



Basic Concepts on Ecodesign

Unit 6: Environmental Aspects of an Organisation

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- 6.1 Introduction to Environmental Aspects 2
- 6.2 How to Identify Environmental Aspects..... 3
 - 6.2.1 Establishment of Conditions for the Identification 4
 - 6.2.2 Identification of Processes and Operations 4
 - 6.2.3 Analysis of Processes and Operations 4
 - 6.2.4 Identification and Record of Environmental Aspects..... 5
- 6.3 How to Assess Environmental Aspects..... 6
- 6.4 How to Prioritise Environmental Aspects..... 7
- 6.5 How to Establish Objectives, Goals and Environmental Programmes 8

On completion of this unit a learner will:

- Identify environmental aspects related to their work activity.
- Be capable of applying them to products.



6.1 Introduction to Environmental Aspects

Environmental care is a current demand of our Society, who is becoming more and more aware of environmental matters. Environmental care is also a demand of clients from organisations, who wish to acquire products or services from more environmentally friendly companies which apply measures to minimise their impact on the environment.

Every activity generates an impact on the environment. The extent of such an impact depends on the nature and amount of resources or energy consumed, and the waste, dumping and emissions resulted from those activities, i.e. the related environmental aspects.

What are the environmental aspects and impacts?

“Environmental aspect and impact”, according to the Environmental management Standard ISO 14001¹, are defined as follows:

- ENVIRONMENTAL ASPECT: element of an organisation’s activities, products or services that can interact with the environment.
- ENVIRONMENTAL IMPACT: any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.

Environmental aspects entail a cause-effect relationship. An environmental aspect leads to an environmental impact.

For organisations to act on their environmental impacts, environmental aspects of their own activity have to be previously identified and assessed. Each and every process and operation must be scrutinised, whether produced or potentially produced.

Once identified, environmental aspects are assessed and actions are prioritised in those aspects that may generate or do generate a larger environmental impact.

For that purpose, organisations may adopt or introduce Environmental Management Systems, according to a recognised standard, such as the ISO 14001² or the EMAS

¹ UNE-EN ISO 14001:2015. Environmental management systems. Requirements with guidance for use.

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Regulation³, to identify and assess aspects and later take actions on their improvement in a planned manner.

The chosen method is described in the following sections:

1. “Identify environmental aspects”.
2. “Assess environmental aspects”.
3. “Prioritise environmental aspects”.
4. “Establish objectives, goals and environmental programmes”.

6.2 How to Identify Environmental Aspects

In order to identify the environmental aspects, a couple of factors must be considered: all activities, products and services of the organisation and the circumstances in which processes and operations related to the environment are carried out. Environmental impacts may be triggered by the pinpointed environmental aspects.

Environmental aspects identification consists of two categories:

- Aspects associated to the organisation and its product manufacturing or provision of services activities.
- Aspects associated to manufactured products to minimise their impact along their life cycle.

Once the management system is introduced, the identification is carried out and checked at least once a year. If there are changes in the organisation, it should be checked after a variation on the already identified aspects and impacts, or if new ones are pinpointed.

³ Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001 allowing voluntary participation by organisation in a Community eco-management and audit scheme (EMAS).



The stages on the identification of environmental aspects may be summarised as:

- Establishment of conditions for the identification.
- Identification of processes and operations.
- Analysis of processes and operations.
- Identification and record of environmental aspects.

These stages are described in the following subsections.

6.2.1 Establishment of Conditions for the Identification

To establish the operating conditions and circumstances in which the aspects are identified, the following must be considered:

- Standard operating conditions.
- Abnormal conditions such as startups, shutdowns, preventive maintenance, etc.
- Incidences, accidents or emergency situations which may be the result of activities such as leaks, accidental effluents, etc.
- Possible aspects related to past and future activities.

6.2.2 Identification of Processes and Operations

The organisation must identify the processes and operations associated to them, which may end having an impact on the environment.

To use flow charts -of process mapping- is advisable in order to display every operation associated to the production manufacturing, provision of services or any other activity involved in the environmental impact generation.

6.2.3 Analysis of Processes and Operations

Once processes and operations are identified, the following steps are taken:



- An analysis of the “inputs” and “outputs” of each of them. Considering also the auxiliary and service activities. Such “inputs” and “outputs” are, in fact, the environmental aspects.

Examples of “inputs” and “outputs”:

- Inputs: water, energy and fuel consumption, materials and consumables, etc.
 - Outputs: effluents, waste, emissions, etc.
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- A recognition of risk situations in each area.
- An identification of the product’s life cycle on the basis of which other aspects will be identified. This will happen specifically in those processes in which the organisation has a larger intervention -use phases, delivery to customer, product materials and packaging.

