Chapter 12
Structuring Information for Industrial Environmental Management

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ABSTRACT

Environmental management of an organization is to a large extent about management, interpretation and development of environmental information. Therefore, for any organization to have a functioning environmental management system a matching well-functioning environmental information system is needed. To develop such a well-functioning information system it is necessary to structure all the relevant dimensions, ranging from indicators, reporting paths, material management and process management. This chapter provides an introduction to the structuring of the environmental information system.

INTRODUCTION

This chapter gives an introduction for information systems developers to the specifics of structuring information systems elements for industrial environmental management. Structuring of the different parts of an information system is a natural part of planning and developing information systems. This is equally true if the system is built from scratch or whether it is the construction of new applications for existing information systems. This chapter gives a crucial briefing for the building of any environmental information system. It is crucial since the structuring of an information system is fundamental for

- the technical and logic functionality of the components of the whole system
- the applicability of the system in an organizational context and
- the usefulness of the information system for each intended user.

The structuring of information is also a major part of the system development projects, where much intellectual effort is focused during project

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phases when commissioners and end users have no tangible results to refer to or reflect upon. The information structuring parts of projects therefore suffer from a scarce access to competence and knowledge from end users and domain experts. This chapter intends to fill this knowledge gap by providing guidance to information systems developers when structuring key elements of industrial environmental management systems as well as when structuring entire environmental control systems for corporations.

In the following sections different information system structure issues are introduced and presented, ranging from environmental performance indicators, evaluation methods, material properties, processes, reporting models and architectural principles. The chapters summarizes with presenting a general framework for how to structure environmental information systems.

SCOPE OF THE ENVIRONMENTAL INFORMATION SYSTEM

There are several reasons why a company or other organization publishes environmental reports, keeps environmental records and acquires environmental information. Major reasons are (Taprantzi, 2001; Svending, 2003; Carlson, 2005; Erlandsson, 2006):

- Legislative compliance
- Management and control of production facilities
- Strategic business analyses of production, and of sales and supply markets
- Design of products and production facilities
- Recording of properties and contents of sold items and goods
- Procurement and purchase support and requirements

A specific organization can have one, several or all these reasons to handle environmental information. If it has only one or two of these reasons it may not be necessary to establish integrated and coordinated, compatible environmental information structures, but if the organization has several or all these reasons to handle environmental information it may have much to gain from by putting more emphasis on the information structuring. This text has the ambition to support those who structure complex environmental information systems, but it also gives good guidance when developing less complex systems.

ENVIRONMENTAL INFORMATION STRUCTURES

Industrial Environmental Information Systems in Practice

Five different and practical mini-scenarios from industry introduce this chapter on environmental information structures. These scenarios are picked from real industry projects and are chosen because they represent typical situations when the questions of a more advanced view of environmental information structuring needs to be introduced into the environmental management system in an organization.

Corporate Sustainability Report

Environmental coordinators acquire information from production to compile the corporate sustainability report. The report will eventually describe a number of sustainability performance parameters about the overall production capacity of the company. The production units are geographically distributed and due to technological differences and differences in nature the environmental issues at each different production unit are very different. Major problems associated with the task of compiling a corporate sustainability report therefore are: