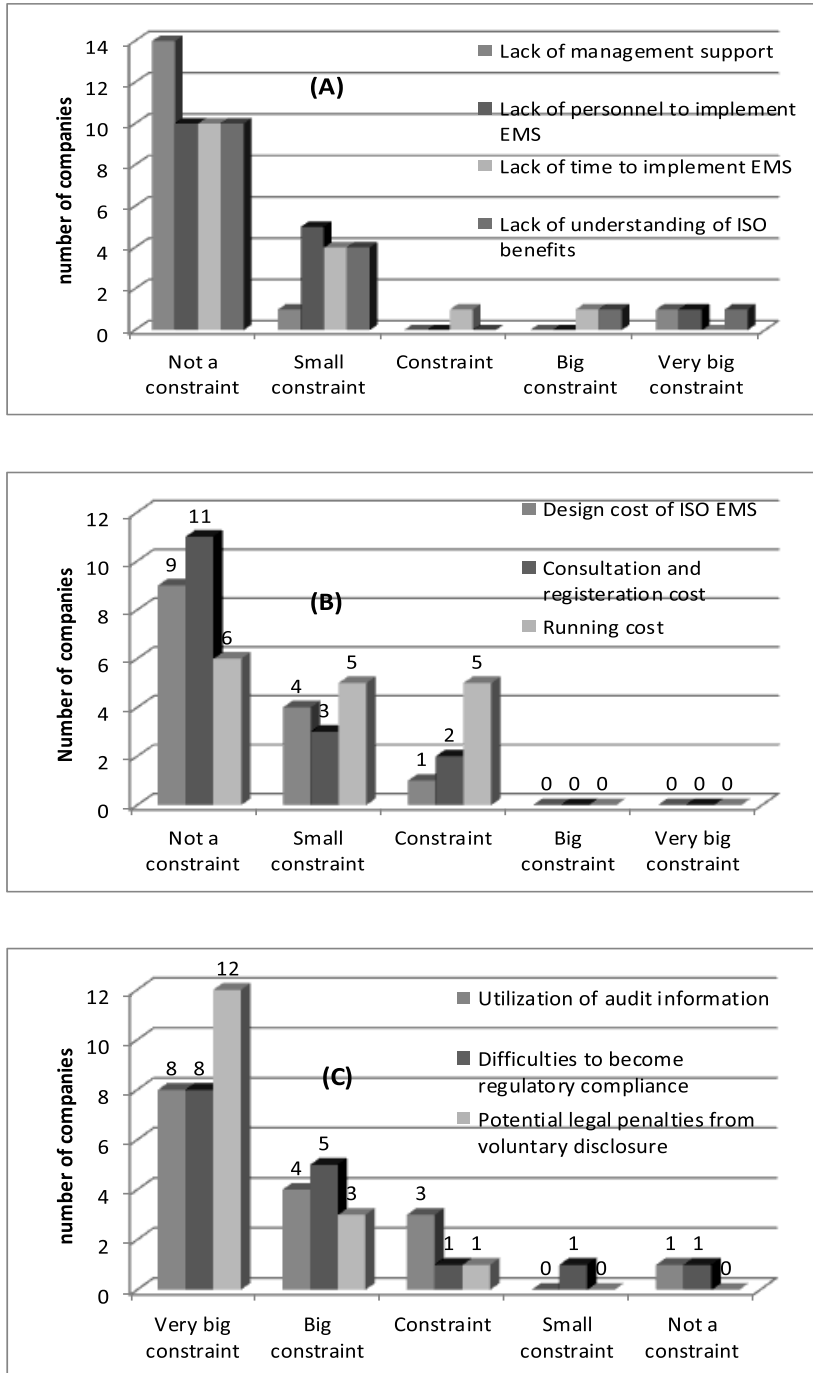


Fig. 7. Response of those surveyed to the question: “Indicate the degree of constraints to certification”.

Effectiveness of ISO 14001

The data was analyzed to identify the overall effectiveness after applying the ISO 14001. For this purpose, the authors examined the results in terms of three criteria: environmental performance, stakeholder, and organizational impacts.

Environmental performance

The results, illustrated by Figures 8A and 8B, indicate that implementing ISO 14001 EMSs had generally enhanced the environmental performance of organizations. The majority of the firms 'agreed' or 'Strongly agreed' that applying ISO 14001 had a considerable effect on their environmental performance. These results are in agreement with those obtained by many other researchers, which indicates the importance of adopting these standards to enhance the current environmental status (Delmas & Montiel 2008; McGuire 2014; Prakash & Potoski 2014; Zhang *et al.* 2014; Neves *et al.* 2017). Such environmental improvements include:

- Stronger pollution prevention (100 %);
- An increased number of identified environmental impacts (81 %);
- A decrease in the total emissions (87.5 %);
- An increase of total recycled waste (81 %).

