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Information for product organizations: identifying and evaluating environmental aspects within ISO 14001

We at SCCM are convinced - and our experience has proven - that any organization, large or small, will achieve better environmental performance by using the 'plan-do-check-act' approach outlined in the ISO 14001 standard.

Content

The purpose of this publication 4

CHAPTER 1

1 **Requirements of the standard** 5

CHAPTER 2

2 **The implementation** 6
- 2.1 Step 1: Identifying environmental aspects 6
- 2.2 Scope and level of detail of the environmental aspects inventory 7
- 2.3 Step 2: Determining which environmental aspects have a significant impact 8
- 2.4 Step 3: Incorporating significant environmental aspects in the environmental management system; determining and taking measures 13
- 2.5 Evaluation of environmental aspects 16

CHAPTER 3

3 **Notes on implementation** 17
- 3.1 Environmental aspects by process or by department? 17
- 3.2 Who performs the inventory and evaluation of environmental aspects and how? 18
- 3.3 Procedure for the inventory of environmental aspects 18
- 3.4 Periodic update of the environmental aspects inventory 18
- 3.5 Sources of information 19

CHAPTER 4

4 **Other points to consider** 20
- 4.1 The relationship with legislation and licences 20
- 4.2 Environmental aspects in emergency situations 21
- 4.3 Influence in the chain 21

Annex 1 Environmental themes 23
Annex 2 Criteria for determining significance 24
Annex 3 Additional information about environmental aspects and ISO 14001 25

The purpose of this publication

The purpose of this document is to provide a better understanding of how to give shape in practice to the 'environmental aspects' element (identifying environmental aspects and determining which aspects can have a significant impact, section 4.3.1 of the standard) when implementing an environmental management system following the ISO 14001 standard. The document is intended as an **aid; organizations can choose whether to use the suggestions in it or not.**

The first section of the document further defines a number of concepts, and explains in detail the choices which must be made when planning this element of the ISO 14001 standard. The second section has a detailed explanation of how to make this identification (inventory). The third section explains several points to consider.

CHAPTER 1

Requirements of the standard

The text of the ISO 14001 standard regarding environmental aspects (section 4.3.1) reads as follows:

The organization must establish, implement and keep records of (a) procedure(s)

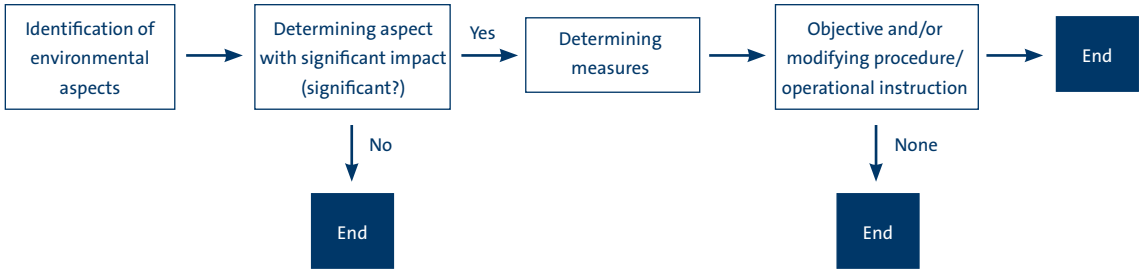
a to identify the environmental aspects of its activities, products and services within the defined scope of the environmental management system that it can control and those it can influence, taking into account planned or new developments, or new or modified activities, products and services, and

b to determine those aspects that have or can have significant impact(s) on the environment (i.e. significant environmental aspects).

The organization must document this information and keep it up to date.
The organization must ensure that it takes the significant environmental aspects into account when setting up, implementing and maintaining its environmental management system.

The following steps can be drawn from the text above:
› identifying the environmental aspects which the organisation can control or influence;
› determining which environmental aspects have significant impacts;
› defining measures with regard to these significant environmental aspects;
› evaluating the implementation of the above steps.

An organisation will have to make choices at each of these steps. For example, when identifying aspects, the question is to what level of detail this should be done. Then, which environmental impacts must be considered significant. For environmental aspects with significant environmental impacts, the question is which objectives must be identified and how these can be guaranteed in the system. This document will examine each of these steps, using an imaginary company making concrete products for road construction as an example.



