



The Implementation of ISO 14001 Environmental Management System in Manufacturing Firms in Malaysia

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Abstract

In this study, the benefits of implementing ISO 14001 Environmental Management System (EMS), employees' responses towards the implementation of EMS, the reasons for resisting the implementation and the challenges encountered by top management in implementing EMS were explored. A questionnaire survey to 97 ISO 14001 certified manufacturing companies in the State of Selangor was conducted. The findings showed that improved corporate image is the most substantial benefit brought by implementing EMS. A majority of the respondents were optimistic and they believed the implementation of EMS was good to the company and it benefited them. The top three reasons for resisting the implementation of EMS were employee's preference to stay at status quo, employees were haunted by the past failures in EMS and fear of the unknown. The findings also indicated three major challenges encountered by top management in the implementation of EMS are top management commitment towards the implementation, identification of environmental aspect, impact and legal compliance.

Keywords: Environmental Management System, Resistance, Benefits, Implementation

1. Introduction

In recent years, there has been significant awareness of global environmental problems like global warming and ozone depletion. Appropriate management and control strategies to address the environmental issue have become a requirement to retain your global customers and to thrive in a more critical global economy (Meena, 2005; Amarjit and Max, 2005; Samuel and Bo, 2007). In this aspect, Environmental Management System (EMS) that is ISO 14001 compliant is designed to overcome environmental issues into every aspect of the company's operations, and offers an organized approach to manage environmental issues. Indeed, the benefits of ISO14001 lies in the cost savings through energy consumption, raw material input, waste management, environmental impact reversal as well as an improved public image (Briggs, 2007; Mori & Welch, 2008). EMS have been said to enable organization to improve their economical performance and environmental performance (Goh, Suhaiza and Nabsiah, 2006; Fortunski, 2008).

It is the interest of this study to investigate the benefits of EMS, employees' response towards the implementation, reasons for resisting and the challenges that top management has to face during the implementation Environmental Management System (EMS) in order to comply to ISO14001 standard. The main objective of the study is to examine and explore the implementation of EMS. Specifically, this study will provide an overview on the benefits of implementing EMS in an organization. It is also part of this study's concern to identify employees' responses or reactions on the implementation ISO14001. In general, the study would cover the reasons why employees felt that this is a threat to them.

Top management which usually includes the managers, supervisors and team leaders are the main drivers of EMS implementation. They have a critical role in making sure that EMS is successfully implemented. It is important for top management to identify the critical areas where they should focus on before they can take action to resolve it. Thus, it is also a concern of this study to understand the critical areas that top management must work on and how they should tackle these challenges.

In order to have a comprehensive overview on all the objectives mention above, this study will be guided by the following research questions,

What are the benefits of implementing EMS ISO14001?

What are employees' responses to the implementation of EMS ISO14001?

Why do employees resist to the implementation of EMS ISO14001?

What are the challenges faced by top management in implementing ISO14001

2. ISO 14001 Environmental Management System

An EMS is a tool for managing the impact of an organization's activities on the environment. It provides a structured approach to planning and implementing environment protection measures. An EMS monitors environmental performance, similar to the way a financial management system monitors expenditure and income and enables regular checks of a company's financial performance. An EMS integrates environmental management into a company's daily operations, long-term planning and other quality management systems (Bozena, Jens and Eklund, 2003; Ambika and Amrik, 2004; Burnett and Hansen, 2007). The most important component of an EMS is organizational commitment. All employees, especially top management need to show their commitment towards EMS in order to develop and implement an effective EMS (Zhang, Bi, Yuan, Ge, Liu and Bu, 2007).

