AccessGuide

Introduction to the ISO 14000 series

Introduction

In response to the growing interest from businesses in environmental standards, the International Standardization Institute, ISO, has taken up the challenge to standardise environmental management on an international level. The objective of ISO standards is to contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. Thus ISO aims to make trade between countries easier and fairer and provide governments with a technical base for health, safety and environmental legislation.

ISO is a network of the national standards institutes of 148 countries, on the basis of one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

ISO is a non-governmental organization, its members are not delegations of national governments. However, many of its member institutes are part of the governmental structure of their countries, or are mandated by their government. Other members have their roots uniquely in the private sector, having been set up by national partnerships of industry associations. As such, ISO occupies a position between the public and private sector.

ISO's definition of an environmental management system:
"An EMS consists of the organisational structure, responsibilities, practices, procedures, processes and resources for implementing and maintaining environmental management".

ISO 14000 series

The ISO 14000 series exist of several standards that are divided into the following main issues:

- Environmental management systems (ISO 14001 and 14004)
- Auditing (ISO 14010-12)
- Environmental labelling (ISO 14020 series)
- Environmental performance evaluation (ISO 14030)
- Life-cycle assessment (ISO 14040-43)

The most important standard in the ISO 14000 series is ISO 14001, which sets the requirements for an environmental management system. The annex of the standard provides guidance on its use. The guidelines described are intended to be used as a management tool and <u>not</u> as certification criteria. The certification criteria are described in the ISO 14001 standard.

Environmental auditing is covered in three standards, ISO 14010, 14011 and 14012. The ISO 14010 standard provides general principles of environmental auditing. These principles are not restricted to environmental management systems, but are applicable to all types of environmental audits, such as the auditing of specified environmental activities or events. In the case of auditing environmental management systems, procedures for planning and conducting an audit are described in ISO 14011. ISO 14012 establishes qualification criteria for environmental auditors. These criteria are applicable to internal auditors, for

instance the quality co-ordinators, and external auditors such as the representatives of the certification institution.

The ISO standards for life-cycle assessment (LCA) are still drafts. The draft ISO 14040 provides framework, principles and requirements for conducting and reporting LCA studies. The standard, however, does not describe the LCA technique in detail. The draft ISO 14041 establishes guidelines and requirements for the preparation and performance of goal and scope definition and the life cycle inventory analysis. Drafts of two other standards in the LCA series, ISO 14042 and ISO 14043, covering the impact and the interpretation of life-cycle analyses respectively, have not yet been published.

The ISO standards for environmental labelling (ISO 14020 series), environmental performance evaluation (ISO 14031) and environmental vocabulary (ISO 14050) are being prepared or still under consideration. At this stage, it is not possible to describe the contents of these ISO standards except for the general subjects named in the (draft) titles. The table below summarises the standards of the ISO 14000 series which are currently being developed or which have been published.

Table: The standards in the ISO 14000 series

Standard **	Title
ISO 14001	Environmental Management Systems - Specification with guidance for use
ISO 14004	Environmental Management Systems - General guidelines on principles, systems and supporting techniques
ISO 14010	Guidelines for environmental auditing - General principles
ISO 14011	Guidelines for environmental auditing - Audit procedures - Auditing of environmental management systems
ISO 14012	Guidelines for environmental auditing - Qualification criteria for environmental auditors
ISO 14013	Management of Environmental management - system audit programmes (under consideration)
ISO 14014	Guidelines for initial environmental reviews (under consideration)
ISO 14015	Guidelines for environmental site assessment (under consideration)
ISO 14020	General principles (in progress)
ISO 14021	Environmental labelling - Self-declaration environmental claims - Terms and definitions (in progress)
ISO 14022	Environmental labelling - Self-declaration environmental claims - Symbols (under consideration)
ISO 14023	Environmental labelling - Self declaration environmental claims - Testing and verification methodologies (under consideration)
ISO 14024	Environmental labels and declaration - Environmental labelling types (practitioner programmes) - Guiding principles and procedures (in progress)
ISO 14031	Guidelines for environmental performance evaluation (under consideration)
ISO 14040	Environmental management - Life Cycle Assessment - Principles and framework (draft)
ISO 14041	Environmental management - Life Cycle Assessment - Life cycle inventory (draft)
ISO 14042	Environmental management - Life Cycle Assessment- -Life cycle impact (under consideration)
ISO 14043	Environmental management - Life Cycle Assessment - Life cycle interpretation (under consideration)
ISO 14050	Environmental management - Terms and definitions (to be published)