CHAPTER 2

The implementation

2.1 Step 1: Identifying environmental aspects

The standard uses the term 'identifying' environmental aspects. In practice this is often referred to as 'making an inventory' of environmental aspects. This document will stay on the practical side and will refer to 'making an inventory' of environmental aspects. Making this inventory is a crucial step in developing an environmental management system. It is in this phase that the organization lays down the environmental themes dealt with within its environmental management system. It is accordingly not a step taken only once. At regular intervals (for example, annually) the organization must determine whether the inventory and priority is still up to date.

Environmental aspects and environmental impacts
The standard distinguishes between environmental aspects and environmental impacts.

The environmental aspects of an organisation can cause environmental impacts. Examples of environmental impacts are acidification of water and soil, the greenhouse effect, etc. An environmental impact is the consequence of the environmental aspect on people, plants or animals.

Since it is very difficult for an organization to accurately evaluate its environmental impacts, the ISO 14001 distinguishes between environmental aspects and environmental impacts. The point of the environmental management system is to control and curtail the environmental aspects in order to prevent environmental impact. The environmental aspects are reasonably easy for an organization to evaluate, and give a good idea of the points to consider in the environmental management system.

Table 1: Examples of differences between an environmental aspect and its environmental impact

ENVIRONMENTAL THEME	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT
Air (acidification)	Sulphur dioxide emissions	Acidification of water and soil
Water	Discharges of heavy metals	Adverse effects on water ecosystems
Soil	Leakages from pipes	Soil pollution
Natural resources /energy	Use of non-renewable energy	Depletion of natural resources, air pollution, greenhouse effect

A helpful idea when making the inventory of environmental aspects is to start by naming a few environmental themes. An inventory can then be made of potential environmental aspects for the organization as a whole or by activity or department. An example of an environmental theme is air. The environmental aspect is the emission of gases such as CO_2. The environmental impact is the greenhouse effect. Other possible themes are: water, soil, use of materials and natural resources, energy, waste, radiation, vibration, heat, unpleasant odours, noise. The environmental themes are shown in somewhat more detail in annex 1.

2.2 Scope and level of detail of the environmental aspects inventory

Section 4.3.1 of the standard indicates that the organization must identify the environmental aspects of its activities, products and services within the scope of its environmental management system.
The organization only has to identify the environmental aspects that it can control and that it can influence.

The annex to the standard indicates that an organization must look at processes such as the following:
- design and development;
- production processes;
- packaging and transportation;
- environmental performance and practices of contractors and suppliers (of products purchased);
- waste processing;
- extraction and distribution of raw materials and natural resources;
- distribution, use and life span of products, and;
- wildlife and biodiversity.

Also relevant are the environmental aspects associated with characteristics of, for example, products purchased by the organization (including packaging and transportation).

With regard to environmental aspects outside of the organization, the greatest degree of influence an organization can exercise on environmental aspects probably lies with the environmental performance of contractors and of purchased products and services. The degree of influence can be expressed in making the inventory and determining the significance of environmental impacts. An example of an environmental aspect of a supplier which can be influenced is the capacity use of lorries. Better use of capacity reduces the number of transportation movements and thereby fuel consumption and emissions into the air.
The organization is expected to determine how it interacts with suppliers and what requirements it will set.

As indicated in the annex of the standard in the overview of processes, the following points should be kept in mind during the inventory:
- The inventory includes not only the environmental aspects which the organization can completely control, but also those that it can influence. An organization can also be said to have influence if, when purchasing products or services, it can set requirements about the environmental impacts which occur with third parties, or can provide information to users of its own products.
- Environmental aspects must be identified which are associated with both current and relevant previous activities, products and services, as well as with planned or new developments, and new or modified activities, products and services.
- Attention must be paid to usual and unusual business conditions, conditions during shut-down and start-up and potential emergency situations such as fire, loss of electric power, leaks of hazardous materials, etc.

The inventory results in an overview of environmental aspects and the environmental impacts they cause (see table 2).

2.3 Step 2: Determining which environmental aspects have a significant impact

In the first step, the environmental aspects were determined that can be controlled and influenced. In step 2, the significant environmental aspects are selected for which the company will formulate an improvement or control measure (objectives). An example of an improvement measure is an objective for curtailing the environmental aspect. An example of a control measure is drawing up a procedure or operational instruction guaranteeing better operation, to prevent increase of the environmental aspect (also, see the next step: formulating objectives).
To determine which environmental aspects can be turned into control or improvement measures, the aspects from the previous step must be evaluated. One important criterion in this evaluation is that is must be reproducible. The feasibility of a measure will depend on such factors as the amount of investment and the length of time necessary to recover the costs.

