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Environmental Performance in Small and Medium Sized Enterprises (SMEs) Certified to ISO 14001 in the United Kingdom

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Abstract: This study reports the environmental performance of Small and Medium-sized Enterprises (SMEs), who are already certified to the ISO 14001 standard in the United Kingdom. A survey questionnaire was used and 59 SMEs responded to this study. The results show that SMEs has gained various benefits from the implementation of the standard. The ISO 14001 implementation has increased awareness among SMEs staff, improved procedure and documentation, improved management structures and upheld their image. SMEs also recorded financial savings in areas like waste recycling/reuse, energy and water consumption and legal compliance. Even though, the saving are far less than larger organizations has obtained, its shows that this standard could give more to SMEs in the longer period. Through a good environmental image and having EMS in place, SMEs have a competitive edge in the market where supply chain pressure is increasing. However, they still faced problems in terms of costs and time during the implementation processes and in maintaining the standard. These problems can be solved if they have support from the authorities, business clubs and environmental NGOs. Publicity and promotion of the benefits of ISO 14001 implementation in SMEs could encourage other SMEs to follow suit. Further incentives by the government like tax reduction and financial grants to SMEs who are certified should be considered. As financial problems still remain an obstacle for SMEs in adopting EMS, financial grants, like SCEEMAS can be useful.

Key words: Environmental management, environmental performance, SMEs, ISO 14001, business and the environment, green consumerism

INTRODUCTION

ISO 14001 encompasses all aspects of previous environmental strategies. It is not just the matter of certification, but also pollution prevention strategies, which take a cradle to grave approach. ISO 14001 comprises strategies to prevent pollution at all stages of the process. Traditional end-of-pipe strategies treat the problem once it has occurred. In ISO 14001, source reduction is the main strategy used. Environmental performance is not only of concern to industrial and business managers but also to members of the general public who have increasingly demanding green products. At this stage, ISO 14001 is the best strategy that can cope with these demands and it is fully recognized worldwide.

Most of SMEs are vendors to large companies. They do not have enough funds, technical support or experience to implement Environmental Management System (EMS) but at the same time they need to market their goods either locally or internationally. Some of the SMEs are under pressure from Multinational Companies (MNCs) to put an EMS in place.

This research not only attempts to look at the implementation of ISO 14001 in SMEs but it also aims to examine the issues of costs, barriers and difficulties in implementing EMS and how SMEs overcome those problems.

ISO 14001 is difficult for SMEs to understand, adopt and use. These issues have also been related to the attitude of SMEs towards safeguarding the environment (Hillary, 1995, 1999; Rowe and Hollingsworth, 1996; Baylis *et al*., 1998; Smith and Kemp, 1998; Tilley, 1999). ISO 14001 implementation in larger organizations has proved to be successful in term of the benefits they have achieved (especially in financial terms) because of wider circulation of their products (Blumberg *et al*., 2000). However, this is not the case with SMEs yet. The adoption of this standard in SMEs will increase economic

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competitiveness and may also offer some benefits through compliance with regulation, reduction in energy consumption and good housekeeping practice.

It is the aim of this research to determine how SMEs co-operated to implement ISO 14001, analyzed costs and benefits (especially in financial savings) from the implementation of the standard, to identify the areas of the organisations (e.g., waste reduction, energy efficiency) that benefited most from the implementation, determine the barriers and difficulties encountered, the suitability of the ISO 14001 for implementation in SMEs and role played by the government in promoting EMS to SMEs, including policies, economic instruments and legislation.

SMEs, businesses and the environment: Market pressures are demanding a better understanding of the environmental costs and benefits of products and services and there is a strong and positive correlation between being at the forefront of eco-efficiency and being profitable. The most important factors in business survival are to remain competitive and to increase the market. Today, green consumerism plays a major role in the world economy. Businesses should treat environmental factors as a major aspect in their strategy. To be green can improve their product performance and at the same time increase their profits. Compliance with ISO 14001 for example, will become a selling point providing a competitive edge for businesses.

Businesses have to take prompt action as lots of legal requirements on environmental issues have recently been brought forward. Rising costs of landfill, duty of care regulation, EC directive on packaging and packaging waste and dozens of other environmental legal requirements could be costly to businesses. A proactive business environmental activity could provide better alternatives and programmes to overcome these problems.

