

## ENVIRONMENTAL MANAGEMENT SYSTEMS

*“An environmental management system (EMS) is part of an organisation’s management system used to develop and implement its environmental policy and manage its environmental aspects” – ISO 14001:2004*

*It is therefore a structured framework for managing an organisation’s significant environmental aspects. A company can adopt the framework specified in one of the national or international standards (such as ISO 14001, EMAS or BS8555) and have its system externally assessed and registered against the standard.*

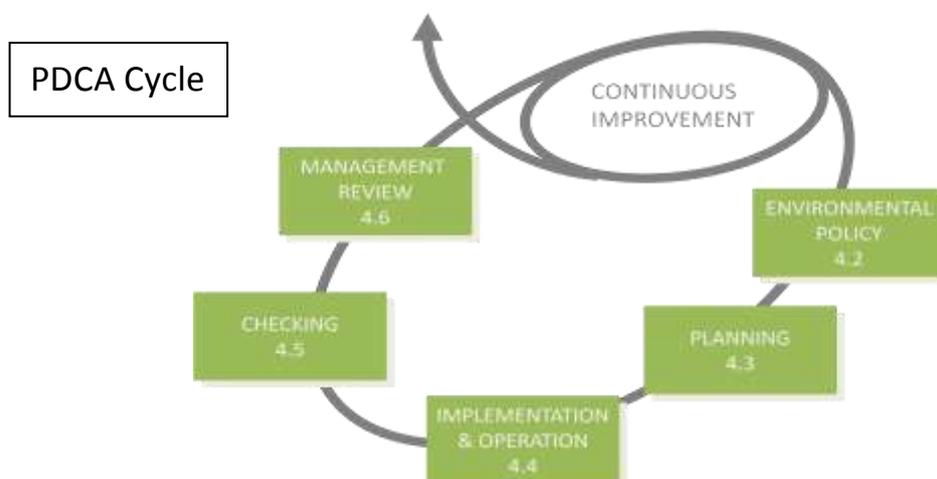
### Background

The development of formalised specification for environmental management systems began in the early 1990’s with the development by the British Standards Institute (BSI) of the BS7750 Standard (BSI, 1992). At a similar time the European Commission was developing the Eco-Management and Audit Scheme (EMAS), which though similar to BS7750 specified additional requirements such as public reporting of environmental performance. First published in 1993, it was revised in 2001.

In 1996 the International Organisation for Standardisation (ISO) published ISO 14001:1996 ‘Environmental Management Systems – Requirements with guidance for use’, which, following its adoption as a European Standard meant that all similar national standards (i.e. BS7750) were superseded. ISO 14001 was updated in 2004 to achieve compatibility with the Quality Management System Standard ISO 9001. ISO 14001 is the most widely used standard because of its international status.

A new British Standard, BS 8555, was introduced in 2003, to provide a staged method for small and medium sized organisations to implement an EMS and achieve accreditation to either ISO 14001 or EMAS, as the final stage.

All environmental management systems are based on the Denning Cycle of Plan: Do: Check: Act (PDCA).



## Scope & Key Principles

ISO 14001 defines an 'organisation' as:

“a company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration. NOTE: For organisations with more than one operating unit, a single operating unit may be defined as an organisation”

This provides organisations with a great deal of flexibility over where the boundaries of their EMS can be set and allows for part of an organisation to become accredited to ISO 14001 if this is desired.

A core principle of an EMS is continual improvement, both in environmental performance and in the environmental management system itself. This is achieved through regular measurements, monitoring and auditing of the system which provide management with the basis for evaluating the effectiveness of the EMS and making changes as appropriate. The end result is that the EMS ensures that the organisation's overall environmental objectives, as set out in its environmental policy, are implemented throughout the organisation and that employees, contractors and suppliers know their roles and responsibilities in helping the organisation to achieve them.

The following sets out the different elements of an ISO 14001 compliant EMS:

## Environmental Policy

The Environmental Policy forms the cornerstone of the EMS and should be formulated by senior management and preferably signed by the Chief Executive or Chairman. ISO 14001 requires that the Environmental Policy should be appropriate to the nature, scale and environmental aspects of the organisation and contain a commitment to continual improvement and prevention of pollution. In addition, there should be a commitment to comply with legislation.

The Environmental Policy must be documented, communicated to all staff and available to the public.

## Environmental Aspects & Impacts

Identifying and evaluating how an organisation interacts with the environment is a key step in the planning of the EMS. Environmental impacts may be positive (beneficial) or negative (adverse). The organisation's activities, products and services that cause impacts are its environmental '*aspects*'. Correct identification of the aspects and impacts ensures that the EMS is focussed on the most significant environmental issues and that resources and management time are concentrated on controlling and improving them.

The identification of significant environmental aspects needs to take account of any legislation, regulations and other requirements that affect the organisation such as pollution control consents, waste permits or customer contractual requirements. Key stakeholders should also be consulted with.

The EMS needs to address both *direct* aspects (which are a direct result of an organisation's operations and under its control) and *indirect* aspects (which an organisation can only influence and

not control directly). Environmental aspects include: air emissions; land and resource use; waste disposal; water releases; energy and raw material use; final disposal of products. Consideration also needs to be given to impacts arising during normal and abnormal operating conditions (including start-up and shut down) as well as under emergency conditions.