Possible criteria for evaluation are:
- Are there legislation and regulations which apply?
- What is the range and frequency of the aspect?
- Have internal standards been drawn up?
- Are there associated environmental risks (with 'permanent' environmental damage)?
- Is there a nuisance for neighbours and/or have they complained, or is there any significance for employees?
- Are there local conditions, for example, are a company's premises close to a nature preserve or water-collection area?

The ISO 14001 standard's basic assumption is that the organization is complying with legislation and regulations. If the inventory shows this not to be the case, then as a minimum, these points must be addressed. This means that identifying the environmental aspects is related to identifying the legal requirements (from the standard, section 4.3.2). After identifying the legal requirements, the organization determines how these legal requirements apply to its environmental aspects. Environmental aspects to which legislation and regulations apply are categorized as significant environmental aspects.

Tables 2A and B list the evaluation criteria for the inventory as used by our sample company. The company has chosen the following as principles for determining its significant environmental aspects:
- The environmental aspects with legal requirements are significant;
- The environmental aspects not under control are significant;
- The environmental aspects with a high risk are significant;
- The environmental aspects which have generated complaints are significant.

The table below was compiled based on the above; here the environmental aspects are 'weighed' to arrive at a selection.

Table 2A is the result of 3 steps:
1. making the inventory of environmental aspects and impacts;
2. weighing their significance;
3. the end result: which environmental aspects are significant and which environmental aspects must be assigned improvement measures?

Table 2A: Qualitative inventory of two activities of a concrete factory: significance of environmental aspects and possible measures. NOTE: Not all aspects have been completely worked out in detail

ACTIVITY	ENVIRON-MENTAL THEME	ENVIRONMENTAL ASPECT	ENVIRONMEN-TAL IMPACT	LEGAL REQUIRE-MENTS	SCOPE / EFFECT POTENTIAL MEASURES	SURROUNDINGS/ COMPLAINTS	RISK	SIGNIFICANT ASPECT?	POSSIBLE MEASURE 1)
Transportation and storage	Waste	Concrete mortar and raw materials: spillage, sweepings (not usable in process)	Depleting natural resources, waste	No	Good (operational instructions)	No	Low		Catcher
	Noise and vibrations	Average 140 lorries/day as result of delivery and disposal move-ments	Disturbance to surroundings/ neighbours				Low		
	Air	Emissions from transport vehicles, dust (blown about)	Acidification, greenhouse effect, health	Yes		Yes frequent about dust	Low	Yes	Study making modifications to vehicles
	Water	Rainwater from site contaminated with concrete mortar and raw materials	Impact on water in ecosystems (insofar as discharged into surface water)	Yes, 2)	Good (operational i nstructions for good housekeeping)		Medium	Yes, if discharge limits are exceeded	Only if discharge limits are exceeded
	Soil (only from an accident)	Leakage from vehicles, storage of material, underground tanks, spillage	Contaminated soil				High	Only in an accident	Study extra accident-preventi-on measures
	Energy	Energy consumption from external (diesel) and internal transportation (LPG, diesel)	Depletion of natural resources				Low	No	Modify driving habits, motors
Measuring and mixing	Waste	Packaging of dyes, leftover concrete from cleaning mixer plant	Waste of materials and energy				Low	No	
	Noise and vibration	Refilling mixer plant and escape of air from vents	Disturbance to s urroundings				Low	No	
	Air	Refilling mixer plant, emissions limited by dust filters	Disturbance to surroundings				Low	No	Dust filter maintenance
	Water	Rinse water from cleaning mixer plant, partly re-used in process	Impact on water ecosystems if discharged to surface water				Low	No	
	Energy	electric motors of mixing machines, heating of mixing water	Depletion of natural resources				Low	No	Energy-saving plan

Notes on table 2A:

The table is an example of the inventory of part of the concrete factory's activities. The organization itself can choose the level of detail that works best for it. For example, this company could choose to give an even more concrete indication of its environmental aspects by itemizing the electrical motors in the last line.

1 The potential improvement can be either a technological / 'technical' measure or a control measure/ system modification.
Also, instead of naming the measure at this point, a 'yes/no' in the table can indicate whether a measure is possible, and the measure can be named in the next step: formulating objectives.