In the case of SMEs, supply chain pressure could be a major problem for them. Larger organizations are gradually demanding that their suppliers (mainly the SMEs) to implement an EMS and become certified to ISO 14001. A good example is in the United Kingdom where the automobile companies (Ford, Jaguar and Rover), DIY store (B and Q) and supermarkets (Tesco, Sainsbury) are leading the way to encourage and help their supplier for this aim. These show how environmental issues can really affect some businesses activities.

Environmental management activity in SMEs is not the same as in large organizations due to differences in size and management structure (O'Laoire and Welford, 1995; Atkinson *et al*., 2000). SMEs tend to research on an ad hoc basis (Palmer and van der Vorst, 1996) compared with large businesses which have a well defined management structure. This is a serious problem for the success of the SMEs management system.

Compliance to legislation, supply chain pressures, market forces and the publics green ethics were identified as the driving force that persuaded many businesses to implement proactive environmental management (Hillary, 1995, 1999; Eden, 1996; Smith and Kemp, 1998). In reality, businesses, especially SMEs, are likely to implement EMS mainly because of legislative pressure. Hillary (1995), Rowe and Hollingsworth (1996), Baylis *et al.* (1998), Merritt (1998) and Petts *et al.* (1999) reported that legislative force remains the ultimate source of motivation to implement environmental action in SMEs whereas customer pressure is more pertinent in large companies.

Rowe and Hollingsworth (1996) reported that only 11% of companies will proceed with environmental improvement if demanded by customers.

Poor awareness and acceptance of the proactive EMS in SMEs is mainly because of businesses attitude. SMEs do not perceive themselves to have any environmental problems and think that their impacts are too small to count or non-existent (Tilley, 1999). In Hillary (1995) Groundwork survey, 58% of companies felt they had no or less impact on the environment. Rowe and Hollingsworth (1996) reported this figure to be about 55%. Most of the research in their survey showed that businesses have an intention to promote proactive environmental management in their organization (Hillary, 1995; Rowe and Hollingsworth, 1996; Merritt, 1998) but this attitude does not change to action in reality (Tilley, 1999) because of other barriers such as economic ability, poor eco-literacy, low awareness and limited resources.

Environmental solutions designed for large firms cannot necessarily be applied to SMEs (Tilley, 1999; Rowe and Hollingsworth, 1996; Merritt, 1998) because of their management system and structure, resources and ability to adapt. On the other hand, SMEs face greater pressure on financial resources and tend to have shorter pay back periods from any investments they made (Palmer and van der Vorst, 1996). This means that any long term planning such as in ISO 14001 will create high risks for them without offering any benefits of it in short term. Other problems are also identified such as lack of knowledge about the environment, lack of time, uncertainty about the value of an EMS, limited human resources and low awareness of EMS (Merritt, 1998; Smith and Kemp, 1998; Baylis *et al*., 1998; Hillary, 1999; Kirkland and Thompson, 1999).

The implementation of ISO 14001 could give benefits to businesses, especially SMEs, if it is done properly and with the support of a third party. Smith and Kemp (1998), Baylis *et al.* (1998), Holt (1998), Hillary (1999) and Kirkland and Thompson (1999) have reported internal and external benefits arising from the implementation of ISO 14001 in SMEs. Internal benefits can be (improved on documentation, training, awareness and quality) and financial (costs saving on material, energy savings and waste reduction). External benefits can be (new customers, marketing advantages, reduces insurance premiums and increased competitiveness), compliance to legal requirements and a positive public image.

During the past few years, the UK central government has double their efforts to encourage industries, especially SMEs, to take more proactive action to improve their environmental performance. Several schemes targeted to SMEs have been established for that purpose, including: the Environmental Technology Best Practice Programme (ETBPP) helpline, the energy efficiency best practice programme helpline and the Small Company Energy and Environmental Management Assistance Scheme (SCEEMAS). Palmer and France (1998) reported that 83% of callers who used ETBPP Helpline services are SMEs and that they have made an average of 6 visits week^{-1} to SMEs for site assessment and free advice. On the other hand, the energy efficiency helpline did not receive much response from SMEs even though this scheme is targeted at them. The third scheme, SCEEMAS, is intended to help smaller organizations research towards registration under EMAS with financial help to meet consultancy costs.

