

# Basic Concepts on Ecodesign

## Unit 8: Environmental Management

Carmen Fernández Fernández. [c.fernandez@cetem.es](mailto:c.fernandez@cetem.es)

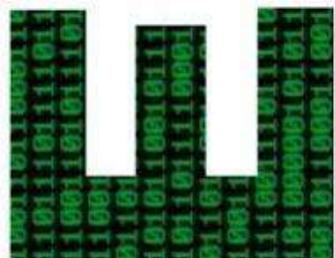


- 8.1 Environmental Management Systems ..... 2
  - 8.1.1 Introduction..... 2
  - 8.1.2 Benefits of Introducing an EMS..... 3
- 8.2 Standard ISO 14001 ..... 3
  - 8.2.1 Structure of the Standard ISO 14001 ..... 3
  - 8.2.2 Requirements of the Standard ISO 14001..... 4
  - 8.2.3 Standard ISO 14001 Certification ..... 7
- 8.3 EMAS Regulation ..... 8
  - 8.3.1 The Objective of EMAS ..... 8
  - 8.3.2 Requirements of the EMAS Regulation ..... 8
- 8.4 Differences between ISO 14001 and the EMAS Regulation ..... 12



On completion of this unit a learner will:

- Know, in general terms, environmental management systems under the Standard ISO 14001 and the EMAS Regulation.



## 8.1 Environmental Management Systems

### 8.1.1 Introduction

Environmental management in organisations is not a voluntary activity, but a mandatory one. A vast amount of environmental legislation ensures that every business respects the standards of: waste, dumping, emissions, soils, noise, efficient consumption, chemical products, etc.

An Environmental Management System (from now on EMS) is a system introduced to control all those processes of an organisation that are related to the environment and have an impact on it. The system helps managing the environment, by reducing, minimising and removing negative impacts result of the organisation's activities. The goal of such a system is:

*“To define and document methodologies to carry out activities under control, always from a more environmentally friendly perspective”.*

---

*There are different Environmental Management Systems (EMS) according to its development degree: formal and informal*

---

**Formal EMS** Auditable by third parties and certifiable. Recognised standards are taken as reference, such as: worldwide **ISO 14001** or, at a European level, the **EMAS Regulation**, to develop, introduce and maintain the system. Both standards require it to be a systematic process and a continual improvement.

- **ISO 14001:2015** Environmental Management Systems. Requirement with guidance for use.
- **Regulation (EC) No 1221/2009** of the European Parliament and the Council of 25 of November 2009 on the voluntary participation by organisations in a **Community eco-management and audit scheme (EMAS)**, repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC.
- **Commission Regulation (EU) 2017/1505 of 28 August 2017** amending Annexes I, II and III to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a **Community eco-management and audit scheme (EMAS)**.

**Informal or not referenced EMS** Neither auditable, nor certifiable. Although they may prove effective, the organisation must be mature and experienced, so that the system is continuously and effectively under control.

---



## 8.1.2 Benefits of Introducing an EMS

The introduction of an EMS is beneficial from several points of view. For that reason, an organisation may have interests and needs to adopt one to achieve results such as:

- Continual improvement of the environmental behaviour of the organisation and the introduced EMS ensuring its adequacy, suitability and effectiveness.
- The processes and activities control, which impact on the environment during the entire life cycle. Being aware of such impact may allow us to reduce it.
- To ensure compliance of the formal and material obligations under applicable environmental legislation to certain activities. The system ensures the adaptation to legislative changes.
- The optimisation to resulting costs from the adaptation to the environmental area, minimisation of the pollution generated, the resulting costs are reduced.
- The environment represents a new business factor, new business opportunities arise, the market -clients and providers- and the society in general are more aware of the environmental preservation.
- Green marketing based on information and verifiable facts. Project reporting. A reliable image of environmental commitment and continual improvement is transmitted.

In the following sections, each management system is addressed, ISO 14001 and the EMAS Regulation, to understand generally how they operate and what goals organisations pursue when they introduce them.

## 8.2 Standard ISO 14001

### 8.2.1 Structure of the Standard ISO 14001

Standard ISO 14001 has a high level structure, created to fit in easily the rest of the management systems of the organisation, such as: ISO 9001 (Quality), ISO 27001 (Information Security), etc.