The collected data indicate that ISO 14001 implementation increased development of environmental production processes and also resulted in decreasing environmental risks. Moreover, about 88 % of the firms responded that the number of Environmental Production Processes has increased after applying ISO 14001 EMS.

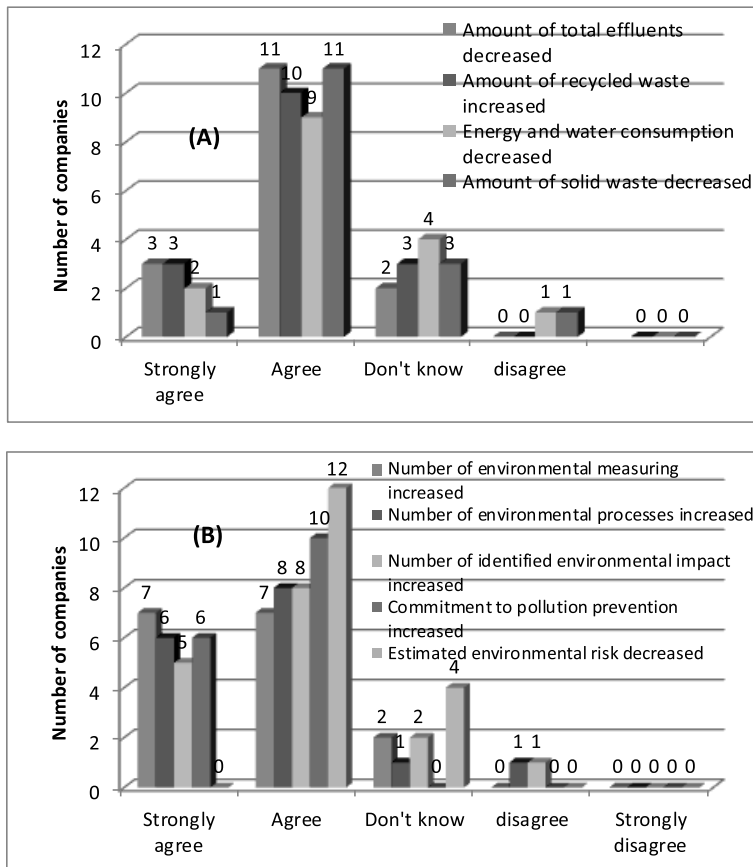


Fig. 8. Response of those surveyed to the question: "Indicate to what degree you agree with the statements indicating ISO 14001 effectiveness on environment".

Regulatory performance

As shown in Figure 9, all the respondents agreed that the environmental objectives and targets were set at least to meet (if not exceed) all regulations. The objectives and targets had also improved the company’s stewardship.

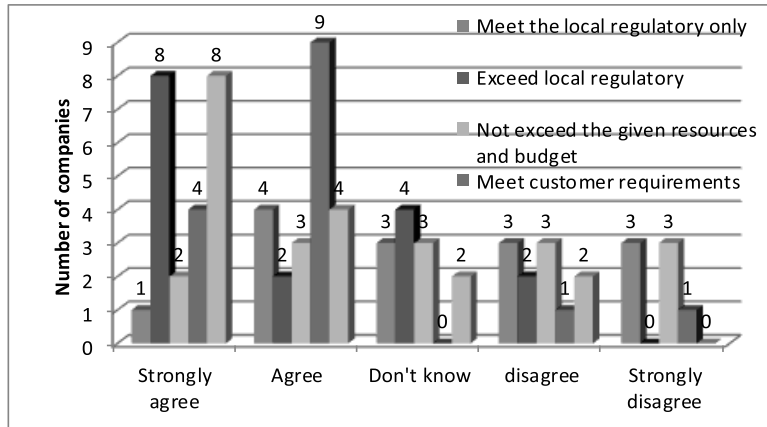


Fig. 9. Response of those surveyed to the question: “Indicate your company’s environmental objectives and targets”.

About 75 % of the respondents indicated that implementing ISO 14001 EMS resulted in improvement in environmental regulatory compliance. The trend in improved regulatory compliance and the decrease in the number of regulatory inspections indicates that ISO 14001 can serve as an effective complement to traditional environmental regulation (Rino & Salvador 2017).

Management performance and communication

Figure 10 illustrates the effect of applying ISO 14001 EMS on management performance and communication. The results indicate that the process of developing an ISO 14001 EMS helped 81 % of managers towards their internal commitment to environmental stewardship. Due to this commitment improvement, 94 % (15 out of 16) of the respondents indicate the increase of internal communication. Moreover, 69 % of the respondents indicated that their communication with the public has also increased due to ISO 14001 certification. This success in improving management performance has been indicated by researchers as an important goal (Lozano 2012; Hikichi *et al.* 2017a).