SMEs in the United Kingdom: SMEs are a vital part of the UK economy accounting for 51.8% of the UK annual turnover and creating about 56.3% of jobs. SMEs dominate the service sectors and are also important in manufacturing sectors. They create jobs, encourage innovation, skills and are a major supplier to larger businesses. Some studies have estimated that the cumulative effects of SMEs contribute around 70% of pollution levels but their total environmental impact still remains unknown (Hillary, 2000).

SMEs in the UK economy have increased steadily over the last two decades. In 1980, there are only 2.4 million businesses categorized as SMEs. From 1989-1998 the number of SMEs remained between 3.5 and 3.7 million. UK Department of Trade and Industry (DTI) statistics show that businesses with fewer than 50 employees were the source of half of employment and over a third of turnover in the UK economy. From 3.7 million enterprises in the UK, 99.8% are considered as SMEs while only 0.2% is large enterprises. Only 24,610 are medium sized and <7,000 are large (250 or more employees) enterprises. Size class zero (sole trader or partners without employees) businesses make up about 64% (2.3 million) of enterprises in the UK while micro and small businesses make up 35.2%.

SMEs contribution to the UK economy cannot be denied. In 1994 (gallup survey), 64% of SMEs thought that their contribution to the economy was quite high or very high (Hillary, 1995) and in 1998, this number had significantly increased to 77% (Smith and Kemp, 1998). In 1998, SMEs contributed around 51.9% of a total of £1.9 billion in businesses turnover compared to 48.1% from large businesses. Small enterprises made up 99.2% of businesses and employed over 9 million people, out of total workforce in employment of 21.6 million people, in 1998. Medium enterprises account for about 2.5 million workers (11.6%) while large businesses employ over 9.4 million (43.7%) in only 6,660 businesses. SMEs account for >56% of employment in the UK economy.

MATERIALS AND METHODS

This research intends to seek a collective view from SMEs managers from their experiences in implementing ISO 14001. For that aims, a quantitative approach were applied. A set of questionnaire was designed to identify several issues from pre-implementation processes, which cover the time and costs of implementation, the driving force behind it, external support and the areas, which are considered to have the most significant impact in their organizations.

The second part deals with the organizations environmental performance after the implementation. The final part on the questionnaire is targeted to get their views on the suitability of ISO 14001 implementation at their scale. SMEs were also asked for their opinions on how the government can help them to maintain the certification.

Defining SMEs: The definition of SMEs varies between sectors and countries. The number of employees is always used as a cut off level in the definition of SMEs but this is not appropriate without considering other factors. The European commission has established a single definition of SME since, February 1996. This considers a combination of employee numbers, turnover or balance sheet total and ownership to classify enterprises. The European definition of SMEs is Hillary (1999, 2000).

SME:

- Has <250 employees
- Either an annual turnover not exceeding 40 million ECU (±GBP 25 million)
- An annual balance sheet total not exceeding 27 million ECU (±GBP 17 million)
- An independent enterprise, i.e., 25% or more of the capital or voting rights cannot be owned by larger enterprise/s

Small enterprise:

- Has <50 employees
- Either an annual turnover not exceeding 7 million ECU (±GBP 4.4 million)
- An annual balance sheet total not exceeding 5 million ECU (±GBP 3 million)
- An independent enterprise, i.e., 25% or more of the capital or voting rights cannot be owned by larger enterprise/s

Sampling: The questionnaire was sent to organizations, which already certified with ISO 14001 in the UK. A record of ISO 14001 certified organizations were obtained from EAG Environ Environmental Consultant (2000) and British Standards Institute (BSI). Up until March 2000, 1,014 companies have been certified with ISO 14001 in the UK. A total of 463 questionnaires were send and this was 45.7% of all the companies certified with the standard. Recipients were chosen randomly and efforts to avoid large businesses were made, as the data on companies size were not available. The number of questionnaires sent was compatible with Hillary (1999) estimation of the numbers of SMEs certified with ISO 14001 in UK which is, at a minimum, 25% (253 organizations).

