



Drivers, barriers and incentives to implementing environmental management systems in the food industry: A case of Lebanon

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ABSTRACT

The shift in policy towards prevention and towards making producers responsible for the pollution they cause has lead corporations to limit environmental liabilities through the improvement of environmental performance. The implementation of an Environmental Management System integrates the precautionary and polluter pays principles into a firm's operations and demonstrates commitment to sustainable development. This research aims at assessing the factors influencing the implementation of ISO 14001 Environmental Management System in developing countries taking the Food Industry in Lebanon as a case example. For this purpose, primary data were collected using a field survey questionnaire that was administered to a representative sample of facilities. The results revealed that the food industry is generally more concerned with safety and quality issues rather than environmental issues. Following international food sector trend, improving environmental performance and enhancing company image are the most salient drivers to adopt ISO 14001. The lack of government support and stakeholder demand as well as the fact that ISO 14001 is not a legal requirement constitute the most salient factors hindering the adoption of the standard. Economical and organizational factors are the most significant incentives required to motivate the food industry to adopt ISO 14001. The industry is less likely to voluntarily consider adopting ISO 14001 before acquiring a quality management certification or until ISO 14001 certification gain more recognition in the international food sector. The study defines the foundations for developing strategies, policy reforms and incentive schemes to reduce the barriers of implementing ISO 14001.

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1. Introduction

The evolution of a harmonized voluntary Environmental Management System (EMS) is being driven by international market forces, regulatory shifts, demand for quality management and public awareness. The World Trade Organization (WTO) negotiations in 1986 to minimize non-tariff barriers to trade and the 1992 Rio Earth Summit which emphasized commitment to environmental quality have stimulated the development of the EMS [52]. The ISO 14001 process standard is one of several structures within which a facility may develop an EMS. The main purpose of the EMS is to organize environmental work in such a way that an organization's environmental performance improves continuously [11]. It allows organizations to be systematic in the evaluation of their processes and activities with regard to interaction with the environment. Hence, the EMS controls these activities and ensures that

established objectives and targets are being met. It follows the Deming's well known Quality Management approach of "Plan, Do, Check and Act". ISO 14001 is a process standard and accordingly it specifies the characteristics of the components of a management system. It requires that adopting organizations create an environmental policy, set objectives and targets, implement a program to achieve those objectives, monitor and measure the program's effectiveness, correct problems, and conduct reviews aimed at improving the EMS. As such, the EMS is a tool that allows the continual improvement of the environmental behavior and performance [11,16,25,29].

Since the introduction of the ISO 14000 series in 1996, companies seeking the certification have been increasing worldwide. It is anticipated that registration with ISO 14001 will become a norm rather than an exception. Nonetheless, the adoption of the standard in developing countries has been slow as compared to developed countries. Table 1 presents the total number of ISO 14001 certified firms in selected countries. Evidently, firms from developing countries and transitional economies of Central and Eastern Europe account for an insignificant proportion. Latin America, Africa and

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Table 1
Number of ISO 14001 certified firms in selected countries [23].

Country	ISO 14001	Country	ISO 14001
<i>Africa/West Asia</i>		<i>Central and South America</i>	
Bahrain	18	Brazil	2447
Bangladesh	17	Venezuela	51
Egypt	379	North America	
India	2016	Canada	1679
Iran	780	Mexico	409
Jordan	39	USA	5585
Kuwait	11	Austria	553
Lebanon	7	<i>Europe</i>	
Morocco	37	Belgium	521
Oman	8	Cyprus	59
Pakistan	77	Czech Republic	2211
Palestine	5	Denmark	995
Qatar	11	France	3047
Saudi Arabia	30	Germany	5415
Syria	53	Italy	9825
UAE	172	Spain	11,125
<i>Far East</i>		Sweden	4411
China	18,842	Turkey	1423
Japan	22,593	UK	6070
Korea	5893	<i>Australia/New Zealand</i>	
Singapore	716	Australia	1964
Thailand	1369	New Zealand	182

the Middle East together account for less than 3% of ISO 14001 certified enterprises worldwide.