2 The environmental licence sets prescribed limits for discharge of contaminated rainwater

Table 2B: Quantitative inventory of two activities of a concrete factory: significance of environmental aspects. NOTE Not all aspects have been completely worked out in detail

ACTIVITY	ENVIRONMENTAL THEME	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT	Compliance with legal requirements	Degree of influence	Frequency of occurrence	Subtotal A	Severity	Scale	Severity in the event of accident	Subtotal B	Significance
Transport and storage	Waste	Concrete mortar and raw materials: spillage, sweeping waste (not usable in process)	Depletion of natural resources, waste	1	3	3	9	1	3	2	6	54
	Noise and vibrations	Noise and vibrations caused by delivery and disposal movements, average 40 lorries a day	Disturbance to surroundings									
	Air	Emissions from transport vehicles, dust (blown about)	Acidification, greenhouse effect, health	2	2	3	12	2	2	1	4	48
	Water	Rainwater from site contaminated with concrete mortar and raw materials	Impact on water ecosystems (if discharged to surface water)	1	3	3	9	1	1	3	3	27
	Soil (only in event of accident)	Leakage from vehicles, storage of material, underground tanks, spillage	Contaminated soil	1	3	1	3	1	3	3	9	27
	Energy	Energieverbruik extern transport (diesel) en intern transport (lpg, diesel)	Uitputting natuurlijke hulpbronnen									
Measuring and mixing	Waste	Packaging of dyes, leftover concrete from cleaning mixer plant	Waste of materials and energy									
	Noise and vibrations	Refilling mixer plant and escape of air from vents	Disturbance to surroundings									
	Air	Refilling mixer plant, emissions limited by dust filters	Disturbance to surroundings									
	Water	rinse water from cleaning mixer plant, partly re-used in process	Impact on water ecosystems if discharged to surface water									
	Energy	Electric motors of mixing machines, heating of mixing water	depleting of natural resources									

Notes on table 2B:

Factors for determining significance:

Compliance with legislation and regulations	1	The organization complies with the legal (e.g. permit) and other requirements
	2	The organization does not comply with the legal (e.g. permit) and other requirements
Degree of influence:	1	The organization has absolutely no influence
	2	The environmental aspect will always be present, given the nature of the process, but the organization has a certain influence on its degree, for example, in its choice of process
	3	There are possible alternatives in, for example, choice of raw materials, ingredients, production technology etc.
Frequency of occurrence:	1	Environmental aspects only arise under unusual circumstances (for example, emergency situations)
	2	Environmental aspects arise under normal production, but with a minimal frequency (for example, once a week)
	3	Environmental aspects arise under normal production, but with a medium or high frequency (for example daily)
Severity:	1	The environmental aspect is not severe and/or has no priority within (Dutch) environmental policy
	2	The environmental aspect is not hazardous, but contributes significantly to the environmental impact (for example, contamination of surface water with substances that are not toxic but do consume oxygen) and/or has limited priority within (Dutch) environmental policy
	3	The environmental aspect is considerable (for example hazardous waste or emissions into the air) and/or has a high priority within (Dutch) environmental policy
Scale:	1	The scale is limited compared to other environmental aspects
	2	The scale is average compared to other environmental aspects
	3	The scale is large compared to other environmental aspects
Severity in emergency	1	The severity is low compared to other environmental aspects
	2	The severity is 'normal' compared to other environmental aspects
	3	The severity is high compared to other environmental aspects.

Calculating significance
Subtotal A = compliance with legislation and regulations x degree of influence x frequency of occurrence
Subtotal B = severity x scale x severity in emergency
Total = subtotal A x subtotal B

The company can decide to formulate and implement measures for its top 5 or 10 environmental aspects with significant environmental impacts or set a limit beforehand, for example, all environmental aspects with a score of 40 or higher.

According to section 4.3.2 of the ISO 14001 standard, an organization must identify the legal and other requirements associated with its environmental aspects. For a smaller organization (such as our sample company), it is simpler to incorporate the legal requirements in the inventory. A larger organization will make a separate overview of legislation and regulations.
The method for weighing the background of and prioritizing environmental aspects can be more qualitative, as in the example above.
Alternatively, a more quantitative approach can be used; prioritize by assigning each aspect a numerical rank and weight. Additional criteria for determining significance are provided in annex 2.