One hundred and thirty-five companies completed the questionnaire were received (29.2% return rate). As the questionnaires were sent at random, without knowing the size of the organizations, responses received were mixed between SMEs and large organizations. From 135 respondents, 43.7% were SMEs and the rest were large organizations. Hillary (1999) estimated that the numbers of SMEs certified to ISO 14001 in the UK is between 24% (243) and 56% (567). This gave 59 respondents from SMEs, which is 10.4% of the maximum estimated value.

RESULTS AND DISCUSSION

A total of 59 respondents from SMEs involved in 10 sectors (Table 1). Manufacturing sectors had the highest response rate. SMEs operated mainly in sectors such as manufacturing, services, chemical, fibre/metal, furniture and printing.

Time, costs and third party support to gain certification: The highest rate of certification occurred in 1998, 2 years after ISO 14001 was established. Organizations took between 6 and 18 months to plan and prepare for certification. Most of the organizations that were certified between 1995 and 1996 had converted from BS 7750 or were involved in pilot projects sponsored by the government.

About 63.6% of small enterprises and 58.3% of medium enterprises took between 6 and 12 months to certify because of the size of the companies and their management structures, which are small and easy to assess compared to larger organizations (Table 2).

In terms of the cost of the implementation of the standards (including registration fees, changes made and consultancy costs), all SMEs spent <£25,000 and >60% of them mostly small enterprises spent <£10,000. The costs of implementing ISO 14001 in SMEs were considered reasonable and sometimes less than expected. With an average cost of £10,000, other SMEs could also follow suit. ISO 14001 certification did not mean mass changing of the process of production or installing new equipment but to have a good EMS for using the resources available. Many SMEs reported that consultation fees were around £1,000-3,000.

In the process of implementing ISO 14001, 49.1% of SMEs received support or consulted third parties. About

Table 1: SMEs respondents based on sectors

Sectors	SMEs respondents
Manufacturing	20
Services	9
Chemical	9
Fibre/metal/steel	7
Furniture manufacturer	4
Printing	4
Food and beverage	2
Engineering/construction	2
Extraction	1
Textile	1
Total	59

Table 2: Time taken to be certified to ISO 14001

Time taken to certify (months)	No. SMEs	Percentage
Below 6	01	1.7
6-12	35	59.3
12-18	10	16.9
18-24	12	20.3
>24	01	1.7
Total	n = 59	100.0

Table 3: Driving forces

Driving forces	Percentage
Own initiative/concerns	78.0
Legislative liabilities	32.2
Customer pressure	25.4
Market pressure	25.4
Reduce utilities consumption	13.6
Local communities	10.2

Table 4: Percentage of perceived benefits after the implementation of ISO 14001

Perceived benefits	Percentage
Improved awareness amongst employees	25.0
Improved environmental performance	25.6
Uphold a good image	18.9
Saving in energy usage	2.9
Improved procedure and documentation	36.4
Enhanced regulatory compliance	35.5
Increase customers satisfaction	8.0
Give competitive advantage	-4.0
Public recognition	27.3
Reduced environmental costs	-4.8
Saving in water consumption	15.0
Increase company profit	42.9
Increase market of the product	-15.4

27.1% of support came from local business clubs, NGOs, consultants and other companies while 20.3% came from the government agencies (BSI, DETR, Environment Agency etc.). Average financial support (especially from the SCEEMAS programme) received by the SMEs was between £1,000 and £3,000 to cover half of the consultant fees. More than 60% of the respondents did not hire or contract third parties to establish their EMS. About 39% of those that did contract the third party, the costs were below £5,000. This was a good deal for businesses, especially SMEs.

Driving forces: Hillary (1995), Rowe and Hollingsworth (1996), Baylis *et al*. (1998), Merritt (1998) and Petts *et al*. (1999) reported that legislation remains the ultimate source of motivation to implement environmental action in SMEs whereas customer pressure is more pertinent in large companies. This research found that the main driving force was organizations environmental concerns (78%) and placed legislation liability as second priority (Table 3). Only 10% of SMEs stated local communities as their driving force.