** *The standards already implemented are printed in italic type*

Principles of ISO 14000

- Continuous improvement

The Deming Circle aims to continuous improve a busienss' performance by following the (management) principles *plan, do, check and act*. In ISO 14001 itself, the Deming Circle is translated into:

Plan:	An organisation should have a vision and a plan.
Do:	In order to effectively implement the plans, an organisation should develop capabilities and support mechanisms necessary to achieve its objectives and goals.
Check:	The organisation should continuously monitor, measure and assess its environmental performance.
Act:	The organisation should continuously review and improve its quality management system, making sure that the organization remains dedicated to improvement.

- Compliance with legislation
- Compliance with environmental and economic demands set by the company

Implementation of ISO 14000

The following steps need to be followed to implement an environmental management system based on the ISO standards:

1. Environmental policy
2. Planning
3. Implementation and operation
4. Checking and corrective actions
5. Management review
6. ISO registration worldwide

1. Environmental policy

The environmental policy of the company should be carried out by the top management and it should cover, at a minimum, the following issues:

- The policy should be appropriate to the environmental impacts of the company's activities, products and services.
- A commitment to continuous improvement and prevention of pollution.
- A commitment to comply with relevant environmental legislation and other requirements to which the company subscribes.
- A framework for setting and reviewing environmental objectives and goals.
- Procedures for documentation, implementation, maintenance and communication to the employees.
- The environmental policy should be available to the public.

2. Planning

The planning of an environmental management system can be divided into four subjects:

- A procedure to identify the environmental aspects of the company's activities, products and services and their impact on the environment.
- A procedure to identify environmental legislation and other requirements to which the company subscribes.
- A procedure to set objectives and goals consistent with the environmental policy at each relevant function and level within the company.

- A procedure to set an environmental programme for achieving the company's environmental objective and goals.

3. Implementation and operation

The next step is the implementation and operation of the environmental management system. At this stage, seven issues are important:

- Roles, responsibilities and authorities should be well defined within the organisation. A management representative should be appointed by top management to:
    1) Ensure the requirements for an environmental management system are established, implemented and maintained.
    2) Ensure periodic reporting on the performance of the environmental management system.
- A procedure should be developed to ensure that employees at each relevant function and level are aware of:
    1) the importance of conforming to the environmental policy and procedures;
    2) the environmental impact of their activities;
    3) their roles and responsibilities in the environmental management system;
    4) the potential consequences of not adhering to operating procedures.
- A procedure should be established for internal communication between various levels and functions within the organisation and for dealing with external parties.
- The organisation should develop a documentation system to describe the core elements of the environmental management system and provide direction to related documentation.
- A procedure should be established for controlling the documentation to ensure that the documents are legible, dated, readily identifiable, kept in an orderly manner and retained for a specific period.
- In the case that the company's operations and activities are associated with the identified environmental aspects (in line with the policy, objectives and goals), specific procedures should be set and carried out. Whenever necessary, these procedures should include requirements for suppliers and contractors.
- A procedure should be established to identify potential hazards and to respond to accidents and emergencies, including the prevention of the environmental impacts associated with them.

4. Checking and corrective actions

An environmental management system should be verified regularly. If necessary, corrective actions should be taken. The following issues should be covered:

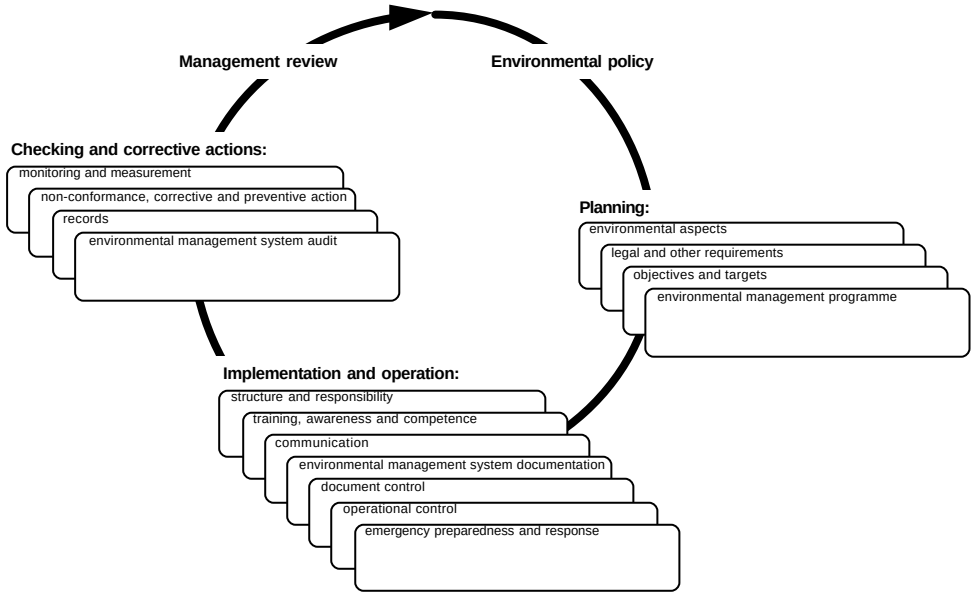
- The compliance with legislation and other requirements set by the company and the key characteristics of the operations and activities which may have a significant impact on the environment should be monitored and measured on a regular basis.
- A procedure should be developed to define responsibilities and authorities for handling and investigating non-conformance and completing preventive and corrective actions.
- A procedure should be established to identify, arrange and maintain environmental records, include training records and the results of audits and reviews.
- Environmental management system audits should be carried out on a regular basis to determine whether or not the management system:

1) conforms to the planned arrangements for environmental management;
2) has been properly implemented and maintained.

5. Management review

The environmental management system should be reviewed periodically by the top management to ensure its continuing suitability, adequacy and effectiveness. Together with the results of the audits, changing circumstances and the commitment to continuous improvement, this review may lead to adjustments of environmental policy, objectives, and other elements of the management system.

The ISO 14001 standard is visualised in the figure below. Please note that an environmental management system is not a once-only operation, but a continuous one. The cyclic execution of this management system must lead to continuous improvement of the environmental performance of the company. This is checked by the external certifying body on a regular basis (every 6 months). The certification body also determines whether or not a certificate must be given back (in case of non-continual improvement) or may be kept (recognising the efforts towards continual improvement). So, setting up the system is not sufficient; it must be maintained and improved all the time.



ISO registration worldwide

Country	Certifications		Country	Certifications
Japan	3548		Colombia	17
Germany	1950		Portugal	15
Sweden	1038		Poland	15
UK	1014		UEA	15
USA	750		Iran	12
Taiwan	718		Costa Rica	11
Netherlands	606		Greece	10
France	550		Chile	9

Switzerland	513		Uruguay	9
Korea	463		Luxembourg	6
Spain	430		Venezuela	6
Denmark	350		Peru	6
Australia	350		Liechtenstein	5
Finland	347		Lebanon	5
Canada	272		Croatia	4
Thailand	255		Morocco	4
Italy	246		Zimbabwe	3
Austria	223		Barbados	3
China	222		Vietnam	3
India	217		Mauritius	3
Malaysia	155		Jordan	2
Brazil	146		Oman	2
Belgium	130		Pakistan	2
Norway	129		Saudi Arabia	2
Hungary	106		Sri Lanka	2
Ireland	96		Iceland	1
Argentina	89		Bahrain	1
Singapore	87		Ecuador	1
South Africa	80		Estonia	1
Indonesia	77		Guatemala	1
Mexico	64		Honduras	1
Czech Republic	60		Lithuania	1
Hong Kong	50		Malta	1
Turkey	50		Nigeria	1
Philippines	50		Trinidad & Tobago	1
Egypt	46		Romania	1
New Zealand	35		Russia	1
Slovak Republic	25		Saint Lucia	1
Israel	25		Tunesia	1
Slovenia	23		Zambia	1

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