The next step is to determine the objectives and targets and the details of any control measures.

2.4 Step 3: Incorporating significant environmental aspects in the environmental management system; determining and taking measures

The organization must decide for which of its significant environmental aspects it will formulate measures. The criteria it may use include the following:

- Are improvements possible (improvement or control measures)?
- How much influence does the organization have on changing this environmental aspect?
- What is the state of technology within the branch of industry? Are there technological options?
- What is the degree of control of the environmental aspect within the organization?
- Are legislation and regulations being complied with?
- What are the views of interested parties?
- Are the measures financially feasible?

Significant environmental aspects are often prioritized because the measures for all significant aspects cannot always be implemented simultaneously.

The selected significant environmental aspects are the basis for working out the other elements of the environmental management system:

- The organization must see to it that it keeps the significant environmental aspects in mind when setting up, implementing and maintaining its environmental management system (section 4.3.1);
- An organization must keep in mind its legal and other requirements as well as its significant environmental aspects when setting its objectives and targets (sec. 4.3.3);
- The organization must identify and plan work activities that relate to the identified significant environmental aspects in accordance with its environmental policy, and environmental objectives and targets, and its goal is to see to it that these activities are carried out **under specified conditions**. This can be done by setting, implementing and keeping records of procedures related to the identified significant environmental aspects of goods and services used by the organization, and informing suppliers, including contractors, about the procedures and requirements applicable to them (art. 4.4.6).

Activities and operations dealing with significant environmental aspects, as stated in section 4.4.6 of the standard, must be performed 'under specified conditions'. This means that the negative impacts of the significant environmental aspects are controlled or minimized in order to meet the requirements of the organization's environmental policy and to achieve its objectives and targets. If an environmental aspect is significant, it does not automatically mean that short-term improvement objectives must follow. There may be budget, technical, or other constraints on making immediate improvements. However, the organization is expected to indicate how it will tackle this environmental aspect in the medium term. Research into how to implement an improvement can also be a follow-up. At the time when the inventory of environmental aspects is updated, the organization will have to determine if there are any changes (such as new technologies) which now make it possible to formulate concrete objectives.

If a given environmental aspect has not had an improvement objective formulated for it, although a control measure is desirable, then the control measures should be laid down in the environmental management system. Examples of such measures are modifying working procedures (such as lowering temperature, turning off lights, changing filters more frequently) and modifying the procedure or operational instructions in which these activities are described. Other possibilities include informational presentations or materials (separately or in already scheduled meetings), modifying the emergency plan to give better control of the aspect in case of emergency, and improving internal reporting in the event of nonconformity with the existing situation. A control measure often results in an improvement of the environmental aspect.

Objectives are laid down in an environmental programme (sec. 4.3.4), in which activities related to the improvement are also laid down.

An organization must have a systematic procedure which clearly shows how follow-up is given to the control or improvement of environmental aspects with significant effects (immediate or longer-term). Table 3 shows which objectives and improvement measures the concrete company will be implementing for its significant environmental aspects.

Table 3: Follow-up action with regard to significant environmental aspects (table is not completely filled in)

NO.	ENVIRONMENTAL ASPECT	POSSIBLE MEASURE FROM TABLE 2	OBJECTIVE/TARGET	PROCEDURE/ OPERATIONAL INSTRUCTION	ACTION FOR IMPROVEMENT IN ENVIRONMENTAL PROGRAMME
1	Concrete mortar and raw materials: spillage, sweeping waste (insofar as not usable in process)	Catcher	Research possibilities before May		Place catcher within 1 year
2	Emissions from transport vehicles, dust (blown about)	Research modifying vehicles	Research possibility of modifying vehicles by December		Application of measures dependent on cost and results
4	Rainwater from site contaminated with concrete mortar and raw materials	Only if discharge limits are exceeded	No exceedance of discharge limits, through monthly sampling of waste-water	Operational instruction about good housekeeping	Training employees, analysis of waste-water incl. control and improvement
5	Leakage from vehicles, stored material, underground tanks	Extra measures to prevent disaster	Research possibility of extra measures by November		Application of measures dependent on cost and results
6	Energy consumption of external (diesel) and internal transportation (LPG, diesel)	Drivers' habits, vehicle engines	New vehicles must meet emissions requirements	Instructions to drive efficiently (fuel savings)	Course for drivers, purchasing dept. has criteria and selection process for replacing vehicles
7	Refilling mixer plant and escape of air from vents	Dust filter maintenance		Maintenance, replacement of filters	Inspect for proper maintenance
8	Electric motors of mixing machines, heating of mixing water	Energy saving plan	Total energy -20% less than 2003		See energy saving plan