Significant environmental issues addresses: The Initial Environmental Review (IER) is one of the imperative processes in ISO 14001 implementation. About 93.3% of SMEs had done an IER and identified 3 major issues: waste generation, energy consumption and reducing pollution. These seem to be related to several pieces of legislation directly imposed on the industries such as the environmental protection Act 1990 (duty of care regulations), EC directive on the Landfill of waste (99/31/EC), producer responsibility obligations (packaging waste) regulations and air quality regulations, 1997. SMEs were also more concerned about issues such as raw material, chemical handling, water consumption, transport and health and safety. SMEs did not show any special interest in issues of packaging, land contamination and greening the supplier. An analysis also showed that waste management is the most significant area in SMEs followed by reducing in emissions and effluents discharge and reducing energy consumption. Health and safety aspects were ranked fourth in SMEs.

Perceived benefits: Environmental performance evaluation is an important part of ISO 14001 for the future improvement in any organization. Present performance data can be used to plan objectives and targets for continuous improvement. In this research, >97% of respondents felt that ISO 14001 has brought benefits to them. The other 3% denied that on the basis that the standard has limited value and their customers did not recognize it.

For SMEs, after the implementation of ISO 14001, the perceived benefits increased between 3 and 42.9%, except in the areas of increased market of the product, reduction in environmental costs and gaining competitive advantage (Table 4). The implementation of ISO 14001 in SMEs has proved to be profitable, gives savings in utility consumption and enhances regulatory compliance.

Benefits such as savings in utility consumption, regulatory compliance and increased awareness amongst employees is part of the results of good EMS planning. Good Housekeeping Practices (GHP) have contributed to this achievement. Almost 80% of SMEs apply GHP in their organizations.

Respondents achievement in objectives and targets: Almost 97% of respondents have achieved the objectives and targets that had been set. About 50% of SMEs recorded an achievement above 61% success in four issues: an increase in the amount of waste recycled/ reused, improvement in chemical handling, reduction in air pollutant emissions and improvement in health and safety procedure. Reduction in waste generation, water consumption and energy use had a moderate level of success with 36-59% of SMEs achieving below 60% success. Raw material handling and transport issues recorded the lowest percentage of success with almost 60% of SMEs achieving below 20% success (Table 5).

Improvement in health and safety procedure showed the highest achievement with 55% of them in the 81-100% success category (Table 5). SMEs seem to have problems to improve raw material handling and transport.

Financial Benefits from the Implementation of ISO 14001: Obtaining figures on the financial profits from the implementation of ISO 14001 was difficult when most of the respondents treat it as confidential. Only 67.8% of respondents were willing to highlight the profits. Analysis showed that 50% of small organizations did not achieve

Table 5: Level of success in achieving objectives and targets

SMEs level of success	Below 20%	21-40%	41-60%	61-80%	81-100%
Increase in amount of waste recycling/reuse	16.2	8.1	21.6	13.5	40.5
Improvement in chemical handling	16.7	4.2	25.0	16.7	37.5
Reduction in air pollutants emissions	25.0	4.2	8.3	25.0	37.5
Improvements in health & safety procedure	29.4	5.9	5.9	29.4	29.4
Reduction in waste generation	33.3	2.4	23.8	19.0	21.4
Reduction water consumption	34.6	15.4	7.7	23.1	19.2
Reduction energy usage	46.2	12.8	15.4	10.3	15.4
Improvements in raw material handling	58.8	0.0	5.9	23.5	11.8
Improvements in transport problems	60.0	0.0	10.0	30.0	0.0
Packaging	0.0	0.0	0.0	100.0	0.0
Raw material usage	0.0	100.0	0.0	0.0	0.0

any financial benefits, while the other 50% achieved benefits below £5,000. About 77.4% of medium organizations recorded savings below £30,000 and only 9.7% achieved savings >£100,000.

Financial savings could be gained from many aspects of the implementation of ISO 14001. Several organizations found that there was significant reduction in utility consumption, increased waste recycling/reuse and legal compliance which turned out to be more profitable. It is obvious that the smaller the organizations the less financial saving they make. In reality, there are a lot more aspects that can be considered as benefits but cannot be counted in financial terms. As long as the organizations implemented the EMS, savings can be made by, for example: increasing their reputation, which can bring more customers and increasing employees awareness of environmental issues, which can prevent accidents and reduce risk in work place and prevent pollution and avoid any legal actions.