6.2.4 Identification and Record of Environmental Aspects

Once all operations and situations in which an environmental impact appears have been identified, each one of the identified environmental aspects are defined.

Such identification of environmental aspects may be classified by categories, either for “inputs” or for “outputs”:

- Inputs:
 - Material consumption (raw materials).
 - Energy, water consumption, etc.
- Outputs:
 - Waste sorted by type: hazardous, inert and non-hazardous.
 - Effluents.
 - Atmosphere emissions.



Each environmental aspect will be defined according to the following information:

- Aspect designation.
- Origin (of each input) and destination (of outputs).
- Quantity (absolute or relative numbers).
- Unit of measure.
- Characteristics -physicochemical- of the environmental aspect to typify the aspect, at least in a qualitative way.

Environmental aspects records will allow the organisation to:

- Display the array of aspects with all the data collected: date of origin, its extent, physicochemical characteristics, causes of its origin and the medium affected by it.

6.3 How to Assess Environmental Aspects

In order to assess environmental aspects, the organisation has to define criteria which allow to establish a hierarchy according to their importance.

The relevant aspect is labelled and classified as: “significant aspect”.

Aspect assessment criteria may be:

- **General:** may be applied to several environmental aspects.
 - **Reproducible:** may be applied in different conditions or situations.
 - **Capable of independent checking:** checked by several people and with the same result in every case.
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Aspect assessment must be carried out in normal or abnormal conditions, or in incident, emergency or accident conditions. The following must be considered:

- The extent of the resulted aspect: consumed, emitted, dumped, etc.
- How frequently does it happen.
- How large is the area affected, e.g. a soil affected by a leak.
- Hazard, severity and toxicity.



- How far-reaching is the aspect, close to limits allowed by legislation or internal criteria.
- How sensitive is the environment where the aspect is generated.
- Legal requirements which may exist on the environmental aspect.

6.4 How to Prioritise Environmental Aspects

In order to prioritise the organisation's aspects, the classification by "significant environmental aspect" will be regarded as the model. With such aim, several methods may be applied.

Methods to carry out a prioritisation of environmental aspects:

- **Significance matrix:** used in quantitative assessments. It may be defined as an assessment matrix. For each identified aspect, once obtained the results for every criterion, the matrix is checked to establish whether the aspect is negative or not.
 - **Percentage assessment:** used in quantitative assessments. Once a general assessment for each aspect is obtained -numeric value-, those aspects with the highest score will be considered as significant. A score limit may be established through a percentage, for instance: 10% of the highest aspects are catalogued as significant.
 - **State of regulation:** indistinctly applied to quantitative or qualitative assessments. Due to the importance of environmental legislation in the environment, a rank is established to pinpoint as significant those aspects which are regulated under current legislation.
 - **Interest of the people concerned:** applied to quantitative or qualitative assessments. The significance degree of an aspect is established considering the external interested parties. An aspect is significant and a priority if complaints do exist associated to such aspect, or those aspect are regulated under current regulation.
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The assessment and prioritisation result must be:

- Coherent with the actual situation of the organisation. In this sense, it would not be reasonable that the assessment results present no significant aspects from all the environmental aspects generated.
- Focused on the reduction of environmental aspects. Although some aspects may not be catalogued as significant, that does not exclude the organisation's responsibility to take action to reduce them, e.g. introducing an environmental management system.
- Recorded on a file so that the data collected, assessment criteria and the results of each environmental aspect of the organisation may be displayed.

6.5 How to Establish Objectives, Goals and Environmental Programmes

In order to establish objectives, goals and environmental programmes, the organisation must:

- Define a series of proper reachable objectives and goals for the organisation, and clarify if they will be applied only to some specific units or to the entire organisation.
- Consider that they are in line with:
 - o The organisation's environmental policy.
 - o The significant environmental aspects.
 - o The legal and regulatory requirements.
 - o The opinions of interested parties.
- Make an environmental strategy planning to achieve the goals and aims, i.e. create an environmental management programme which includes:
 - o The implementation of actions and improvements needed to achieve the goals and aims in a planned manner.
 - o "Goals" to achieve partial targets.
 - o The assessment of its effectiveness by means of indicators established to measure the degree of compliance achieved by the organisation.
 - o A periodic review of the programme to update the possible changes or modify those aspects which may alter their behaviour.