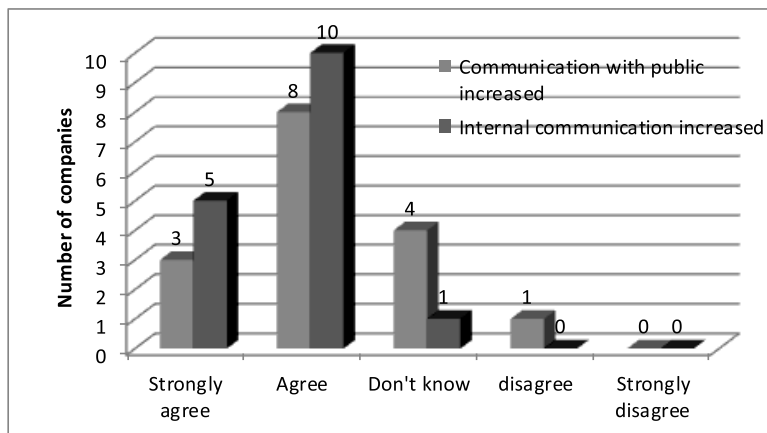


Fig. 10. Response of those surveyed to the question: “Indicate to what degree you agree with the statements indicating ISO 14001 effectiveness on communication”.

Environmental awareness and education

As depicted by Figure 11, all the respondents indicated that the environmental awareness and education has significantly increased among their employees (agree 50 %, strongly agree 50 %). The respondents also agreed that awareness among managers, owners has considerably increased (agree 43.8 % and Strongly agree 50 %). On the other hand, the awareness among customers and suppliers had moderate increase (agree 56.3 %, strongly agree 6.3 %).

Competitive advantage

Figure 12 depicts the effect of implementing ISO 14001 on firms' access to new markets. Results suggest that ISO 14001 EMSs helped the companies fulfill one of the main objectives, which is increasing their competitive advantage. A considerable number of respondents (56 %) indicated that implementing ISO 14001 helped their facility increase their competitive advantage. This has been always one of the main objectives of companies seeking ISO certification (Panwar *et al.* 2016). In addition, 63 % of the certified firms reported that their firm's access to new markets has increased due the implementation of ISO 14001 EMS.

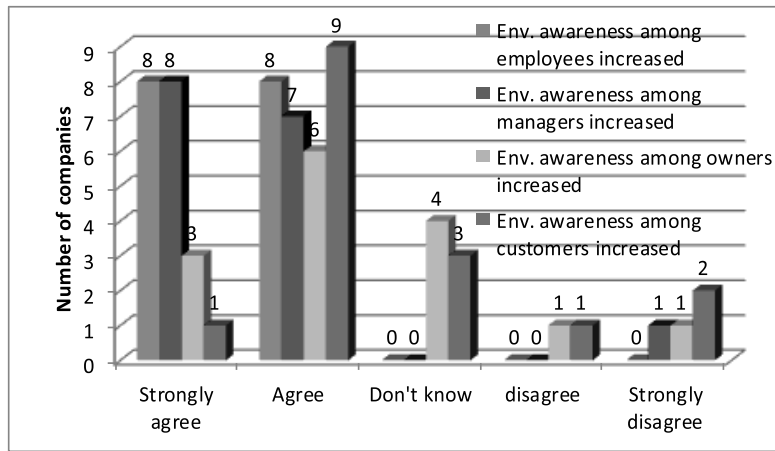


Fig. 11. Response of those surveyed to the question: “Indicate to what degree you agree with the statements indicating ISO 14001 effectiveness on environmental awareness”.

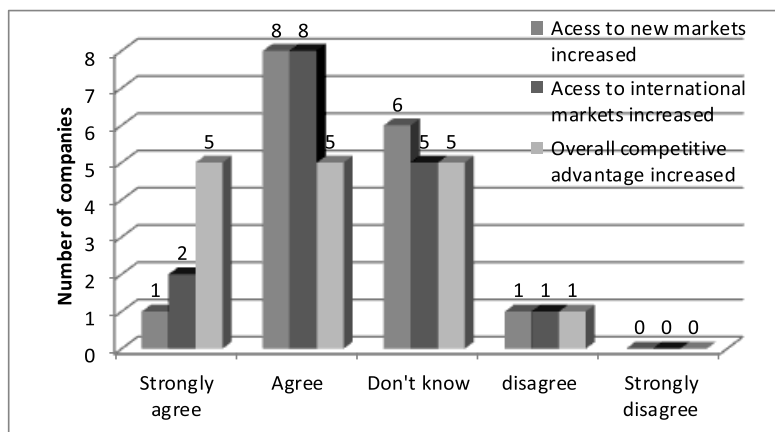


Fig. 12. Response of those surveyed to the question: “Indicate to what degree you agree with the statements indicating ISO 14001 effectiveness on access to new markets”.