The importance of an Environmental Management System (EMS) for organizations is becoming widely known across all industrial sectors (Burnett and Hansen, 2007). The implementation of EMS has become an important activity for organizations, irrespective of their size, sector or nature of the business. Some organizations decided to adopt EMS due to the external pressures like governmental regulation, community participation and market demand (Bozena, Jens and Eklund, 2003; Zhang, et al., 2007). On the other hand, some studies showed that the major motive for an organization to implement EMS is to improve their corporate image (Bozena, et al., 2003). It should not be an argument even though all organizations have different motives in adopting EMS because the ultimate aim of implementing EMS is to help organization to establish a systematic way to introduce environmental issues into every aspect of the company's operations, and offers an organized approach to manage environmental issues (Quazi, 1999; Gregor and Polona, 2006; Goh, et al., 2006).

2.1 ISO 14001 Environmental Management System and Change

Evidently, many organizations seek ISO14001 Environmental Management Standards certification, especially organizations that trades cross-nationally or international trading (Zhang, Yuan, Ge, Liu and Bu, 2007). Being recognized as an ISO14001 certified company helps firms to remove trade barriers in international business trading (Mori & Welch, 2008; Schylander & Martinuzzi, 2007). Even though ISO14001 was created to help organizations but it has been suggested that implementation of EMS in an organization can change an organization business processes (Samuel and Bo, 2007; Gonzalez-Benito & Gonzalez-Benito, 2008). Employees are expected to accept the change by giving up their previous work pattern in which they are familiar with and adapt to new working pattern (Almaraz, 1999; Smith, 2005). Unfortunately, change can be very stressful (Bat and Varda, 2003). Not all employees react positively and value the implementation of EMS as an opportunity to development. Some employees may take it as a golden opportunity to improve their management skills and this can be their opportunity to climb up the corporate ladder. Some may even feel that they will become a better qualified and knowledgeable employee if they participate in the implementation (Bosse, Breure and Spies, 2006). But many may respond with resistance, anger, frustration, confusion, fear of risks involved, fear to be innovative, afraid to try new things and some will oppose the increase in their responsibilities which the EMS would create (Bovey and Hede, 2001; Meena, 2005; Ayse, 2003; Bat and Varda, 2003).

In general, the progress of the company in attaining ISO14001 certification is influence by four factors namely feedback and review, employee empowerment, rewards and management commitment (Nalini & Bonnie, 2004). It was suggested that resistance from the employees can be a major barrier to a company from successfully implementing EMS (Ford, Ford and McNamara, 2002; Calabrese, 2003). The top management should not underestimate the impact it has on their employees. They must ensure information about EMS implementation is thoroughly & effectively announce and communicated to all employees. It is equally important for top management to emphasize strongly on how to handle the transition as this may help to move the team through change in the smoothest way possible (Goh, Suhaiza and Nabsiah, 2006).

2.2 Benefits of Environmental Management System

Studies on the benefits of implementing EMS ISO14001 have been research by several researchers. For example, a study conducted in Australia claimed that the most significant benefit that an organization gained through the implementation of EMS, ISO14001 is cost reduction (Meena, 2005). On the other hand, a study in Sweden reported that the most significant benefit for organizations in Sweden is improved corporate image (Bozena, et al., 2003). There is also another study conducted in Australia and New Zealand which showed that the most significant benefits experienced by organizations are morale building within the organization and fulfilling of the customers expectations' (Ambika and Amrik, 2004). The different findings in these studies showed that organizations in different countries experience different type of benefits and this could be due to the different culture in each country and organizational expectations.

2.3 Success Factors for EMS Implementation

Top management should have a clear understanding on what are critical success factors in their implementation of EMS. A study highlighted that the majority of the critical success factors in implementing EMS ISO 14001 are management leadership and support, learning and training, internal analysis and sustainability (Ambika and Amrik, 2004). While there is another study claiming that management commitment, employee empowerment, rewards and feedback & review stood out as key elements in implementing EMS (Nalini and Bonnie, 2004). Then again, studies have emphasized that top management should put greatest effort in identifying environmental aspects, environmental management system (EMS) documentation, training, EMS audits, operational control, environmental management program, objectives and targets, and document control (see for example, Khalid, Robert and Matthew, 2002). Top management may have to identify critical success factors that suites their organization because each organizations are unique having their very own organizational behaviors.

