

The soul of the machine: continual improvement in ISO 14001

Martin A.C. Brouwer, C.S.A. (Kris) van Koppen*

Wageningen University, Social Sciences Group, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

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Abstract

Continual improvement is a key component of ISO 14001, but in contrast to most other specifications in the standard, it is difficult to assess. Based on interviews with 19 certified companies in the chemical, food, and environmental services sectors, this article explores the dynamics of continual improvement. While most auditing practices focus on the operational level of improvement, the system level is more important in realizing continual improvement. Taking continual improvement as an explicit principle, defining long-term objectives, and widening the scope of environmental policy objectives can be used as indicators for system level improvement. Front-runners in continual improvement tend to use more management indicators and think more favourably on benchmarking. They are relatively stronger motivated by internal policy ambitions, and parent company aims than by pressures from outside. Further elaboration of performance frameworks for continual improvement is needed, taking into account the way performance indicators can stimulate internal motivational, and policy processes.

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1. Introduction

Since it was formally issued in 1996, more than 87,000 organizations in 128 countries have been certified against the ISO 14001 Environmental Management System Standard (Peglau Liste 2005 [17]). Probably, this number will further increase in the years to come. The standard has become a household name among business and governmental organizations around the world. In addition to a vast number of handbooks and brochures for implementing and auditing the standard, several studies have been published which review and evaluate the standard from a more scientific point of view.

The results of these studies are not as bright as the perspectives usually pictured in brochures and on internet sites. Criticism has been levelled against the standard's emphasis on management procedures, rather than actual improvements in environmental performance (e.g. [2]), on its dependence on

the quality of national environmental regulations for setting minimum pollution requirements and on the standard's tendency of becoming a market instrument rather than an environmental quality improvement tool, among others (e.g. [13]).

Notwithstanding such criticism, the balance of nearly a decade of ISO 14001 implementation is definitely positive as long as the focus is on individual organizations that enter the certification scheme.

In most cases, the environmental performance of these organizations improves in the process of certification, as they are induced to systematically review and document significant environmental aspects and have to meet the baseline of compliance to existing regulations [1].

But what is the impact of ISO 14001 once the certificate has been obtained and the organization basically complies to regulatory requirements? Doubts have been raised whether ISO 14001 can give an impetus to preventive waste- and emission reduction [8], and whether it fosters a culture of innovative environmental care [15]. These questions – bound to become more central the longer ISO 14001 is around – boil down to the issue of continual improvement.

* Corresponding author. Tel.: +31 317 482617/4452; fax: +31 317 483990.
E-mail address: kris.vankoppen@wur.nl (C.S.A.(Kris) van Koppen).

Continual improvement is a key element of ISO 14001. It is at the heart of the Plan-Do-Check-Act (PDCA) cycle that is the engine of the environmental management system. Together with compliance and pollution prevention, it is a basic commitment the organization has to endorse in its environmental policy and in its environmental practice. But, in contrast to the specification of other elements in ISO 14001, the standard lacks an operational definition of what continual improvement is and how it should be assessed.

Several publications have exposed this under determination of continual improvement in ISO 14001 [1,21]. As research demonstrates, the principle leaves room for widely diverging company strategies. While some companies are actually realizing continual environmental improvement, for others it seems possible even to move in the opposite direction, without losing their certificate [1,14,18].

Based on a thesis research project at Wageningen University [3], this article sets out to analyze the dynamics of continual improvement in companies certified against ISO 14001. Which internal and external factors influence the process of continual improvement in these companies? How do companies and auditors assess continual improvement? In what ways does the ISO 14001 standard provide an incentive for continual improvement?

To answer these questions, in-depth interviews were held with 19 Dutch certified companies, divided over three sectors: chemical industries, food industries, and the environmental services sector. The chemical sector was selected because it is one of the most important industrial sectors in terms of environmental impacts, and has an extensive record in dealing with environmental management issues. The food industries were selected because they constitute a major Dutch industrial sector, with a broad range of environmental aspects, but in comparison with chemical industries, far less acute problems, public exposure, and management experience in dealing with environment. The environmental services sector was included as we were interested in the performance of service sector companies; by taking environmental services companies, we made sure that the companies investigated, in any case, were aware of environmental management issues. The interviews were held in 2004.

Within these sectors, companies were selected at random. The sample of interviewed companies includes, AKZO Nobel, DuPont, Shell, BP, Heinz, CSM, Grolsch, Yakult, Swedish Match, VAR, Sita and Heijmans. In addition, four certifying bodies, also selected at random, were interviewed: Lloyd's, KEMA, Det Norske Veritas and SGS ICS.

Before presenting the outcomes of the research, key characteristics of continual improvement in ISO 14001 are identified in the next section.

2. Continual improvement in ISO 14001

2.1. Definition of continual improvement

ISO 14001 defines continual improvement as “a process of enhancing the environmental management system in order to

achieve improvements in overall environmental performance consistent with the organization's environmental policy” [9].

The description makes clear that improvements in environmental performance are the ultimate touchstone for continual improvement. Moreover, the description suggests that such improvements are based on enhancement of the environmental management system itself. Two major aspects of continual improvement are implied in this definition. One is how to identify and quantify – or, how to measure – improvement of environmental performance. The other is how to embed continual improvement in the structure of the environmental management system. Both aspects are briefly reviewed in this section.

2.2. Measuring environmental performance

“If you don't measure it, you can't manage it”, has become catch phrase within the discipline of environmental management. There is an increasing interest in indicators for measuring environmental performance [16]. Company-specific environmental indicator systems are an important tool in planning, steering and controlling environmental performance. Comparing indicators from year to year, and between sites or companies (benchmarking), allows for an evaluation of the relative environmental progress of a company [11].

Measuring environmental performance is elaborated in the ISO 14031 standard, which is a guidance standard in the ISO 14000 Series of Standards. This standard offers a description of environmental performance evaluation in terms of definitions and management structure (plan-do-check-act), and an indicator typology. The typology distinguishes between environmental condition indicators (ECIs), process or operational performance indicators (OPIs), and management performance indicators (MPIs) [10,16].

Several other – voluntary – international frameworks have been developed for measuring and comparing environmental performance of companies. Some well-known examples are listed here [5,20]:

- *Global Reporting Initiative (GRI)*: guidelines for sustainable reporting. Used for reporting on economic, environmental, and social dimensions of activities, products, and services.
- *Social Accountability (SA 8000)*: based on workplace norms. Addresses eight categories of indicators, from human rights oriented to specific environmental categories of indicators.
- *World Business Council for Sustainable Development (WBCSD)*: a coalition of 170 international companies united by a shared commitment to sustainable development. Addresses three pillars: economic growth, ecological balance, and social progress.
- *The European environmental framework of the European Environmental Agency (EEA)*: 32 environmental indicators to measure, communicate, and analyze sustainable development.

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