Costs and benefits of certification

Most of the respondents (81 %) indicated that the overall benefits of implementing an ISO 14001 EMS outweighed the costs. The survey results provided helpful information on both ISO 14001 design and registration costs. Figure 13 indicates that 50 % of the respondents spent less than KD 10,000 to design their ISO 14001 EMSs, and 75 % of the certified firms spent less than KD 10,000 for their initial registration (Certification, Audit, etc.).

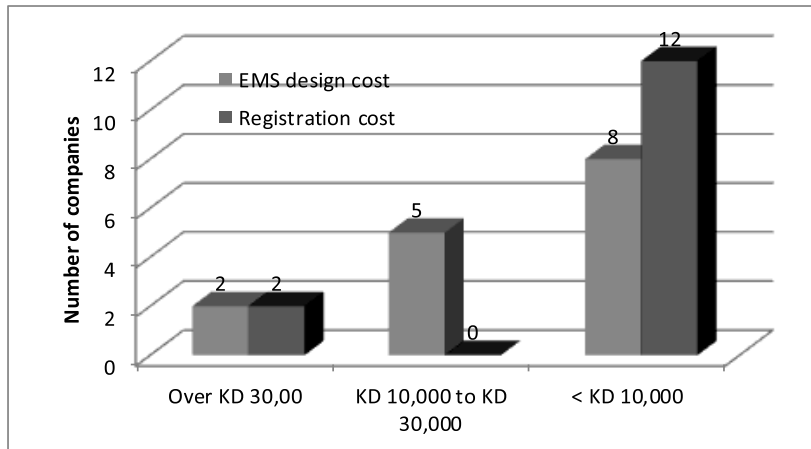


Fig. 13. Response of those surveyed to the question: “How much did it cost to design and certify your company’s ISO 14001 EMS?”.

CONCLUSIONS

The results of the study show clear evidence about benefits achieved from adopting the ISO 14001. Even though the sample was small, it clearly indicated that the standard has improved organizations’ environmental performance. The reported benefits include access to new markets, increased competitive advantages, and improvement in internal and external communication. The data also shows considerable increase in other areas of environmental concern such as training, environmental awareness, and environmental stewardship. Thus, environmental concern was greatly benefited from certification. Most of the firms believed that the ISO 14001 certification helps reduce regulatory fines, permit cost, operational costs, and allows greater access to capital. In general, firms credit their EMS development to their managers, senior managers, and environmental managers. Most of the firms set their environmental objectives and targets to not only meet the regulatory requirements but also improve the company’s environmental stewardship. It was also noticed that EMS implementation improved the Environmental awareness among employees, customers, and owners. The results and analysis of data indicated that the certified firms were supportive of ISO 14001. Since the study depends largely on the perception of respondents, and due to social desirability bias, the results may have been affected.

Future studies should be performed allowing further analysis of other source of information like governmental databases. Furthermore, the firms must be encouraged to participate in the survey to increase the analyzed samples, thus enhancing the quality of the results.

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تأثير تطبيق معايير شهادة أيزو 14001 على أداء الشركات في دولة الكويت

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الخلاصة

تساعد منظومة أيزو 14001 (ISO 14001) المؤسسات على تحسين أدائها البيئي مما يؤدي إلى الاستخدام الفعال للموارد وتقليل الفاقد واكتساب ميزة تنافسية أمام الشركات الأخرى بالإضافة إلى الحصول على ثقة حملة الأسهم ومالكى الشركة. ونظراً لهذه الفوائد، تسعى العديد من الشركات الخاصة والعامة الكويتية للحصول على شهادة منظومة أيزو 14001. تم إجراء هذه الدراسة لتقييم فعالية معايير منظومة أيزو 14001 في الكويت، وذلك باستخدام المسح المبني على الاستبيانات الموزعة على بعض الشركات المعتمدة من الأيزو في الكويت. أشارت النتائج إلى أن المستجيبين حققوا العديد من الفوائد من تطبيق المعايير بما في ذلك تحسين الأداء البيئي وزيادة الوصول إلى أسواق جديدة. وأشارت معظم الشركات إلى أن تطبيق معايير منظومة أيزو 14001 يسمح بتوظيف أفضل لرأس المال، وتحسين الصورة العامة للشركة كما يساعد على تقليل الغرامات البيئية التي قد تفرض من الحكومة كذلك تقليل تكاليف الترخيص. لوحظ أن تنفيذ نظام الإدارة البيئية أدى إلى تحسين الوعي البيئي بين الموظفين والزبائن والملاك.