



# A study of compliance with environmental regulations of ISO 14001 certified companies in Korea

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*This article investigates the impact of ISO 14001 certification on the compliance with environmental regulations by Korean companies. The impact of ISO 14001 certification on the industry was studied through a questionnaire survey and the compliance of environmental regulations were investigated using government-released data. The motivation for an environment management system was a result of the current international situation and the need to maintain fair competition. ISO 14001 certification has been recognized as an essential strategy for industrial competition and to improve company/product recognition. The certified and non-certified companies' environmental regulation violation (ERV) rates were 3.5% and 11.6%, respectively, in 1997. In 1998, the ERV rate had an eight-time difference with 1.0% and 8.5% for certified and non-certified companies, respectively. Annual regulation violation rates were reduced from 3.5% in 1997 to 1.0% in 1998 with certified companies and from 11.6% in 1997 to 8.5% in 1998 with their non-certified counterparts, respectively. ISO 14001 certified companies showed more improvement than non-certified companies in regards to environmental performance.*

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## Introduction

Improved environmental management in the industrial sector is required to protect the environment, protect human health and property, and to satisfy environmental requirements associated with international trade. This issue is particularly acute for Korea, a country with few natural resources and thus reliant on the industrial sector and manufactured exports for its economic development. Therefore, identification of processes for improved environmental performance, and means

to certify such performance, are being sought (Yoo, 1999; Lee, 2000).

An international standard reflecting new understanding and expectations for environmental management systems (ISO 14001) was introduced in 1996, and subsequently adopted by the Korean government. In addition to enhancing environmental protection, implementation of environmental management systems can benefit industry through improvements in industrial processes, reduced costs and wastes, and enhanced international competitiveness (Kurylloicz, 1996). To date, there has been little analysis of the uptake or impact of ISO 14001 in Korea. This paper compares regulatory compliance of companies that have applied ISO 14001 with those that have not, and examines the level

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of environmental improvement being achieved through application of the standard.

## Scope and method of the study

This study confirms the reliability of environment regulation violation rates between ISO 14001 certified and non-certified companies and performs a test of early population rate differences in analyzing the effectiveness of the ISO 14001 certification scheme with respect to industrial environment improvement and regulation conformance. Based on this result, the study analyzes ISO 14001 requirements and implementation steps, and then explores reasons for ISO 14001 certification, comparison of the differences between ISO 14001 certified and non-certified companies, and the effectiveness of certification in terms of environmental performance. Improvement and enhancement of regulation conformance rates according to the summarization of the ISO 14001 system flow brings continuous environment improvement in Korean industries.

This study refers to the Korean Accreditation Body-published data for the number of ISO 14001 certification companies in Korea and recent ISO-published data for the ISO 14001 certification-abroad status. Questionnaires on environmental improvement were collected from 138 companies designated as environmental-friendly from 5 April 1999 to 10 May 1999 and 28 of the ISO 14001-certified companies among them are analyzed. Regulation violation status was based on the data published by the Ministry of Environment in Korea on companies designated as having contaminated the environment, which were disclosed from January 1997 to February 1999 (Ministry of Environment, 1998, 1999). For tests on the regulation violation rate difference between total and certified companies the Statistical package of Statsoft was used.

## ISO 14001 research requirements

The ISO 14001 Environmental management system is implemented in five stages: the policy, planning, implementation and operation, inspection and corrective activities, and review by management. The stage that relates to environment regulation is planning (Don, 1996).

In the planning stage, a company's current environmental status is reviewed to find environmental problems such as regulation violations, appropriate regulations for organizational performance, product, and service. In the implementation, operation, and corrective action stages, the establishment and implementation of countermeasures aims at improving environmental performance.

Conformance to environment regulations requires that all employees participate. However, conformance can be difficult because employees may have little incentive or instruction as to how to participate. Some employers also find environmental management expensive with regard to their final product. In the environmental management system, however, all employees investigate the process, product, and organizational problems. In particular, ISO 14001 requires that the organization establish and maintain procedures to identify the environmental aspects of its activities, products or services that it can control and any other aspects which the company can influence. The organization shall ensure that the aspects related to these significant impacts are considered in setting its environmental objectives. ISO 14001 requirements are as below (ISO 14001, 1996),

### *Environmental policy*

The environmental policy and the requirements to pursue this policy via objectives, targets, and environmental programs.

### *Planning*

The analysis of the environmental aspects of the organization (including its processes, products and services as well as the goods and services used by the organization).

### *Implementation and operation*

Implementation and organization of processes to control and improve operational activities that are critical from an environmental perspective (including both products and services of an organization).

### *Checking and corrective action*

Checking and corrective action including the monitoring, measurement, and recording of the characteristics and activities that can have a significant impact on the environment.

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