Respondents also reported financial savings in specific areas such as energy saving, reduction in water consumption, waste reduction, compliance to legislation, raw material usage and other special issues. The first three areas mentioned have been reported as more successful and beneficial. SMEs did not experiences financial savings of >£25,000 in any area. In smaller organizations, the limit was only £5,000. Most SMEs reported saving of £1,000-2,000 in energy consumption and about £50-1,000 in water consumption. The amount of money saved by SMEs cannot be compared to bigger organizations as nature of business are different in size, quantity and the quality of employees, resource availability and working capital.

Problems and solutions in the implementation process: Several studies on SMEs have identified that issues like costs, time, lack of resources and knowledge on environment are the major obstacles which keep them away from implementing EMS (Hillary, 1999). Results from this research confirmed this. There are ten major problems for SMEs when they implement the standard (Table 6).

Table 6: Ranking of problems faced by the respondents

Rank	Problems
1	Raising awareness among employees
2	Documentation time
3	Implementation costs
4	Management support
5	Definitions of standard procedures
6	Specific aspects
7	Administrative and management of the standard
8	Lack of practical information
9	Resources availability
10	Too much paperwork

Three of problems faced by the SMEs is a reflection of the nature of organizations. They are small have less working capital and a lack of knowledge among employees. Standard paperwork, resource availability and practical information were issues in <10% of SMEs.

How they cope with all those problems? The two most popular solutions were training and initiatives. Training methods such as seminars, courses for all level of staff, conferences and team discussion were always used. Organizations also developed their own methods and initiatives to make the implementation process a success. Initiatives included things like incentives for staff, who were involved, highlighting any costs saving and benefits to all employees and developing their own procedures of assessment which were suitable for them. Some of the SMEs had to consult other parties to solve their problems, either government agencies or consultant. SMEs that were already certified with ISO 9000 series used their experiences to implement ISO 14001.

Suitability of ISO 14001 in SMEs: Results from the analysis before show that ISO 14001 implementation has brought many benefits to SMEs. About 84.7% of SMEs that are certified with this standard reported that ISO 14001 is suitable for them to adapt. Only 6.8% found it unsuitable because of several aspects such as costly, time demands and little impact on their business.

SMEs, who found it suitable gave 8 reasons for that which is developed a good structured approach for management in their organizations (27%) and was useful to market their product (22%). ISO 14001 was also considered easy to implement (18%) (Fig. 1).

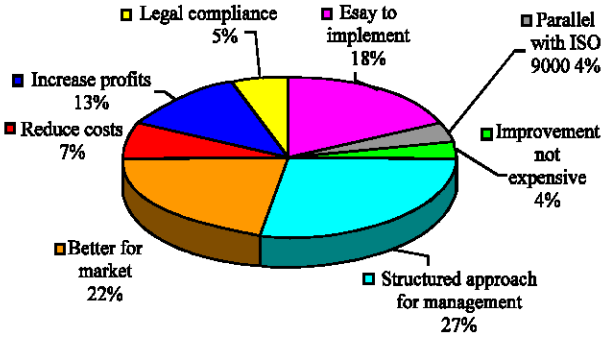

Fig. 1: Reasons why ISO 14001 is suitable for SMEs

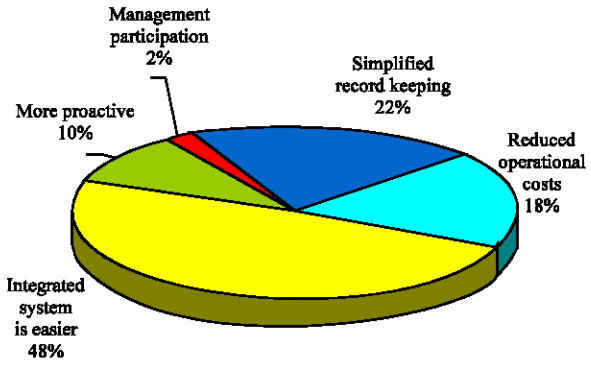

Fig. 2: Reasons for alignment of both standards (ISO 9000 and 14000)