A high level structure consists of 10 main headings marked in bold in the table below, which is the table of contents of the standard (specific subsections of ISO 14001).



Sections of the Standard ISO 14001:2015	
<b>0. INTRODUCTION</b>	
<b>1. SCOPE</b>	
<b>2. NORMATIVE REFERENCES</b>	
<b>3. TERMS AND DEFINITIONS</b>	<ul style="list-style-type: none"> <li>3.1 Terms related to organisation and leadership</li> <li>3.2 Terms related to planning</li> <li>3.3 Terms related to support and operation</li> <li>3.4 Terms related to performance evaluation and improvement</li> </ul>
<b>4. CONTEXT OF THE ORGANISATION</b>	<ul style="list-style-type: none"> <li>4.1 Understanding the organisation and its context</li> <li>4.2 Understanding the needs and expectations of interested parties</li> <li>4.3 Determining the scope of the environmental management system</li> <li>4.4 Environmental management system</li> </ul>
<b>5. LEADERSHIP</b>	<ul style="list-style-type: none"> <li>5.1 Leadership and commitment</li> <li>5.2 Environmental policy</li> <li>5.3 Organisational roles, responsibilities and authorities</li> </ul>
<b>6. PLANNING</b>	<ul style="list-style-type: none"> <li>6.1 Actions to address risks and opportunities</li> <li>6.2 Environmental objectives and planning to achieve them</li> </ul>
<b>7. SUPPORT</b>	<ul style="list-style-type: none"> <li>7.1 Resources</li> <li>7.2 Competence</li> <li>7.3 Awareness</li> <li>7.4 Communication</li> <li>7.5 Documented information</li> </ul>
<b>8. OPERATION</b>	<ul style="list-style-type: none"> <li>8.1 Operational planning and control</li> <li>8.2 Emergency preparedness and response</li> </ul>
<b>9. PERFORMANCE EVALUATION</b>	<ul style="list-style-type: none"> <li>9.1 Monitoring, measurement, analysis and evaluation</li> <li>9.2 Internal audit</li> <li>9.3 Management review</li> </ul>
<b>10. IMPROVEMENT</b>	<ul style="list-style-type: none"> <li>10.1 Nonconformity and corrective action</li> <li>10.2 Continual improvement</li> </ul>

## 8.2.2 Requirements of the Standard ISO 14001

The first 4 sections are generic and this unit focuses solely on displaying the key points contained in sections 4 to 10.

The information gathered in subsection 0.4 “Plan-Do-Check-Act model” is worth mentioning as a basis for the approach to the continual application of the “Deming Cycle” in an EMS for the continual improvement of individual systems and processes which are carried out meanwhile. Regarding this subsection, information is facilitated in a video file of this Unit 8 titled “Continuous Improvement in Management Systems”.



#### **4. Context of the Organisation**

Knowledge about the organisation and its “context” and identification of the “interested parties” in that context.

---

***Context analysis and interested parties identification:***

- Analyse environmental conditions that affect at internal level (culture within the organisation, economic, operative, technological, performance, etc.) and at external level (technological, economic, market, political, social, etc.).
- Determine who are the interested parties inside the given context, based on their membership, needs and expectations.
- The Executive Board must establish a strategy on environmental management. The system must be in line with the strategy and the determined scope.

---

#### **5. Leadership**

Senior management plays an essential role for the success of the EMS introduction under this standard. Top management should demonstrate leadership and commitment to the system.

---

***For that purpose, senior management must:***

- Define “environmental policy”, and communicate it; “objectives”; “environmental indicators” and “strategies” they believe necessary -legal requirements and related information.
- Establish roles, responsibilities and authorities.
- Promote the use of “processes approach” and “risk based thinking”.

---

#### **6. Planning**

EMS must be planned by the organisation.

---

***Requirements:***

- Determine the “risks and opportunities” related to environmental aspects of the organisation and take proper actions.
- Identify and assess the organisation’s “environmental aspects” from the life cycle perspective. Identify the significant aspects with the established criteria.
- Identify and assess the “legal environmental requirements” applicable to the activity, establishing a frequency for its review and update.



