

Implementation of Environmental and Quality Management System: A Case from Indian Ayurveda Industry

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ABSTRACT

The purpose of this work is to analyze the forces that prompted an Ayurveda manufacturing organisation to implement and maintain environmental management system (EMS / ISO 14001) and Quality management system (QMS / ISO 9001). Moreover the study also throws light on the effectiveness of implementation of both the systems. The work also aims to describe how and why environmental issues were integrated to process effectiveness and financial performance. The paper utilizes both qualitative and quantitative approaches for the study. For the qualitative research, the top management and functional heads including Management Representative for implementing both the systems are selected as interpretive community. Researchers participated in all the interviews. The interviews were recorded by tape and later transcribed to paper. The reasons for implementation are further categorized by hearing, re-reading, indexing and generating themes by using thematic analysis. Quantitative data regarding 'Key Performance Indicators' were collected from the company's balance sheet regarding the financial performance, before and after implementing both the management systems. The forces driving the implementation of EMS and QMS were rather 'out-side-in' in nature. The initial intent behind implementing EMS and QMS was to gain corporate image, corporate social responsibility, good will, and to use the International certification as a publicity tool. Over a period of five years the forces turned to internal ones when the relationship between improving quality and environmental performance and process effectiveness was recognized by the top management. Later both the systems were integrated, that resulted in sustainable but incremental financial and environmental improvements. The results of the study can be generalized as more contextual than statistical or constructive. This work contributes to the empirical research on Environmental Management and Quality Management systems by integrating both perspectives in an emerging market economy like India.

Keywords

Ayurveda, Environmental Management System, External Forces, Internal Forces, Quality Management System.

Introduction

Ayurveda is considered to be one of the industries in which issues related to environmental problems are very few. As per Hazard Identification and Risk Assessment classification (HIRA) of industries that are prone towards environmental risk, Ayurvedic Industry is classified to be the safest - "The Green category," among the all type of classifications - 'the Red, Orange and Green'. In this scenario, implementation of EMS (ISO 14001) has almost less practical significance in Ayurvedic Industry. On the contrary, like any other sector or industry, implementation of QMS (ISO 9001) can be justified and practically relevant for many reasons. The selected organisation implemented ISO 14001: 1996 & ISO 9001: 2000 in the year 2003, for the first time in the history of Indian Ayurveda Industry. In this context the object behind the implementation and maintenance of EMS (ISO 14001) and further its integration to QMS (ISO 9001) seems to be conflicting and interesting. In this context, it makes sense to explore this dichotomy, regarding the implementation of EMS (ISO 14001) that is not considered to be relevant, where as QMS (ISO 9001) seems to be relevant and significant. Moreover, the organisation considers and claims that they are the first company in the world to get certified for ISO 14001 in Ayurvedic Industry. Whether intend is genuine, or only for projection and publicity purpose; this qualitative but empirical study explores the dimensions of the motive behind implementation, as well as the relative benefit that company obtained after implementation. This factors triggered the researchers to examine the factors prompted the organization to implement EMS (ISO 14001) and QMS (ISO 9001) and identify the relationship among the dimensions of these two phenomena (EMS & QMS) on performance.

There are no studies available from India that explores simultaneously the forces behind the implementation as well as benefits of implementing QMS (ISO 9001) and EMS (ISO 14001). Furthermore Ayurveda is considered to be an industry with vast potential that are related more into natural, and herbal inputs without chemicals that is ancient in nature. ISO 14001 is again focused into sustainability and preservation of flora, fauna and nature. Thus this study found to be fit from different perspectives. Firstly it fills the gap in an Indian context. Secondly it fills the gap because it is not for testing a hypothesis, but rather to explore the qualitative aspect of the purpose and need behind implementation and quantitatively the effectiveness of implementation. Thirdly the study is being conducted in an industry with vast potential that drives the economic growth of the nation. It is further interesting to note that the study is being conducted in an industry where there are more or less, subjective measures are used in the entire process flow (usually tacit knowledge that is not objective) derived from Vedas, Astanga and ancient wisdom literatures. On the contrary QMS (ISO 9001) is about integrating objectivity at the grass root level.

