

## Management and Audit Systems

Environmental Management Systems are only one management system out of many which are used today. This section starts with the definition of several terms, which are important to understand the general functioning of management systems. Then the development of the management system standards ISO 9001, ISO 14001 and EMAS (definitions see below) is outlined.

### 1. Definitions used in Management and Audit Systems

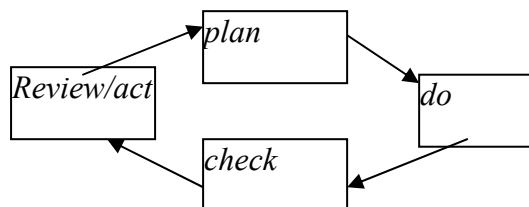
**Management** is "the organisation and controlling of the affairs of a business or a particular sector of a business. (ENCARTA World English Dictionary 1999)"

"A **system** is the interconnection of components to achieve a given objective. These components include the organisation, resources and processes. (Institute of Quality Assurance 2003)"

Hence a **management system** is a goal oriented, systematic way of running a business, by building an organisational structure and assigning responsibilities "that everyone is clear about who is responsible for doing what, when, how, why and where" (International Organization for Standardisation (2003)

The four basic steps in management systems are: planning, implementing monitoring and reviewing and are referred to in many references as the "plan – do - check – review (sometimes named "act") - cycle" (see fig 1). The cycle should be better a screw to represent the ongoing improvement process, which is an important principle in management systems.

**Figure 1: The four basic steps in managements systems.**



Specialized management systems are an organisational tool for reaching specific goals. For example, An **Occupational Health and Safety Management System** aims to improve health and safety of employees at work by assessing the working environment and minimizing accidents and work related diseases.

A **Quality Management System (QMS)**, as defined by the International Organization for Standardization (2003a), is a management system to meet customer's requirements.<sup>1</sup>

An **Environmental Management System (EMS)** is a management system to "minimize harmful effects on the environment caused by its (the organisations) activities." (International Organization for Standardisation 2003a):

In contrast to specialized management systems, **Integrated Management Systems (IMS)** follow a holistic approach: They look at several issues at the same time and try to balance different objectives." *An integrated management system (IMS) is a management system which integrates all components of a business into one coherent system so as to enable the achievement of its purpose and mission" (Institut of Quality Assurance 2003)*

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<sup>1</sup>"Quality management" means what the organisation does to ensure that its products conform to the customer's requirements". (International Organization for Standardisation 2003a):

There are internal management systems, the way a manager organises his business, and there are formalised management systems which follow defined standards.

**Standards** are "accepted specifications or codes of practice which define materials, methods, processes and practices that, when effectively implemented, ensure that consistent and acceptable levels of quality, performance, safety and reliability are achieved." (*Standards Australia 2001, cited in Mech and Young 2001*)

Standards can be agreed upon on different levels (regional, state, national, multi state, international or sector specific).

**ISO**, the International Standard Organisation, is a private organisation which develops various international standards by coordinating national standardisation working groups all over the world. Most of the ISO Standards are technical norms, known mainly by engineers. (*International Organisation for Standardisation 2003b*)

Management system standards are **process standards**. They specify the management processes and procedures, such as the steps which should be involved in the management system.

International known Process Standards are ISO 9001:2000 for Quality Management and ISO 14001 and 14004 for Environmental Management. Similar process orientated (with the exception of the requirement of legal compliance) is the Environmental Management and Audit Scheme (EMAS), a European standard for environmental management.

Management system standards are generally neither **product standards**, which "may define specific features of a product and may also define how that product must have been produced" (*Mech et al 2001*), or **performance standards** which "specify acceptable or required levels of performance to be met" (*Mech et al 2001*).

However, there are standards which blend process with production and performance standards, for example, the Marine Stewardship Council (MSC) scheme, the Forests Stewardship Council (FSC) scheme and the Finnish Forest Certification Scheme (FFCS) (*Mech et al 2001*).