## Assessing Significance

Assessing the significance of the environmental aspects is one of the most crucial and difficult elements in planning the EMS. Whatever the criteria that are used, it is vital that they are clearly defined and that the process used to arrive at the significant aspects can be replicated by another party and produce the same results.

Generally aspects are scored (e.g. within a matrix) according to the following criteria:

- Extent to which impact is covered by legislation
- Level of interest from stakeholders
- Environmental severity of the associated impact and sensitivity of receiving environment
- Likelihood / frequency that the impact will occur
- Existing controls

A minimum score at the outset is set above which the aspect is considered to be significant. The scoring and weighting systems should be such that all aspects that:

- Are controlled by legislation
- Have the potential to cause demonstrable damage to the environment
- Are of concern to interested parties

should come out as 'significant'

## Objectives & Targets and Operational Control Procedures

The outcomes of the evaluation of significance, in conjunction with the Environmental Policy, are used to formulate operational control procedures and set objectives and targets for environmental improvement. Operational control procedures should be written for all significant environmental aspects.

Objectives are overall environmental goals that the organisation sets itself in order to achieve environmental improvement. Examples include:

- To provide all employees with environmental training appropriate to their job functions
- To implement improved waste management practices
- To increase usage of recycled materials within the organisation

Targets are detailed performance requirements that need to be set and met in order to achieve the environmental objectives. Examples of targets relating to the above objectives include:

- Provide all new staff with an environmental awareness training module as part of the induction process
- Set up labelled and colour-coded containers for the separate collection of hazardous waste

- Investigate options for recycling process waste with suppliers / industry groups

Note: A particular objective might require several targets in order to achieve it.

Where possible both objectives and targets should be SMART – Specific, Measurable, Achievable, Relevant and Time-Related.

## Structure and Responsibilities

It is the role of management to assign appropriate responsibilities for the delivery of the EMS at the outset. It is also important to engage all staff at the start of the process and assigning duties is one way of staff to feel they have ownership of the process and a vital role to play in the environmental improvement of the organisation.

As a minimum the following roles will need to be assigned from the start:

- Environmental Review Committee – committee comprising the individuals listed below and any other interested members of staff. Responsible for overseeing implementation of the EMS and involved in e.g. evaluating environmental aspects and setting objectives and targets
- Lead Environmental Manager – a member of senior management with ultimate responsibility for maintenance and improvement of the EMS (e.g. Managing Director in smaller organisations)
- Environmental Management Representative – manager responsible for day-to-day implementation and maintenance of the EMS (e.g. Operational Manager)
- Environmental Auditor – responsible for auditing the EMS on a regular basis. The organisation's existing Quality Auditor can assume this role with specific environmental training

## Communications

Effective internal and external communications are vital for ensuring successful implementation of the EMS. Internal communications need to be directed towards communicating progress against environmental objectives and targets to staff and ensuring that they are able to influence the development of the EMS and environmental improvement programmes. External communications need to ensure that stakeholders are kept informed of progress and can actively participate in the improvement of the EMS.

## Procedures & Documentation

ISO 14001 requires that certain key elements of the EMS be documented and that procedures are established and maintained to ensure all staff and contractors know what is required and that activities are carried out so as to minimise environmental damage. Procedures don't need to be written, for example flow charts can often be a more effective means of communicating. However, it should be able to be demonstrated to a third party that they are in place and effective.

Those parts of the EMS which have to be documented (for example, Environmental Policy, Objectives & Targets, Roles and Responsibilities) should be kept up to date and controlled, so that only the latest versions can be used.

## **Monitoring, Audit & Evaluation of Compliance**

Monitoring environmental performance is essential for tracking achievement against objectives and targets. Many organisations will already be carrying out monitoring activities, for example, as a requirement of discharge consents or other environmental permits. These should be built upon in implementing the EMS and organisations should routinely monitor energy use, waste arisings, water usage and other indicators of performance against environmental targets.

Auditing is vital to the maintenance of an effective EMS as it determines whether each element of the EMS is being implemented as intended and that the EMS is functioning as planned. It also provides regular information to management on overall performance of the EMS. More detailed information on auditing an EMS can be found in ISO 19011:2002 “Guidelines for quality and/or environmental management systems auditing”

ISO 14001 requires that a periodic evaluation of legal compliance is undertaken. This can be performed as part of the annual auditing cycle for all elements of the EMS. The frequency with which the evaluation should be carried out depends on the significance of the environmental impact of the activity. Those with more significant impacts should be checked more often.

## **Management Review**

Periodic reviews by management of the EMS allows for feedback arising from audits, compliance checks, monitoring activities and corrective actions to feed into improvements in the system and so lead to continual environmental improvement. Such reviews should be undertaken between every six months and annually. Management should also review overall environmental performance and make any changes to objectives, targets or the Environmental Policy as necessary.

## **EMS Certification & Accreditation**

Many organisations decide to have their EMS certified to the ISO 14001 Standard by a third party certification body, although this is not mandatory. Although self-certification is an option under ISO 14001, independent certification provides customers and stakeholders with the confidence that the EMS meets all the requirements of the Standard as well as ensuring the continual environmental improvement of the organisation.

It is important to ensure that the certification body you choose is registered with and accredited by UKAS (the United Kingdom Accreditation Service), as this ensures that the assessment will be undertaken in a comparable manner across organisations and that competent, appropriately qualified staff are used.