Forces driving Environmental Management System

Companies and organizations may have forces driving them to implement their management systems. These forces can arise both inside (internal) and outside (external) of the organization (Anderson and Young, 1999; Malmi, 1999; Bansal and Roth, 2000). Malmi (1999) studied how the driving forces changed over the course of the diffusion, using three categories to analyze the forces. The first category incorporates the efficiency choices, such as reliability, usefulness and updating of an existing system or other units benefits. The second category covers the situation where companies had the adoption forced upon them, i.e. the parent company or head office mandated the use of the system. The final category is the fashionable category, where an adopter is driven by the desire to try a new tool. Malmi (1999) found that the forces changed over the course of the diffusion from the efficiency to the fashionable forces. According to another study, one source of external forces may be regulators and public authorities (Bansal and Roth, 2000; Davidson and Worrell, 2001; Bansal, 2005; Rintanen, 2005; Darnall, 2006; Lozano and Valle's, 2007; Magrini and Lins,

2007; Rothenberg, 2007). Bansal and Roth (2000), Davidson and Worrell (2001), and Lozano and Valle's (2007) found that environmental regulatory and government pressure may be the major drivers of managerial environmental action.

Bansal and Roth's (2000) qualitative study illustrates three motives for environmental management and ecological responsiveness. These motives relate to competitiveness, legitimization and ecological responsibility. The competitiveness motive emphasizes the organizations' purpose to improve its long-term profitability. According to Bansal and Roth (2000) and Darnall (2006), the legitimization motive refers to the organization's desire to improve the acceptance of its actions compared to regulations, norms, values or beliefs. Ecological responsibility refers to a motivation that stems from the concern that companies have for their social obligations, values and ethical concerns in general. However, while regulatory pressure may serve as a driver of environmental action, it is not the only determinant which affects the establishment of environmental management processes (Bansal and Roth, 2000; Davidson and Worrell, 2001; Rothenberg, 2007).

Environmental Management benefits

As earlier studies illustrated, the impetus behind environmental management can be external. However, it may also be internal if an organization considers that environmental management can somehow demonstrate benefits after implementation. Klassen and McLaughlin (1996) found that environmental management can improve a company's financial performance and stock market returns. Klassen and McLaughlin (1996) stated that the financial performance of firms is affected by environmental performance in a variety of ways. When waste, both hazardous and non-hazardous, is minimized as part of environmental management, it results in better utilization of natural resources, improved efficiency and higher productivity and reduces operating costs. Again, when the environmental performance of the firm improves, it ushers in tremendous marketing advantage, and this leads to improved revenue, increased market share, and new market opportunities. Organizations that minimize the negative environmental impacts of their products and processes recycle post-consumer waste and establish environmental management systems, are poised to expand their markets or displace competitors that fail to promote strong environmental performance.

Georgiadou and Tsiotras (1998) studied the implementation of EMSs in Greek industry and found that the internal benefits were more significant than the external ones. More specifically, they classified the benefits as being limited to three factors, of which the two most significant included benefits with regard to the internal environment of the companies (such as improved quality, reduced production cost due to the minimization of energy consumption, showing care for the environment, using the standard to facilitate management of environmental aspects and guiding the update of the existing EMS). The third factor (of the lowest significance) included benefits with regard to the external environment (such as facilitating trade, overcoming trade barriers, meeting supplier and contractor certification criteria and improving market share).

Chin et al. (1999) stated that the benefits of the ISO 14001 EMS fall within three major categories, namely: legal, commercial and social. Companies may implement new processes that use less hazardous materials resulting in less hazardous waste needing land disposal, which in turn may result in less soil and ground water pollution. Competitiveness can also be enhanced by improved company public image and staff morale, as a result of ISO 14001. The study of Chin et al. (1999) among Hong Kong manufacturers indicated that the lower legal liability followed by improved company image and staff morale were perceived to be the major benefits in implementing the EMS (ISO 14001). Improved profitability, however, was perceived to be the next important benefit (Bartolomeo et al., 2000). Environmental management might have a greater impact on companies'

profitability and financial position in the future through public policy and market forces. Proto and Supino (2000) mentioned that companies by implementing the ISO 14001 standard, first, improve the capacity of managing and controlling their environmental performance (by continuously monitoring their activities, systematically registering and evaluating environmental effects and periodically verifying the effectiveness of the whole system); second, define better employees' responsibilities and tasks (through the definition of formal documents); and finally, integrate the management of quality and environmental issues. Therefore, the adoption of an EMS provides goodwill, credibility, reduced liability and risk, increased productivity, competitive advantage, cost savings and ultimately, profitability.

