A literature review on ISO 14001 in manufacturing organizations

Reshu Sharma, Rajesh Attri

Department of Mechanical Engineering, YMCA University of Science & Technology, Faridabad.

Email: 02reshu92@gmail.com

ABSTRACT:

In today's manufacturing world, environmental performance result is more important than financial performance. Change of environment is termed as environmental impact which may be optimistic or pessimistic. Impact of environment is a result of environmental aspects. Every organization is rigorously committed to environmental impact assessment in all business activities from design of product to the final manufacturing and marketing. A big organization encourages its vendors to adhere strictly with EMS proposed by ISO 14001. In this paper, the literature review for ISO 14001 implementation has been summarized.

KEYWORDS: ISO 14001, EMS, Manufacturing Organizations.

INTRODUCTION

EMS provides a pathway for organizations to demonstrate environmental stewardship and is strengthened by ISO 14001(ISO, 2004). As per ISO 14001, Environmental Management System (EMS) is part and parcel of a firm's management system which is used to develop and apply its environmental and ecological policies and watch various environmental aspects.

An Environmental Management System (EMS) is designed (Carruthers and Vanclay, 2007):

- To determine the impact of organizations activities on environment.
- To determine impacts of priority order.
- To evolve managerial plans and related operations like documentation control, monitoring, record keeping etc.
- To implement training and awareness programme, communication process and emergency planning for employees.

The ISO 14001 standard series is based on the law of continuous improvement of the environmental performance through the control of the impact related to the activity of the company. The Deming Wheel (PDCA cycle) is the basic principle on which all the requirements of the standard ISO 14001 rely (Hariz and Bahmed, 2012). While the standard sets out a best practice model for environmental management, it is written in a way which gives you the elasticity to adapt it to meet your individual business objectives (Sharma et al; 2017).

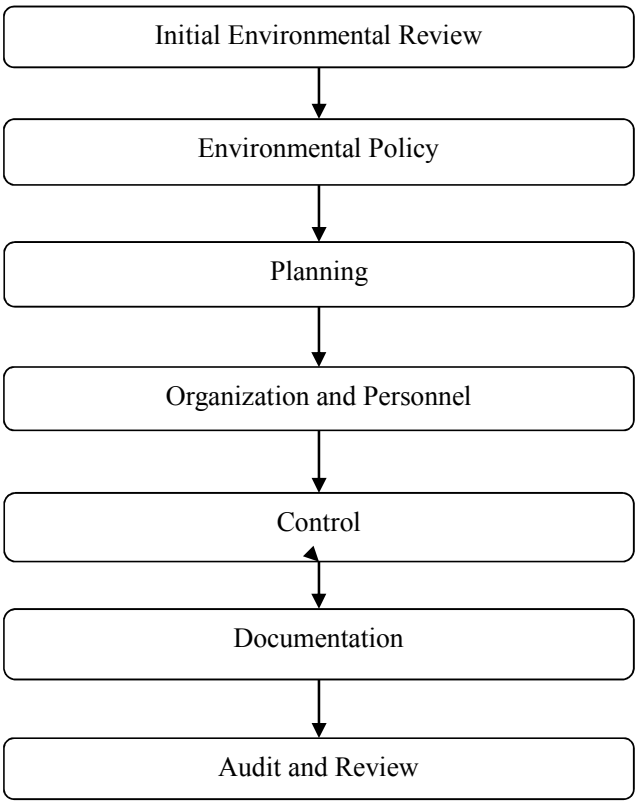

Figure 1: Staged Approach of ISO 14001

LITERATURE REVIEW

Agarwal and Theil, (2012) developed a systematic approach to demonstrate credentials of its supply chain and manage their own intersections with their employees, society and the environment effectively and efficiently. It is sufficient to say that their case study revealed several issues that may clout the decision of IBM's suppliers. According to **Carruthers and Vanclay, (2007)** social aftermath such as enhanced credibility and legitimacy in the community, enhanced communication, improved staff satisfaction, professional and personal enrichment, reduced discord and enhanced confidence and contentment occur as a result of EMS implementation in agricultural areas. These social aftermaths add weightage to the overall EMS, provide more motivation to continue with EMS processes and also provide a way for staff and other stakeholder input and cooperate in EMS elaborations, implementation and enhancement.

Douglas and Meltzer, (2004) discussed the environmental issues related to hospital sector. The content analysis and case study provides that by applying an environmental management system many of the interior cultural concerns can be conclude and a hospital's environmental performance enhanced.

Hariz and Bahmed, (2012) found that the components of the EMS do exist and are in place, it will be compulsory to improve them, to make them conform to the demands of the standard, to complete and

bolster them by other processes (Management Review, Internal Audit, etc). This study shows that Plan and Do sections are well implemented but check is poorly implemented in the levels of EMS.