3. Methodology

This study employs quantitative research method using questionnaire survey. Questionnaire survey allows collection of large amount of data from a sizeable population in a highly economical way. Collected data are standardized, easy to understanding and allows easy comparison. It gives more control over the research process. However, one of the disadvantages is we have to spent a lot of time in designing and piloting the questionnaire. Data collected by this method may not be as wide ranging as those collected by qualitative research methods. Questionnaire survey limits the number of questions which a questionnaire can contain.

Data for this study was drawn from 97 EMS ISO14001 certified companies located in the State of Selangor. The lists of companies were obtained from the Directory of Malaysian Industries 2007 (Federation of Malaysian Manufacturers, 2007). Data for the questionnaire was developed by analyzing journals, media articles, internet documents and information, and relevant publications & personal observations in organizations. The questionnaire targeted employees in organizations that are involved in the implementation of ISO14001. The questionnaire consists of four parts: 1) benefits of implementing EMS; 2) employees' response; 3) reasons of resisting change; top management's challenges in implementing EMS. Data was collected using pre-designed and structured questionnaires. Before the actual survey were conducted, the questionnaires were pre-tested and reviewed for structure, readability, ambiguity and completeness, and the survey instrument was refined in light of comments from the respondents. The respondents were asked to rate the answer of each question on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) to what extent the statement fits the situation in their organization.

4. Findings and Discussions

4.1 Benefits of Implementing EMS ISO14001

Section A of the survey asked about the benefits of implementing ISO14001 in an organization. Table 1 showed the benefits and they were arranged on a descending order according to the descriptive statistical 'mean' value.

A majority (76.3 percent) of the respondents reported that the most important benefit of implementing EMS ISO14001 is improved corporate image (mean=4.35) with a low standard deviation of 0.556 indicating a general consensus amongst the respondents. This seems to support Goh, Suhaiza and Nabsiah's (2006) findings that certification of ISO14001 will enhance the reputation of the company. More than 60 percent of the respondents agreed that increased customer's satisfaction (mean=4.18), improved employee morale & awareness about environmental aspect, regulation and impact (mean=4.04), implementation helps in developing staff potential (mean=4.00), implementation is capable in building better team work (mean=3.94), improved relations with vendors (mean=3.88), improved relations with relevant legal authorities (mean=3.78) and reduce operation cost (mean=3.49) were the benefits of implementing EMS ISO14001.

However, it was reported that improved relations with local communities (mean=3.31), maintained/increased profit margin (mean=3.31), contribute to increased market share (mean=3.22), increased productivity (mean=3.18) and increase delivery time to customers (mean=3.03) were somewhat benefiting or does not contribute organizations very much in the implementation of EMS 14001.

Insert Table 1 Here

4.2 Employee's Responses on the Implementation of EMS ISO 14001

Table 2 showed employees responses in implementing EMS ISO 14001 and they are arranged on a descending order according to the 'mean' value. About 58.8 percent of the respondents reported that the implementation of ISO14001 is necessary to the success of their organizations (mean=3.96) with a low standard deviation of 0.768 suggesting a general consensus amongst the respondents. More than 50 percent of the respondents agreed that implementation of ISO14001 will benefit the respondents themselves (mean=3.82), the respondents (57.3 percent) also felt that it is good for their organization to adopt EMS ISO 14001 standards (mean=3.81), respondents (54.6 percent) are glad that the management

decided to implement EMS in their company (mean=3.75), respondents (55.7 percent) expected that the implementation of EMS ISO 14001 will affect their employment in a positive way (mean=3.74).

However, less than half of the respondents (41.2 percent) agreed that the implementation of EMS ISO 14001 excites them personally (mean=3.57). In addition, only 34 percent of the respondents agreed that they adapt and accept the implementation of EMS ISO 14001 easily (mean=3.29). The study also reported that respondents (15.5 percent) strongly disagree that they have no job anxiety caused by the implementation of ISO14001 (mean=2.91) and employees like to participate in the environmental program (mean=2.84;). These 3 responses seem to support the SATIR Change Model, stage 2- resistance. When an implementation threatens the stability of familiar power structures, most employees resist by denying its validity, avoiding the issue or blaming someone for causing the problem (McCalman, 1992; Khalid, Robert and Mathew, 2002; Manuela and Clara, 2003).