Forces driving Quality Management System

Garvin (1984) indicated that the co-existence of different approaches helps in developing a holistic, organization-wide concept of quality. In that regard, it is expected that both the external and internal dimensions of quality are necessary within an organization. Companies that only pay attention to their product's quality may be at risk of losing competition to the firms that incorporate customers' perception of quality in their products and services. On the other hand, firms that mainly focus on customers' perception of quality but ignore the role of product and process quality are also at risk of losing to their competition. It is necessary that both the internal and external approach toward quality be taken into account. Brown and van der Wiele (1997), some of the leading researchers in this field, identified two dominant factors with regards to ISO implementation in SMEs, namely, internal reasons related to quality and efficiency improvement and external or marketing reasons. The inclusion of the mixed reason in the framework seems a logical addition in light of the probability that organizations might have diverse, both internal and external, reason for certification. Based on a survey conducted among 146 SMEs in Australia, Brown and Van der Wiele (1997) found that market related factors, customer service, efficiency and as 'kick start' for quality improvement all feature as strong motivating forces.

Most countries in the Middle East were not aware of the impact of quality management on the productivity, efficiency, and competitiveness of their organizations. In fact, two trends were considered as the driving forces of quality management practice in Middle Eastern countries: globalization and the fluctuation of petroleum and gas prices in the world market (Khalifa and Aspinwall, 2000).

Quality Management benefits

For many organizations adaptation of ISO 9000 is a first step in becoming a total quality oriented organization (Oakland and Porter, 1994; Douglas, Coleman and Oddy, 2003). By choosing ISO 9000 as a starting point, organizations benefit from the directives forthcoming from the standard which should provide guidance during the implementation process. A study conducted by The Department of Trade and Industry, Government of UK pointed out that QMS enables an organization to achieve the goals and objectives set out in its policy and strategy. It provides consistency and satisfaction in terms of methods, materials, equipment, etc, and interacts with all activities of the organization, beginning with the identification of customer requirements and ending with their satisfaction, at every transaction interface.

Everest Ayurvedic medicines from Everest Pharma, the World's first ISO 14001:1996, 9001:2000 and GMP certified company was established in the year 1981, under the visionary leadership of Late Sri. Kuriappan K. Erinjery. The plant was commissioned in January 1, 1982. The company played a major role in integrating the traditional and modern techniques of manufacture of Ayurvedic Medicines. At present, the company markets more than 300 medicines (Patent and Generic). Everest Ayurvedic medicines are available throughout Kerala and Andaman & Nicobar Islands.

Methodology

Case study approach has been used for the study that is qualitative in nature. This study does not test a hypothesis or try to make any statistical generalizations. Therefore, the results of the study can be generalized as rather more contextual than statistical or constructive. Thematic/Content Analysis is used to develop themes from a set of general content received from the interpretive community. For conducting Thematic Content Analysis six phases has been strictly adhered to as per Braun & Clarke(2006). The process commenced with 1) Familiarising with data 2) Coding 3) Searching for themes 4) Reviewing themes 5) Defining themes 6) Report generation.

Unstructured interview for pilot study followed by structured interview is used to collect data from 10 respondents. Percentages are worked out to identify the effect, quantitatively before and after the implementation, of both management systems. The empirical data were collected via a preliminary unstructured interview with the top management (interpretive community) to generate and formulate themes using interpretive content analysis to better understand the qualitative phenomena. Afterwards, data was collected from other two Directors, five HODs' (Purchase, Packing, Finished Goods Stores, Sales, and Accounts), Medical Doctor (Production Manager) and Quality Controller by means of unstructured interviews. All the interviews were conducted in the company and in the interviewees' native language. The duration of interviews was from 20 to 40 minutes. Further data was collected from annual reports, published documents such as brochures and records given by the company and also from their official website.

Results and findings

The study explored the forces, that motivated an Ayurvedic medicine manufacturing organization, and the benefits they derived by the implementation of EMS (ISO 14001) and QMS (ISO 9001). The major forces motivated for the implementation of EMS (ISO 14001) were 'a measure to prevent local complaints', 'to facilitate export marketing', 'to improve corporate image', and 'the company's own quest for excellence'. Meanwhile, the forces that prompted them for the implementation of QMS (ISO 9001) were 'to facilitate export marketing', 'company's own quest for excellence', 'to improve corporate image' and 'to increase productivity and quality'.

