

# Factors of importance in identification and assessment of environmental aspects in an EMS context: experiences in Swedish organizations

T. Zobel \*, J.-O. Burman

*Environmental Management Group, Department of Environmental Engineering, Luleå University of Technology, SE-971 87 Luleå, Sweden*

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## Abstract

Research is lacking on the process of identification and assessment of environmental aspects in an environmental management system (EMS) context. The aim of this paper is to contribute knowledge by identifying factors of importance for the process that can be used as a basis when developing existing methods for identification and assessment of environmental aspects. The empirical base is quantitative and qualitative data from 46 ISO 14001-certified or EMAS-registered organizations from three counties in Sweden. Problem areas are also identified through a review of the concept literature in the EMS area. Six important areas where the identification and assessment process can be improved are identified: the definition of environmental aspects, the procedures for update of aspects, the aggregation of aspects, the exclusion of business considerations in the assessment, employee and stakeholder participation, and the competence levels of people involved in the process. Since the empirical data is taken from Swedish organizations, the results of this study are valid for Swedish conditions and may not be valid for other countries.

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## 1. Introduction

In working systematically with environmental issues in Swedish organizations the concept that is most commonly employed is that of the Environmental Management System (EMS). Most of the EMSs in Swedish industry are implemented according to the international standard ISO 14001 or the EU-regulation Eco-management and audit scheme (EMAS). At the time for this study, the total number of ISO 14001-certified or EMAS-registered organizations in Sweden were a little less than 1000 [1].

The implementation of an ISO 14001-based EMS usually starts with an initial review of the present situation. The review includes an inventory of all environmental aspects, relevant laws and regulations and existing environmental procedures. The initial review forms the

basis for the environmental policy, environmental objectives and targets and environmental management programs. The system is then built up by documented procedures and instructions controlling activities related to the most significant environmental impacts. When the system is implemented, system audits are made to check the efficiency of the system and management carries out a management review to check the system and improvements [2,3].

Elements of the system in which environmental aspects are identified and significant aspects are determined, are, without a doubt, the most important parts of the standard and the EMS, since these elements determine the shape and focus of the entire EMS [4,5,6]. The role of the significant aspects is illustrated in Fig. 1. The significant aspects form the basis for establishing environmental objectives, targets and programs. The relation of the significant aspects to the environmental policy is not as clearly stated in ISO 14001 as the relation to the objectives, but to be able to establish a suitable environmental policy an organization must be aware of its significant aspects. In addition, the signifi-

\* Corresponding author. Tel.: +1-46-920-491398; fax: +1-46-920-91697.

*E-mail address:* [thomas.zobel@sb.luth.se](mailto:thomas.zobel@sb.luth.se) (T. Zobel).

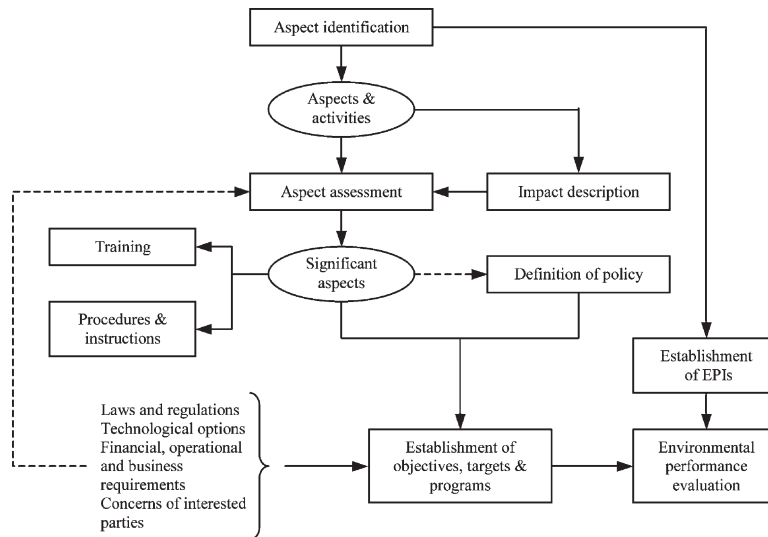


Fig. 1. The role of environmental aspects in an EMS based on specifications in ISO 14001 and ISO 14004 [2,3].

cant aspects are instrumental in determining which individuals should get additional environmental training and which procedures and instruction should be documented. The environmental aspects are also the starting point when establishing environmental performance indicators (EPI), which help the organization to evaluate its environmental performance.

## 2. Aims of the study

Research is lacking on the process of identification and assessment of environmental aspects in an EMS context. Therefore, little is known about how organizations have interpreted the specifications in ISO 14001 and formed their process of identifying and assessing environmental aspects. Better knowledge about how organizations are treating the environmental aspects of ISO 14001 is a condition for developing new and better methods. The general aim of this paper is to contribute some knowledge that can form the basis for development of better methodologies. A more specific aim is to identify factors of importance when identifying and assessing environmental aspects within an EMS context. To be able to reach the goals of this study, a relatively large empirical base is needed. Empirical data were collected through multiple case studies. Table 1 summarises the key features of the case organizations.

## 3. Methods

### 3.1. Selection of case organizations

The study was carried out from November 1999 to May 2000. Empirical data from a total of 46 organiza-

tions were collected from organizations in the counties of Västerbotten and Norrbotten in the north of Sweden and Jönköping in the south. A large number of case studies were chosen, making it possible to also collect and analyse quantitative data. Two areas were chosen to make it possible to analyse geographical differences<sup>1</sup>. The organizations were selected according to two major criteria. First, the organizations should be located in Norrbotten, Västerbotten or Jönköping. Secondly, the organizations should have implemented an EMS according to the requirements in ISO 14001 and/or EMAS by November 1999. Two Internet-based registers containing certified/registered organizations in Sweden were original sources [7,8]. The two criteria were applied to the registers, resulting in a total of 60 relevant organizations. Fourteen organizations were unable to participate, while eight agreed to answer a questionnaire but did not have time for a visit.

### 3.2. Research design

The aim of this paper is to contribute information so that new theories can be built, rather than to test existing theory. According to Jensen (1995), a qualitative research approach is suitable in this case [9]. Jensen's suggestion is followed in this paper, but the qualitative approach is complemented with quantitative data when possible.

The qualitative data were obtained mainly through interviews and studies of documentation. On-site observations were also used, but mainly to get an understanding of the nature of the activities and their environmental

<sup>1</sup> The counties of Västerbotten and Norrbotten are in this paper treated as one geographical area.

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