Insert Table 2 Here

4.3 Employees' Resistance to the Implementation of EMS ISO 14001

About 69 respondents reported that the most significant resistance to change is because of employee's habit of complacency – like to stay at the current comfortable condition (mean=4.13). It has a standard deviation of 0.656 which means there is a general consensus amongst the respondents. More than 50 percent of the respondents agreed that employees experiences of failure in the past in implementing ISO systems (mean= 3.77) is another reason for resisting to the implementation of EMS ISO 14001. Many of the employees who tried and failed to implement EMS in the past believed that this is just another trial to fail. In addition, most of respondents also agreed that employee's fear of the unknown (58.7 percent; mean=3.71), employees fail to recognize the need for implementing ISO14001 (49.5 percent; mean=3.64) and different interest between employees and top management (44.3 percent; mean=3.58) were among the reasons for resisting to the implementation of EMS ISO 14001 in their organizations. Moreover, it was reported that employees are not motivated to value the benefits of change (34 percent; mean=3.39) and employee fear of personal loss (mean=3.38) as other reasons of resistance.

Insert Table 3 Here

4.4 Top Management Challenges in implementing ISO14001

A majority of the respondents (75.3 percent) reported that top management's commitment is one the major challenges in implementing EMS ISO 14001 (mean=4.60). Identification of legal compliance of environmental aspects and impact (mean=4.42) were ranked in the second place. Legal compliance and environmental aspects and impact seem to be an important component of the implementation. This seems to support the EMS process flow under planning process where clause 4.3.1 – Environmental Aspect and Impact and 4.3.2 – Legal and other requirement are the two major pillars in this process.

Moreover, capital investments (74.2 percent; mean=4.22), middle management commitment (66 percent; mean=4.22), workers' commitment (66 percent; mean=4.21), training (69.1 percent; mean=4.18), following standard procedures (50.5 percent; mean=3.68) and periodic audits (42.3 percent; mean=3.61) are challenges faced by the top management in the implementation of EMS ISO 14001.

However, only a small number of the respondents agreed that the implementation of corrective action (37.1 percent; mean=3.47), documentation (22.7 percent; mean=3.17) and (re)defining standard procedures (27.8 percent; mean=3.12) were challenges in implementing EMS ISO 14001.

Insert Table 4 Here

5. Conclusion

The implementation of EMS ISO 14001 has its benefits to organizations. At the organizational level, the implementation of EMS ISO 14001 can put companies at an international position with quality standards and procedures, which in turn can lead to increased organizational productivity and success. At the employee level, the implementation of EMS ISO 14001 can be very challenging with increased workload and changes in the way tasks are performed, particularly with additional documentation and procedures to follow which can be very bureaucratic and unnecessary at times. However, during the implementation, there is definitely some of resistance from employees. Nevertheless, during any change in work processes, it is the norm that resistance may occur. Hence, it is suggested that employers conduct sufficient awareness training on the objective and benefits of EMS and get employees from all levels to participate in the implementation of EMS ISO 14001. Moreover, it was suggested that employers design a reward / incentive program for all active participants. Constant review on the implementation of EMS ISO 14001 with committee members, ensure that the EMS committee member's role and responsibilities are clearly defined were also suggested to overcome the problems. Finally, it was suggested that management must only apply the recommended solutions that are applicable to their organizations.