Major benefits obtained by the implementation of EMS (ISO 14001) were 'control of contaminated water, air and land pollution to an optimum level as prescribed by State Pollution Control Board standards', 'improved corporate image' and 'improved hygiene of premises'. Similarly implementation of QMS (ISO 9001) resulted in achieving benefits such as achievement of new 'export contract', 'improved corporate image', 'improved customer satisfaction', 'employee morale', improved on time delivery, 'control over shelf life and returned products', 'implementation of systematic and standardized processes and procedures', 'increased productivity and sales'.

The financial performance of the Company, were not as good as anticipated. Even though there was growth in the sales turn over, the same growth could not be achieved in achieving net profit. After implementing EMS (ISO 14001) and QMS (ISO 9001), it is found that company achieved loss rather than profits till the end of stabilization period (2003-07). But a remarkable fact is that the organization was striving hard towards improved financial performance and they are now achieving profit for the past two years. However this cannot be attributed to implementation of Quality and Environmental Management system.

Discussion

The factor such as preventive measure, as a precaution against the environmental issues that may arise as a result of functioning of the company in a relatively non-industrial area, was one of the major reasons behind going for EMS implementation. This is treated as a sub theme along with the main theme corporate image. Moreover company intended to go for export marketing, to improve

corporate image and company's interest to enhance business excellence seem to be the strongest motives for Everest Pharma to implement EMS (ISO 14001). However, motives such as obtaining a competitive advantage and fulfilling corporate social responsibility also found to be the reasons behind implementing EMS (ISO 14001). From these results it is obvious that, as in the present study, the internal and external motives do have a strong influence on a company's decision to implement EMS (ISO 14001).

On the other hand, acquiring an export contract to get a competitive edge, interest for business excellence, improving corporate image and increasing productivity and quality were the major stimuli for implementing QMS (ISO 9001) at the organization. Other reasons were the desire for improving the financial performance, customer satisfaction and yield improvement. The findings from the present study reveal that the benefits derived so far from implementing the ISO 14001 standard are not extremely high. Though it has been more than thirteen years passed after the implementation of both ISO 9001 and ISO 14001 Standard, it seems that the respective benefits will be fully derived after a long period of implementation. The benefits can be seen initially in the internal environment and consequently in the external environment. More specifically, the firm examined in the present study stated that by implementing the ISO 14001 standard, they mostly controlled and improved the processing of waste, reducing the impact of air / noise pollution and water contamination, which consequently helped them to achieve better environmental performance. This has resulted in the improvement of the organization's relationship with society.

From the results of the present study, we can find that most significant benefits of QMS (ISO 9001) were attainment of export contract, improvement of corporate image, on time delivery and systematic processes and standardized procedures. The factor of the lowest significance included benefits regard to the longer shelf life of the product, customer preference, risk management increased productivity and sales growth.

The results of the study of Montabon et al. (2007) are also in accordance with the results of the present study. He did not find a positive correlation between various environmental management practices and profitability, whereas they did find a positive correlation between different environmental practices and other performance dimensions such as product innovation and process innovation and sales growth. Therefore, it may be concluded that the relationship between environmental/quality and financial performance are conflicting. The development of a positive relationship between environmental/quality management and a firm's performance may require the formal elements of an EMS such as certification (Melnyk et al., 2003) or a longer time period between EMS implementation and financial performance (Bansal, 2005).

Practical implications

Though implementation forces primarily intent to promote corporate image, responsibility and good-will – that is considered to be out-side in nature; over a period of time an internal change happened with-in the organisation that contributes to incremental improvements on sustainable environmental performance, process effectiveness and on Key Performance Indicators (KPI's). This is an organisational change process where organisation, its people, culture and the immune system adapt and adopt the change process over a period of time. It is evident from the study that this demands co-operation from all levels and functions of the organisation. More over this work also gives practical insights regarding the need for perseverance and commitment in any type of organisational change process.

Limitations of the study

This study has its limitations which can be considered in future studies. One of the major limitation of the study relates to the methodology utilized. Owing to the use of qualitative case methodology,

the results can be theoretically generalized only in a contextual way (Enquist et al., 2006; Lukka and Kasanen, 1995). In future, foundations could be enlarged through field study methods including several case sites or statistically tested by utilizing wide survey data. Furthermore, it is recommended to confirm the underlying structure of the ISO 9001 and 14001 motives, difficulties and benefits in a broader sample of companies. It would also be worth confirming this structure with different samples of manufacturing and service companies as well as with different samples of small, medium and large companies, in order to determine whether there are any statistical significant differences between these groups. Finally, the study would be more relevant if the impact of the implementation of EMS and QMS to the stakeholders were also considered.

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