The main motivations, benefits, incentives and challenges for acquiring ISO 14001 vary with location with no explicit prioritization (Table 2). This may be attributed to the several independent variables that influence decisions and priorities whereby the demands for acquiring the certification are fundamentally market driven particularly in industrialized countries [3,24,26,49]. Many firms in Asia are adopting the ISO 14001 standard foreseeing that their European-based customers will require it. Globally, the trend of certified companies refusing to do business with non-certified companies is increasing. Thus, exporters in developing countries will face more pressure from their trading partners in industrialized countries to implement an environmental management system in compliance with ISO 14001. While the adoption of ISO 9000 quality management standards has become a requirement for industries in many sectors globally, ISO 14001 EMS standard may become a necessary condition of international trade.

Small to medium-size enterprises (SMEs) in both developed and developing countries may face serious constraints in setting up and maintaining an EMS although they have a significant cumulative impact on the environment. SMEs account for an estimated 90% of the world's economic activity [52]. While several SME surveys and case studies have been conducted in Europe, relatively few studies have been carried out in developing countries. Generally, SMEs are often slow to respond to the challenge of improving their environmental performance due to the lack of financial and technical resources [18,22,37]. Hence, it is essential to identify effective and realistic incentives to encourage SMEs primarily in developing countries to implement environmental management systems. Building an understanding of the constraints to implementing and certifying to ISO 14001, especially SMEs in developing countries, is necessary.

The ISO 9001 quality management standards and 14001 environmental quality management standards are among the ISO's most widely known standards. While there are several studies worldwide with regard to ISO 9001, studies related to the implementation of ISO 14001 are scanty particularly in developing countries. In Lebanon, research studies related to the implementation of international voluntary standards among the industrial sector have so far focused on quality management systems.

Table 2
Key factors, incentives and challenges for acquiring ISO 14001 [10,14,15,28–31,36,38,39,55].

Benefits	<ul style="list-style-type: none"> • Clean/effective operations • Productivity improvement and cost savings • Profitability and competitive product/services • Market expansion • Improve company image and management • Enhance relationship with stakeholders
Motivations	<ul style="list-style-type: none"> • Customer requirements and stakeholder demands • Export barrier overcome • Accommodation of international regulations • Enforcement of fair competition • Company product/service recognition • Government encouragement or regulations • Cost reduction (reduction in operations and insurance) • Supply chain requirements
Barriers	<ul style="list-style-type: none"> • Not a legal requirement • No demand from customers or stakeholders • Lack of incentives • Lack of government support • Lack of resources • Cost/Duration • Creates competitive disadvantage • Lack of in-house knowledge/skills
Challenges encountered during ISO implementation	<ul style="list-style-type: none"> • Staff training • Management system documentation • Define company environmental policy • Identifying targets and objectives • Monitoring and measurement procedures • Time demand for certification • Cost of ISO 14001 certification and consultation fee • Management review • Language barrier
Demands for government support/incentives	<ul style="list-style-type: none"> • Special tax exemption for ISO 14001 certified firms • Encouraging Eco-labeling and rewards • Enhancing knowledge and advantages of ISO 14001 among non-registered companies • Establishing national institutes for technical advice and consultants services • Implement special soft loans to firms who are going to implement ISO 14001

Invariably studies focused on analyzing the benefits of adopting such systems [17,42,43]. Studies related to ISO 14001 EMS are still lacking, incomprehensive and scattered [12,33].

Although not mandatory and not related to the existing national policies, few industries have voluntarily acquired the ISO 14001 certification [23]. Similarly, few attempts were made to streamline voluntary EMS among the industrial sector [51]. With the establishment of the "Euro-Mediterranean free trade area" by the year 2010 and Lebanon's undergoing accession to the Euro-Med Association Agreement and the WTO, more business opportunities will likely emerge. Yet, more competition and challenge will face the industrial sector to comply with the requirements of these agreements, particularly with regard to environmental protection [45]. Therefore, the sector needs to react quickly to these dynamic changes in the global market demands through promoting ISO 14001 EMS certification. The certification will assist the sector to overcome free trade barriers, maintain a viable relationship with the European Union market (one of Lebanon's major trading partners), demonstrate environmental commitment, and gain trade advantage over its competitors in the region.

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