Since a number of environmental aspects will occur in multiple places in the organization, there is sometimes the question of what level of abstraction to choose when working out the environmental aspects.
An alternative is to combine a number of environmental aspects that are associated with each other.
For example, this company's water consumption may appear in several of its environmental aspects.
Instead of formulating a separate objective for each environmental aspect, it may formulate a general objective for reducing water consumption (e.g. a 20% reduction over 3 years) and develop a separate programme for achieving this objective. Many organizations also do this for the energy theme.

2.5 Evaluation of environmental aspects

The process of making the inventory of environmental aspects, determining the significant impacts and taking measures is not a one-time action. The organization is expected to evaluate, with a certain regularity, whether the aspects in its inventory are still correct, the significance of impacts has not changed, and which measures can still be implemented. A logical point to do this is during the management review, given that this is often the time when changes in and around the organization, as well as the implemented objectives and targets are evaluated, and new objectives and targets are set. There may be changes in policy (either the organization's or the government) and legislation and regulations which have changed the listed environmental aspects, significant impacts and the measures formulated. Also see section 3.4.

CHAPTER 3

Notes on implementation

3.1 Environmental aspects by process or by department?

The inventory of environmental aspects can be made from several perspectives, for example, by process or by department. In the case of large departments, it can be made by process within each department. This choice will largely depend on the structure of the organization. In organizations dominated by processes and process steps, this process perspective will be the best option. In an organization in which the departments play the main part, it may be practical to set out the environmental aspects by department. In both cases the environmental aspects of all business operations are laid down, thus not only the environmental aspects of the primary production process or production divisions, but also of the secondary processes such as administration, design, transport and the like, and of the external processes which the organization can influence.

TIP:
Larger organizations will find it convenient to use a single format, which makes it easier to put together all environmental aspects having to do with, for example, energy or water later on.

Any separate sub-processes must also be included when listing the environmental aspects by process. These do not need to be immediately recognizable as sub-processes as long as it is clear that all processes have been included. An example will clarify what is meant by a sub-process: in making concrete mortar, the various raw materials are mixed together with additives. One of these additives must be prepared separately; this preparation is a sub-process of manufacturing concrete mortar.

In listing the environmental aspects by department, all activities or processes of all departments covered by the environmental management system must be included in the inventory. Whichever choice is made, the environmental aspects must be determined for the entire organization for which the environmental management system is set up. A process or department may not be excluded from the environmental management system. If, for example, the research department is not covered by the environmental management system, the environmental aspects can be incorporated though purchasing, since this service is being purchased from outside.

3.2 Who performs the inventory and evaluation of environmental aspects and how?

The choice of whether to list the environmental aspects by department or by process can also be based on the official(s) who have to list the aspects. The aspects can be centrally listed, for example by an environmental coordinator, or more locally, for example by department heads or production supervisors. If the inventory is performed by more than one person, it must be made clear which person is responsible for which elements.

The advantages of a central inventory, done by environmental co-ordinator:
- unambiguous: all departments/processes done in the same way with the same depth;
- speed: less dependence on input from other departments.

The advantages of a decentralized inventory, for example by department heads:
- (probably) more knowledge of a process within its own department;
- time savings during implementation of the system;
- greater involvement of departments in managing environmental aspects records.

3.3 Procedure for the inventory of environmental aspects

There is no standard procedure for taking the inventory of environmental aspects. In many cases, the person(s) performing the inventory make up a form listing the various departments and/or processes. The environmental themes and environmental aspects can then be filled in for each department and/or process. After the environmental aspects have been filled in, the environmental impacts are defined. The environmental impacts are important for determining the significance of each environmental aspect.

3.4 Periodic update of the environmental aspects inventory

The standard states that the environmental aspects and determination of their significance must be kept up to date, without defining how often this must be done. A company usually sets out its environmental objectives annually. It is logical to have the update (evaluation) of the environmental aspects register linked to this process, so that new objectives can come from this information. The significant environmental aspects for which no improvement was possible in the previous year will be looked at in more depth during the evaluation, and it will be determined if improvement is now possible.