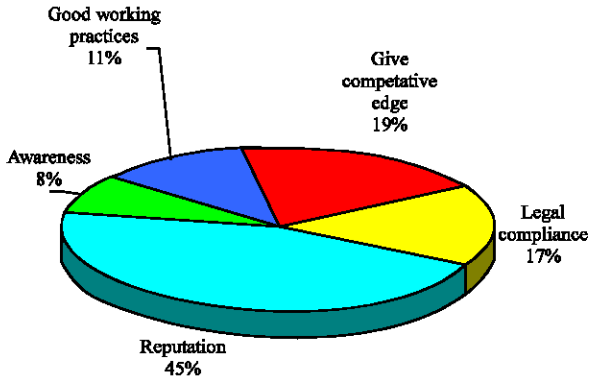

Fig. 3: Reasons why value to stakeholders increased

On the issue of further alignment of the ISO 9000 series with ISO 14000 series, 71.2% of SMEs agreed with the alignment, 13.6% objected and 15.2% made no comment on it. SMEs who objected to the alignment said that there are already too many burdens and the standards did not match. Both objections maybe confused as to what is the alignment are all about.

Alignment of both standards is only in terms of the management of the standard and does not involve combining the standards. If the alignment process is successful, organizations can reduce the costs and time of establishing or maintaining the standards. An integrated management system is not new. Douglas and Glen (2000) in 28 SMEs that implemented both standards in the UK show that >80% of them achieved benefits from it. The integration of ISO 9000 and ISO 14000 can reduce paperwork and procedures, easier to managed, better communication between staff, effective and reduced costs.

Forty eight percent of respondents who accepted the alignment believed that the integrated system will ease all of the management processes in organizations, will simplify all record keeping (22%) and reduce operational costs (18%) (Fig. 2). This issue is looked on as a proactive action, which will involve single management participation. In reality, the implementation of the standards (ISO 9000 and 14000) has usually been done by the same team in the organization, especially in SMEs. Frequently we found one unit in organization was named as the quality and environmental unit and sometimes this also included health and safety. The integration processes have actually been performed long ago because of limited staff and costs. Recent developments show that efforts have been taken to integrate health and safety, quality and environmental management aspects into one system called Integrated Management System (IMS).

Value to stakeholder: It is undeniable that any organizations, which has a good track record is profitable, has a good management system is low risk and competitive has a value which is recognized by other parties. The ISO 9000 series is a very good example, with most of the organizations wanting to be certified to it. With ISO 9000 certification for example, stakeholders know that the organizations producing a good quality product. That makes them competitive in the market and increases their profit. ISO 14001 certification aims to be at the same level as ISO 9000 especially in a decade where environmental awareness has increased considerably.

Several case studies on larger organizations have shown that their proactive action for the preservation of the environment has increased their share values and satisfied the stakeholders (Blumberg *et al*., 2000). This research found that almost 78% of SMEs believed that ISO 14001 certification has increased their value to stakeholders, 5% did not agree and 16.9 did not know. Most of the SMEs believed that applying ISO 14001 and having a good EMS increased their reputation hence their value to stakeholders. It also shows that their

organization is competitive, complies with the law, has good working practices and is aware of and concerned about their environmental aspects (Fig. 3).

CONCLUSION

ISO 14001 is not a difficult standard to implement in SMEs and is also not costly. SMEs may face some problems during the implementation processes but this can be overcome if they are given support and advice from local business clubs, environmental research centers or other relevant parties. Even though SMEs did not make many financial savings in short term, this is not an issue. Other benefits, such as compliance to legislation, securing contracts from larger businesses, good housekeeping practices and good management structures can turn to a financial gain in long term.

The implementation of ISO 14001 in SMEs has proved to be beneficial. Some of the SMEs have gained financial benefits although not as much as reported by larger organizations. Costs to implement ISO 14001 in SMEs were not higher than expected. This research found that the significant issues addressed and problems, they faced were more or less the same as for larger organizations and related to current legal requirement. SMEs can benefit if several issues are considered. Areas such as how to increase knowledge of the environment among SMEs and how third parties, including the government, can play a major role to support them should be given priority.

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