Idrissi et al; (2014) exposed the methodological, structural and economical (financial) troubles the organizations faces when adopting one or more standards of management systems needed to get national or international recognition. **Jolevski, (2013)** provided initial and very important experience for the alteration in EMS of the firms from economic sector in Macedonia, as a result of the ISO14001 certification. ANOVA method is used in this study for analysing various factors and concluding that the ANOVA method does not adjudge significant differences in the effectiveness of ISO 14001 among different types of business exercises, except for the performance: public education, involvement of key stakeholders, insurance costs, access to capital and access to new markets.

Pun and Hui, (2001) developed a model using Analytical Hierarchy Process and a set of decision criteria, sub criteria and advantages of ISO 14001 EMS was examined. This study illustrates that the AHP decision model can be synthesised to help organizations study the ISO 14001 EMS adoption problem. The decision eligibility and benefits of the adoption can be imposed in an analytical way. **Saizarbitoria , (2011)** analysed that meta-standards have enjoyed lot of success in recent years which related to the standardisation of a very wide range of aspects of business activity, such as environmental administration, quality management, the provision of health and safety rule in the workplace, innovation management, the prevention of occupational hazards and corporate social responsibility. **Searcy et al; (2011)** managed the key findings of expert lectures on ISO 14001. The challenges were discussed in detail under three main topics: critical loops and synergies among MS elements, the full spectrum of MS auditing, integrating management systems.

Singh et al; (2008) studied the environmental concerns in steel industry. The proposed business sketch provides an edifice for incorporating the environment management with all the major business process of the steel industry. **To and Tang, (2013)** investigated the adoption of ISO 14001 environmental management systems in Macao SAR, China. The analyzed result showed that the number of ISO 14001 certified industries increases as time passed. The study also explored the motivations and benefits of establishing ISO 14001 environmental management systems in Macao's organizations.

CONCLUSION

With successful implementation of ISO 14001 in manufacturing sector, service sector and academics, performance and productivity of any organization can be improved and also the impact on environment can be reduced to permissible limit for healthy life on our planet earth. ISO provides very much supportive role for its certification. Organizations able to produce financial, technical, economical, social and environmental benefit by successful implementation of ISO 14001 in their management functionaries.

REFERENCES:

Agarwal, R., & Thiel, M. (2012). IBM's environmental management system supplier requirements: corporate responsibility performance or deviation?. *International Journal of Business and Globalisation*, *9*(3), 225-235.

Carruthers, G., & Vanclay, F. (2007). Enhancing the social content of environmental management systems in Australian agriculture. *International Journal of Agricultural Resources, Governance and Ecology*, *6*(3), 326-340.

Douglas, C. H., & Meltzer, M. A. (2004). Developing an environmental management system for a UK hospital trust. *International journal of environmental technology and management*, *4*(4), 273-290.

Hariz, S., & Bahmed, L. (2013). Assessment of environmental management system performance in the Algerian companies certified ISO 14001. *Management of Environmental Quality: An International Journal*, *24*(2), 228-243.

El Yacoubi El Idrissi, H., Bouami, D., & Cherkaoui, A. (2014). Integrated management system: towards a new approach and a new model. *International Journal of Services and Operations Management*, *19*(3), 338-359.

Jolevski, A. (2013). Benefits of ISO 14001 certification in the Republic of Macedonia. *International Journal of Environment and Sustainable Development*, *12*(2), 168-183.

Pun, K. F., & Hui, I. K. (2001). An analytical hierarchy process assessment of the ISO 14001 environmental management system. *Integrated Manufacturing Systems*, *12*(5), 333-345.

Heras-Saizarbitoria, I. (2011). Mapping out ISO 9001, ISO 14001 and other management system standards. *International Journal of Productivity and Quality Management*, *8*(1), 33-44.

Searcy, C., Morali, O., Karapetrovic, S., Wichuk, K., McCartney, D., McLeod, S., & Fraser, D. (2012). Challenges in implementing a functional ISO 14001 environmental management system. *International Journal of Quality & Reliability Management*, *29*(7), 779-796.

Sharma, R., Attri, R., & Grover, S. (2017), ISO 14001 practices in Indian manufacturing Organizations: A review. International Journal of Enhanced Research in Management & Computer Applications, 6(7) 12-14.

Singh, R. K., Murty, H. R., Gupta, S. K., & Dikshit, A. K. (2008). Integrated environment management in steel industries. *International Journal of Management and Decision Making*, *9*(2), 103-128.

To, W. M., & NF Tang, M. (2014). The adoption of ISO 14001 environmental management systems in Macao SAR, China: Trend, motivations, and perceived benefits. *Management of Environmental Quality: An International Journal*, *25*(2), 244-256.