A written procedure sets out which official is responsible for performing the update, how frequently it must take place and who makes these decisions.
When performing the update, special attention must be paid to any changes in legislation and regulations, the facilities, the organization, new technology or the production process, as well as, of course, whether environmental impacts have been reduced, for example, by achieving objectives. This can change the environmental impacts, especially the significance of the impacts.

3.5 Sources of information

An organization can use existing sources of information in making the inventory of its environmental aspects:

- The environmental licence, use permits, general administrative measures;
- Manuals for its branch of industry;
- Legislation and regulations and explanatory notes for them;
- Workbooks from the Target group policy on environment and industry (www.fo-industrie.nl);
- Infomil manuals (www.infomil.nl);
- BREF's[1];
- MMJA's (long-term agreements on energy efficiency);
- Information and professional journals from the branch of industry concerned.

[1] Starting in October 1999 new (and significant changes to existing) establishments must meet the European IPPC (Integrated Pollution Prevention and Control) guidelines; after October 2007 this requirement will apply to all existing establishments. In the Netherlands, the IPPC guideline has been implemented in the Environmental Management Act (Wet Milieubeheer) and the Decision on Installations and Permits (Inrichtingen- en Vergunningenbesluit, 1997). Among other things, the guideline determines that licences for industrial establishments must guarantee that the establishments take all appropriate measures to prevent pollution, specifically by applying the best available techniques (BAT). The term BAT largely corresponds with the German concept of Stand der Technik. To give some guidance about the concept of BAT the European Commission organises an exchange of information about BAT, the results of which have been set down in what are known as BREFs (BAT Reference Documents). BREFs will be drawn up for every industrial activity named in annex 1 of the IPPC guideline. In total BREFs will be drawn up for around 30 branches of industry. The BREF's can be downloaded from, among others, the Infomil site: www.infomil.nl.

CHAPTER 4

Other points to consider

4.1 The relationship with legislation and licences

The inventory of environmental aspects (often called the environmental inventory) must be related to the environmental licence and the legal requirements that apply to the company. The environmental licence and the legal requirements can be used as background information in the inventory phase. After the environmental aspects of operations have been established, the licence can be consulted to see if any activities and/or environmental aspects have been inadvertently omitted. Legal requirements that apply to the company can also be consulted for this purpose.

In making the inventory of environmental aspects and selecting measures for improvement and control, this document indicates that one of the selection criteria is (compliance with) legislation and regulations. It must be said that a company must comply with legislation and regulations before it can be ISO 14001 certified. Why, then, is this one of the criteria? For one thing, with beginning companies, the inventory of environmental aspects is often set up in an early stage, to get an idea of the points for consideration in the environmental management system. The company can also get an idea of the elements which do not (or do not completely) comply with legal requirements or the licence. This can help to solve shortcomings before the certification process.
A change of operations, a change in legislation, regulations, or the licence can mean that companies that have already been certified may temporarily not be able to comply with legislation and regulations. Including these environmental aspects in the inventory shows that the company has noticed the problem and is taking action to solve it. Changes in legislation and regulations can also be a reason for modifying the environmental inventory.

4.2 Environmental aspects in emergency situations

Environmental aspects in the event of emergencies or disasters are in many cases different environmental aspects than those of an organization's day-to-day operations. Environmental aspects relating to the soil, for example, usually will only occur in the event of an accident such as a leak. In these situations, the environmental aspects must also be considered differently with regard to the significance of their environmental impacts. The risk and scope of the disaster will often be decisive factors in estimating significance.

The disasters can be incorporated in the regular matrix of the environmental aspects inventory (as with our sample company). However, this carries the risk that potential emergency situations are never given the attention they deserve. It is advisable, especially for companies in the Netherlands subject to the Hazards of Major Accidents Decree (BRZO), to perform a separate inventory of emergency situations. In these cases, the significance of an environmental aspect can not only lead to objectives for taking measures to prevent this environmental aspect and its impacts, but also to establishing and maintaining adequate emergency procedures.

4.3 Influence in the chain

As previously indicated in section 2.2, 'Scope and level of detail of the environmental aspects inventory', the influence of an aspect on the entire chain must be considered when determining the significance of environmental aspects. This means that a company must look beyond its own products, goods and services and include suppliers of products, goods, services and raw materials as well. The question of whether a given environmental aspect really is significant depends on the influence that the company has on the various elements of the chain.