Formal management systems can be audited against its standards. "Auditing is the systematic examination of an entity, such as an organisation, facility or site, to determine whether, and to what extent, it conforms to specified standards." (*Mech et al 2001*)

An audit may be a self assessment (**first party audit**), an assessment undertaken by a commercial consumer (**second party audit**) or an assessment by an independent body (**third party audit**).

In the case of a third party audit, the independent body provides the assessed organisation with a certificate, if the audit has revealed that the organisation complies with the standards. To provide assurance for the public that the certification process is correct, certification bodies are assessed and supervised by an accreditation body. Hence **certification** (or **validation** in the EMAS system) is the successful result of a procedure whereby a third-party gives written assurance that compliance against a clearly defined standard has been achieved." (*Mech et al 2001*)

**Accreditation** is the assessment of certifying bodies against given criteria to assure that "a certifying body is able to carry out its duties independently, competent and consistently." (*Mech et al 2001*)

## **2. Development of the environmental management system standards ISO 14000 family and EMAS**

After the development of **total quality management (TQM)** and the spread of second party audits for supplier control, the quality management system standard, **ISO 9001**, was introduced in 1987. It offered suppliers a credible certificate from an independent body to

avoid multiple second party certifications for one organisation (*Spiller et al 2002*). ISO 9001 developed from a relatively inflexible standard only usable for the industrial sector to a process orientated flexible standard (**ISO 9001:2000**) usable for all organisations. (*Umweltpakt Bayern 2001*)

With the rise of environmental issues in the business sector and the call for responsibility in the United Nations Conference on Environment and Development in Rio de Janeiro in 1992” the **ISO 14000 family of standards** on environmental management was developed to provide a practical toolbox to assist in the implementation of actions supportive to sustainable development” (*International Organization for Standardisation 2002*).

At the same time the European Union developed a state controlled system, the **EU- Eco-Audit (EWG Nr. 1836/93)**, which was launched in 1993 and was targeted only to productive organisations.

The environmental management standard **ISO 14001** and its guidelines **ISO 14004** were introduced in 1996.

In the following years, the EU revised its Eco-Audit to make it compatible with ISO 14001 and to integrate also service organisations, public administrations and farms in its new regulation. **EMAS II**<sup>2</sup>, which started in 2001, has embedded ISO 14001 (Chapter 4 of ISO 14001 as the first attachment to the EMAS regulation) and is open for all organisations. The main differences between EMAS and ISO 14001 are that EMAS requires a greater degree of public disclosure and verification against compliance with environmental law.

Until December 2002 over 47,000 organisations were certified according to ISO 14001 and 3,821 according to EMAS<sup>3</sup>.

Besides this international, respectively European standard, various national, regional or industry specific environmental management standards were developed. Some provide for certification, some do not.

### **Differences between ISO 14001 and EMAS**

Generally EMAS is assigned more credibility (Glatzner (2001) than ISO 14001 for at least two reasons:

Firstly, the EMAS verifiers (the auditors in the ISO-system) have to check the compliance with the relevant environmental legislation and have to refuse validation (certification in the ISO-system) in the case of non-compliance. ISO 14001 requires identification and access to relevant regulations and legal requirements, but the auditors are not required to check the performance regarding legal compliance.

Secondly, EMAS requires an Environmental Statement, including all relevant environmental aspects of the organisation and its environmental management system. This Environmental Statement, in its validated form, has to be published. Additionally, the fact that EMAS is based on European legislation may generate more credibility, at least for public administration and its control agencies.

All organisations which are validated against EMAS are registered, while ISO 14001 organisations are not centrally registered.

Last, but not least, EMAS requires an Initial Environmental Review as a first step: the identification of significant environmental impacts of the organisation (for the purposes of this project a farm) and the valuation of these impacts. Although not prescribed in the ISO 14001 standard, this is the logical starting point of the implementation of an environmental management system.

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<sup>2</sup> EG Nr. 761/2001

<sup>3</sup> according to the Peglau–List, see <http://www.14001news.de/> ISO certified organisations are not registered, hence it do not exist exact data about ISO certification.

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