- 
- Establish “improvement targets” to significant environmental aspects, legal requirements, as well as to risks and opportunities detected.
- 

## **7. Support**

Top management of the organisation must support the resources necessary for the EMS continual improvement.

---

### ***For that purpose, top management must:***

- 
- Raise awareness and commitment to the system in the organisation. Communicate the importance of environmental management.
  - Provide the needed EMS training to the staff.
  - Establish the needed processes for internal and external communications relevant to the implemented EMS.
  - Determine the needed documented information and its control to meet the standard requirements and other requirements which may be of importance later.
- 

## **8. Operation**

Two key points of the system are located in this section: “operational planning and control” and “emergency preparedness and response”.

---

### ***Requirements:***

“Operational planning and control”. Operating criteria are required for the processes and their control; for that purpose:

- In the design and development process for the product or service, controls must be established, considering each life cycle stage.
- Determine the organisation’s environmental requirements for the procurement of products and communicate its relevant environmental requirements to external providers.
- It must consider the need to provide information about potential significant environmental impacts associated with the transportation or delivery, use, end-of-life, treatment and final disposal of its products.

“Emergency preparedness and response”. For that purpose, it must:

- Determine emergency situations, included those that may have an environmental impact.
  - Establish, implement and maintain processes needed to prepare and respond to potential emergency situations, perform drills, evaluate and review the results obtained.
- 



## 9. Performance evaluation

The implemented EMS must be regularly reviewed: its effectiveness and compliance.

---

***For that purpose, requirements must be implemented:***

- “Monitoring, measurement, analysis and evaluation” of processes performance.
  - Conduct “internal audits” at planned intervals.
  - Conduct an EMS “management review” to ensure its continuing suitability, adequacy and effectiveness.
- 

## 10. Improvement

Continual improvement on processes efficiency and efficacy must be ensured.

---

***For that purpose, the following must be implemented:***

- Methodology to react to nonconformity and corrective actions.
  - The organisation must continually improve the suitability, adequacy and effectiveness of the EMS.
- 

### 8.2.3 Standard ISO 14001 Certification

Once the EMS is implemented, the organisation is in position to certify the system. The organisation will reach an accredited certification body (e.g. AENOR, BVQi, etc.) to proceed with a certification audit and to prove that the ISO 14001 requirements demanded are met.

If the outcome is satisfactory, the certification body will issue the corresponding ISO 14001 Certification.

The organisation may disseminate the certification and communicate it to the interested parties (clients, providers, association, etc.).



## 8.3 EMAS Regulation

### 8.3.1 The Objective of EMAS

The objective of EMAS, as an important instrument of the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan, is to promote continuous improvements in the environmental performance of organisations with:

- The establishment and implementation of environmental management systems by organisations.
- The systematic, objective and periodic evaluation of the performance of such systems.
- The provision of information on environmental performance.
- An open dialogue with the public and other interested parties and the active involvement of employees in organisations and appropriate training.

### 8.3.2 Requirements of the EMAS Regulation

Organisations that register with EMAS have to:

- Prove compliance with environmental legislation.
- Make a commitment to continually improving their environmental performance.
- Show they have an open dialogue with all stakeholders.
- Involve employees in improving the organisation's environmental performance.
- Publish and update a validated EMAS environmental statement for external communication.

There are some further requirements. Organisations have to:

- Conduct an environmental review (including the identification of all direct and indirect environmental aspects).
- Register by a competent body after successful verification of their organisation.

Once registered, organisations are entitled to use the EMAS logo.



*The general procedure for implementing EMAS in an organisation consists of the following 6 steps:*

1. Initial environmental review
2. Implementing an EMS in line with ISO 14001
3. System checking: internal audit and management review
4. EMAS environmental statement
5. EMS validation by an EMAS verifier
6. Application for registration of EMAS

### **1. Initial environmental review**

The organisation starts with an initial environmental review of all activities the organisation carries out, to identify relevant direct and indirect environmental aspects, and the applicable environmental legislation.

