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Strategic sustainable development[1] using the ISO 14001 Standard

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Abstract

The ISO 14001 Environmental Management System Standard has become a wide-spread administrative tool in the field of corporate responses to sustainability. As a framework for the administering of sustainable development in firms, ISO 14001 in itself does not speak of strategic planning for sustainability, nor of upstream solutions of problems at their source. Furthermore, confusion exists with respect to where ISO 14001 fits in relation to a complex array of tools for sustainable development. This research proposes the integration of a "backcasting" method that embodies a five-level approach to planning in complex systems, with the ISO 14001 planning process requirements. The result is a strategic planning framework that focuses on the minimum requirements for a sustainable society and embeds them in a process to assist firms in their sustainability initiatives.

Keywords: Strategic sustainable development; Sustainability; The Natural Step Framework; ISO 14001; Environmental Management Systems; Backcasting

1. Introduction

ISO 14001 Environmental Management Systems (EMS) have emerged as a leading management tool to address environmental degradation at the firm level, and rapid adoption is occurring worldwide as evidenced by the exponential increase in global registrations to the Standard. Reasons for adopting the Standard range from compliance and consumer pressure to the potential for cost savings and a healthier environment.

Although this trend is encouraging, and while the implementation of ISO 14001 is a good start, the subsequent concrete work within corporations often focuses on identified downstream effects from non-sustainable activities—i.e., "aspects"—rather than identifying the underlying principles behind these aspects. Consequently, the work often relies on vague guiding principles of "continual improvement" without the identification of ultimate objectives that comply with basic principles for sustainability. For this reason, it is difficult to facilitate comprehensive planning and elevate sustainability higher on the corporate agenda [1–7]. Compounding these factors, the presence of many tools has created confusion with respect to how each relate to one another and when each should be used in planning.

Given the popularity of ISO 14001, and the fact that the Standard provides a comprehensive and logical administrative vehicle, can the system be made more effective in helping firms move systematically toward complying with basic principles for a sustainable society?

Recent studies in this area have focused primarily on superimposing basic principles for sustainability at various points in the ISO 14001 implementation process, mainly during policy setting, target setting and staff training [3,4]. The goal of these efforts was to combine a process (ISO 14001) with a set of basic principles for sustainability, effectively giving the ship a compass. While this is a first step conceptually, a set of principles does not necessarily help managers take more concrete steps from a strategic planning perspective, particularly

[1] "Strategic Sustainable Development" was coined by authors of a seminal study [12] that underpins this paper.

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when society is so far from being sustainable as to make the journey appear almost incomprehensible. Bridging the gap between guiding principles and action is required.

A framework for systematic planning towards compliance with basic principles for sustainability has previously been described [5,8–10]. This framework builds on backcasting from the principles, i.e., the planning procedure takes as its starting point an imagined successful outcome—compliance with the principles—and is followed by a planning procedure that responds to the question: "What do we need to do today to reach that outcome?" [11]. The backcasting method of "planning from principles of success" is different from working with scenarios of preferred futures, because it occurs from more or less detailed descriptions of success. Using a games metaphor, scenario building resembles assembling a jig-saw puzzle, where a specific image guides one successful outcome. "Backcasting from principles of success" on the other hand resembles chess, where the principle of check-mate provides the overall guiding principle for the game, and many outcomes or visions of success are possible. Backcasting therefore has certain advantages: (i) it is often easier to agree on incontrovertible principles of success than on detailed visions, (ii) future technologies and innovations are by definition not known beforehand—they can be introduced while the "game" proceeds, and (iii) detailed scenarios are not necessarily sustainable if they are not scrutinized using basic principles for sustainability.

Since the initial efforts at integrating basic principles for sustainability within the ISO 14001 framework, a five-level approach for planning in complex systems has been presented [7] that outlines five discrete levels that should be kept separate in order to ensure comprehension and rigour. The model was later applied by a number of pioneers of well-known tools and approaches to sustainability to respond to the question: "where does it all fit, and how can the many tools and approaches be used synergistically to move a firm toward sustainability?" [12].

This paper proposes the integration of the "backcasting" method, which itself embodies the five-level approach to planning in complex systems, with the ISO 14001 planning process requirements (section 4.2), and converts academic language to business language. It approaches the firm's typical strategic planning cycle and allows room for economic and competitive aspects, thereby applying ISO 14001 from a more strategic perspective. The aim is to create a simple, comprehensive and effective tool to aid managers in moving their firms toward sustainability.

Section 2 revisits major concepts in (i) the ISO 14001 Standard, (ii) backcasting, and (iii) the five-level planning approach, as critical and substantive components of the proposal. Section 3 presents the proposed integrated planning section for ISO 14001, with an explanation and rationale for each component and an example of what each element might mean in a firm. Section 4 presents a brief reflection on the potential opportunities of this approach.

2. A review of concepts

2.1. ISO 14001 Environmental Management System (EMS) Standard

The ISO 14001 Standard consists of the EMS specification and 17 clauses, or general requirements, in five categories. Each clause was written to apply to a wide diversity of organizations, and is therefore not specific or prescriptive [13,14]. The requirements describe general outcomes of the system, but do not prescribe specific approaches an organization must implement to get there.

The following is a summary of the 17 ISO 14001 clauses:

4.1 Environmental policy
4.2 Planning
  4.2.1 Environmental aspects
  4.2.2 Legal and other requirements
  4.2.3 Objectives and targets
  4.2.4 Environmental management program(s)
4.3 Implementation and operation
  4.3.1 Structure and responsibility
  4.3.2 Training, awareness and competence
  4.3.3 Communication
  4.3.4 Environmental Management System Documentation
  4.3.5 Document control
  4.3.6 Operational control
  4.3.7 Emergency preparedness and response
4.4 Checking and corrective action
  4.4.1 Monitoring and measurement
  4.4.2 Non-conformance and corrective and preventive action
  4.4.3 Records
  4.4.4 Environmental Management System audit
4.5 Management review

Together, these clauses compose the ISO 14001 EMS Standard. This paper proposes an expansion of the planning section (4.2).

2.2. A five-level approach to planning in complex systems

The world of principles, strategies, actions and tools is complex, with different ideas and frameworks often competing for intellectual dominance. From *Cleaner Production* and *Pollution Prevention* to *Industrial Ecology* and *The Natural Step Framework*, the approaches vary in scope, scale, intent and comprehensiveness. While all