For example, in our model concrete company, the influence on the chain can be clearly seen with regard to the raw materials it uses. If the company were to look only at its own production process, its inventory would not include mineral extraction. This would be overlooking a significant environmental aspect. The company must keep in mind its influence on the environmental impacts of the environmental aspects in the chain. In many cases, reducing the impact in the chain is more difficult than reducing the organization's own environmental impacts.

As far as purchased goods and services, according to section 4.3.1, in making its inventory of environmental aspects, the company can make a distinction between environmental aspects associated with:

- The activities/services of third parties, performed on the organization's premises;
- The characteristics of products purchased (including such factors as packaging and transportation);
- The way that purchased products are produced on the supplier's premises.

The degree to which influence can be exercised on the environmental aspects is probably the greatest with the first case and the least in the last case. The standard states that environmental aspects which can be controlled and/or influenced must be identified.

The environmental inventory only includes these environmental aspects associated with the activities performed for the organization in question. After all, the supplier or contractor may perform activities for other organizations which have different requirements. The degree of detail of the evaluation of the environmental aspects is dependent on the expected environmental impacts and the degree to which reasonable influence can be exercised. Therefore, there can be suppliers or contractors who are not subject to scrutiny because their expected environmental impacts are limited or because no reasonable influence can be exercised on them.

The organization itself must determine which elements of its environmental management system are associated with suppliers and contractors. It should assess, for example, what is necessary to control and reduce environmental aspects (prevention of pollution) or to achieve objectives in the context of continual improvement. The organization only needs to consider pollution associated with these parties' activities performed for its purposes.

The depth and detail of the inventory of environmental aspects of products will differ from product to product. It will determined by such factors as the indication that there are significant environmental aspects in other parts of the chain, the place of the organization (performing the inventory) in the chain, the degree of influence on other parts of the chain, etc. The essence of this is that the organization knows about relevant environmental aspects occurring in other places in the chain, and considers to what degree they can be influenced. The ISO 14001 standard does not request a detailed life-cycle analysis of these products. External information may be used from, for instance, branch or chain organizations, customers or suppliers.

Annex 1

Environmental themes

Possible environmental themes:

Air:	an emission into the air;
Water:	a discharge to surface water;
Waste:	creation of waste products;
Soil:	contamination of the soil;
Natural resources:	the use of raw materials and natural resources (including energy and water);
Local aspects:	a local environmental issue (such as noxious odours or noise);
Space:	taking up space;
Nuisance:	discharge of thermal energy, dust, vibrations or a visual impact (can be specified as radiation, vibration, heat, bad odours, dust, noise, etc.);
Land use:	use of ground.

Annex 2

Criteria for determining significance

Various criteria are used to determine the significance of an aspect. In brief, these are:
- compliance with legislation and regulations, licences and requirements of outside parties,
- what the environmental relevance is (nuisance, risk, ...);
- points of concern for internal and external interested parties.

For some organizations, the risk of disasters and (for consumer-goods companies) their image can be added to the above criteria.

If your intention is to rate criteria for determining significance based on environmental importance and business importance, the following criteria may be useful:

Environmental importance:
- the scale of the impact;
- the severity of the impact;
- the chances of it occurring;
- the duration of the impact.

Business importance:
- potential influence on legislation and regulations;
- problems changing the impact;
- cost and earnings from the impact;
- effect of the change on other activities and processes;
- concerns of interested parties;
- effect on the organization's image.

Annex 3

Additional information about environmental aspects and ISO 14001

- NEN-EN-ISO 14001:2004, published by NEN
- NEN-EN-ISO 14004:2004, published by NEN
- Werken met ISO 14000, published by NEN, 2005 (Dutch only)
- Certification system for environmental management systems according to ISO 14001, published by SCCM, 2005 (English version 2006)
- Environmental Performance Indicators for the chemical industry, published by VNCI, 1999[2]
- Guidance on the identification of environmental aspects and assessment of their significance: EU publication about the EMAS scheme, download from SCCM site

[2] The VNCI, working with other parties such as the Netherlands Ministry of VROM has developed a method for the chemical industry establishing clear environmental performance indicators for 250 chemical components. These indicators can be used to determine the urgency of determining objectives. The guideline (in English) for the Environmental Performance Indicators for the chemical industry can be downloaded from the VNCI site: www.vnci.nl/beleid.

More information:

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