Like any other studies, this study has its limitation. The first limitation of this study is associated to the scope of study. This study has examined only the benefits, employee's response, resistance to the implementation of EMS ISO 14001 and also examining top management challenges in implementing EMS. Analysis on these few areas cannot reflect the actual situation about the implementation of ISO14001 in an organization. There might be other aspects during the implementation of EMS that is worth researching such as the application of permits from legal authorities. The researcher hopes that this research will encourage other researchers to conduct similar studies by including this aspect. The second limitation of this study is related to the fact that the sample size is only limited to 98 companies situated in the State of Selangor. Therefore, a generalized picture on the implementation of ISO14001 in Malaysia might not be accurate. The researcher hopes that this research will encourage other researchers to conduct similar studies by having a broader population of ISO14001 certified organizations in Malaysia. The third limitation of this study is associated to the size of organizations. It should be considered that 80 percent of the responding companies are relatively large, exceeding 150 employees. This study has not been able to capture the data from small organizations, which may be significantly different from those of the large organization. Therefore, it is suggested that a comparative study be conducted, a comparison of large and small companies.

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Table 1. Benefits of Implementing EMS ISO14001

	N	%	Mean	SD
Improved corporate image.	74	76.3	4.35	.556
Increased customer satisfaction.	64	66.0	4.18	.702
Improved employee morale & awareness about environmental aspect, regulations and impact.	64	66.0	4.04	.616
Help to develop staff potential.	67	69.1	4.00	.513
Building up better team work.	61	62.9	3.94	.675
Improved relations with vendors.	61	62.9	3.88	.778
Improved relations with relevant legal authorities.	49	50.5	3.78	.754
Reduce operation costs.	44	45.4	3.49	.868
Improved relations with local communities.	27	27.8	3.31	.847
Maintained / increased profit margin.	30	30.9	3.31	.693
Increased market share.	32	33.0	3.22	.898
Increased productivity.	25	25.8	3.18	.739
Increase on time delivery to customers.	14	14.4	3.03	.668

Table 2. Employee’s Responses on the Implementation of EMS ISO 14001

	N	%	Mean	SD
I think implementation of ISO14001 is necessary to my organization.	57	58.8	3.96	.768
I believe I will benefits from the implementation	54	55.7	3.82	.807
It is good for my company to adopt ISO14001 standards.	56	57.3	3.81	.859
I am glad that the management decided to implement environmental management program in the company.	53	54.6	3.75	.948
I expect that the implementation of ISO14001 will affect my employment in a positive way.	54	55.7	3.74	.733
The implementation of ISO14001 excites me personally	40	41.2	3.57	.880
I adapt and accept the implementation of ISO14001 easily.	33	34.0	3.29	.871
I have no job anxiety due to the implementation of ISO14001.	15	15.5	2.91	.830
Ordinary staffs in the company like to participate in the Environmental program.	19	19.6	2.84	.796

Table 3. Employees' Resistance to the Implementation of EMS ISO 14001

	N	%	Mean	SD
Employee's habit - like to stay at current comfortable condition.	69	71.1	4.13	.656
Employee's experiences of failure in the past in implementing ISO systems.	52	53.6	3.77	.944
Employees are fear of unknown.	55	58.7	3.71	.559
Employees fail to recognize the need for EMS.	48	49.5	3.64	.687
Different interest between employees and top management.	43	44.3	3.58	.817
Employees are not motivated to value the benefits of change.	33	34.0	3.39	.728
Fear of personal loss - change will lead to loss of power, pay and company benefits.	34	35.1	3.38	.859

Table 4. Top Management Challenges in Implementing EMS ISO 14001

	N	%	Mean	SD
Top management commitment.	73	75.3	4.60	.591
Identification of legal compliance of environmental aspects and impact	72	74.2	4.42	.615
Capital investments.	72	74.2	4.22	.553
Middle management commitment.	64	66.0	4.22	.719
Workers' commitment.	64	66.0	4.21	.713
Training	67	69.1	4.18	.643
Following standard procedures	49	50.5	3.68	.880
Periodic audits.	41	42.3	3.61	1.114
Implementation of corrective action	36	37.1	3.47	1.071
Documentation.	22	22.7	3.17	.834
(Re) defining standard procedures.	27	27.8	3.12	.888