---

***Initial environmental review contents:***

- a. Identification of the applicable legal requirements to the organisation.
  - b. Identification of direct and indirect environmental aspects.
  - c. Assessment of the significance of the environmental aspects.
  - d. Examination of existing processes, practices and procedures.
  - e. Evaluation of feedback from the investigation of previous incidents.
- 

### **2. Implementing an EMS in line with ISO 14001**

Then an EMS needs to be implemented in line with the requirement of EN ISO 14001 (Annex II to the EMAS Regulation).

---

***Implementing an EMS in line with ISO 14001:***

- 
- Information above: section 9.2, Unit 8.
- 

### **3. System checking: internal audit and management review**

The system needs to be checked by carrying out internal audits and management reviews.



---

#### **Checking of EMAS:**

- Internal audit: to check the compliance of environmental legislation, objectives and goals and whether the management system is effective and suitable.
  - Management review: top management reviews the system to ensure its effectiveness and suitability. Carried out and registered (report) at least once a year.
- 

#### **4. EMAS environmental statement**

The organisation writes an EMAS environmental statement. Its minimum content is:

---

#### ***Minimum content of the EMAS environmental statement:***

- 1) A clear and unambiguous description of the organisation registering under EMAS and a summary of its activities, products and services and its relationship to any parent organisations as appropriate -including diagrams, maps, charts, aerial photographs, etc. NACE codes (activity).
- 2) The environmental policy and a brief description of the environmental management system of the organisation to provide clear information of the work structure.
- 3) A description of all the significant direct and indirect environmental aspects (separate presentation in tables or charts) and an explanation of the nature of the impacts as related to these aspects (Annex I.2 of the EMAS Regulation).
- 4) A description of the environmental objectives and targets in relation to the significant environmental aspects and impacts (objectives and targets lists, indicators for the evaluation of the progress in behaviour improvement -including environmental programmes and references to adopted and planned measures to improve the behaviour).
- 5) A summary of the data available on the performance of the organisation achieving its environmental objectives and targets with respect to its significant environmental impacts. Reporting shall be on the core indicators and on the other relevant existing environmental performance indicators as set out in Section C, Annex IV of the EMAS Regulation.

The European Commission developed 'Sectoral Reference Documents'. Organisations should take these into account when implementing EMAS and specify in their environmental statement how these documents were used.

- Each document includes the following elements:
    - Best environmental management practice.
    - Environmental performance indicator for specific sectors.
    - Where appropriate, benchmarks of excellence and rating systems identifying environmental performance levels.
- 



## 5. EMS validation by an EMAS verifier

The environmental review and the environmental management system are verified and the statement is validated by an accredited or licensed EMAS verifier. Then, the organisation may access to the EMAS Register.

---

### **EMAS validation audit:**

- An accredited or licensed environmental verifier will verify the environmental review and the environmental management system.
  - If the outcome is satisfactory, the environmental management system will be verified.
- 

## 6. Application for registration of EMAS

Once the organisation has been verified, it submits an application for registration to the Competent Body of State.

---

### **Required documentation for the EMAS Register:**

- Validated EMAS environmental statement (electronic or printed version).
  - Declaration signed by the environmental verifier confirming that the verification and validation was carried out in accordance with the Regulation (Annex VII to the Regulation).
  - Completed application form (Annex VI to the Regulation), with information about the organisation, site and the environmental verifier.
  - Evidence of payment of fees, if applicable.
- 

Once registered, organisations are entitled to use the EMAS logo.



*The EMAS logo is a graphic image, associated with:*

- Commitment to continuous environmental improvement.
- Active involvement of employees.
- Credibility of information on the organisation's environmental performance.
- (Proven) legal compliance.

*The EMAS logo is a good way to show that the organisation is environmentally friendly.*



## 8.4 Differences between ISO 14001 and the EMAS Regulation

Both are effective for the environmental management of the organisation.

---

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

---

EMAS is more complete, since it not only demands compliance with Standard ISO 14001 requirements, but it also contains additional requirements:

- An environmental statement and an official record. The organisation is obliged to regularly facilitate the environmental information contained in that statement. This is an instrument for communication of the organisation's environmental behaviour.
  - A public register of participating organisations in each country, which boosts business opportunities.
- 

