Profiles of Tools and Tactics
for
Environmental Mainstreaming

No. 5

ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)

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Note: We are grateful for review comments provided by Martin Baxter ((Institute of Environmental Management & Assessment , Lincoln, UK), and Chris Sheldon (Green Inck, UK).

What is an EMS for?		
Policy development		
Planning	√	
Field work		
Investment	√	
Assessment	√	
Monitoring	√	
Campaigning		

What issues does an EMS focus on?		
Environmental	√	(mainly)
Social	√	(potential, but often disregarded)
Economic	√	
Institutional		

Purpose

An Environmental Management System (EMS) is a structured framework for managing an organisation's significant environmental impacts. The latter vary between organisations, but typically will include waste, emissions, energy use, transport and consumption of materials. Climate change factors are increasingly prominent as are legacy issues such as contaminated land. Wider factors can also be included, such as impacts on wildlife (biodiversity) and use of materials (such as embodied water). In implementing an EMS, a company will identify the significant effects relevant to its business. For maximum effectiveness, an EMS should not be set up as a stand alone system, but built into the exiting management structure. Adopting an EMS can help an organisation to:

- Manage and improve its environmental performance (managing negative impacts) and helping to increase resource efficiency (e.g. cutting waste and energy use);
- Comply with environmental laws and regulations;
- Generate financial savings through well-managed use of resources and efficient practices; and
- Improve its standing and reputation with staff, client companies, partner organisations and wider stakeholders;
- Adapt to a changing environment (either its operations or its products/ services).

Background facts

National and international EMS certification schemes emerged in the early 1990s and have since evolved to become standardised and structured so they are compatible and complementary with other mainstream standards (e.g. ISO 9001 Quality Standard).

The ISO 14001 standard is a specification for an environmental management system that can be assessed by external bodies. The standard also provides an umbrella for the rest of the ISO14000 series (see Box 5.7.1) which covers a wide range of environmental management issues including auditing, labelling, life-cycle assessment etc. The use of ISO 14001 is voluntary, but is often cited as a requirement of commercial tendering processes.

Through European Union Council revised Regulation No. 761/2001 (currently being amended), all EU member states are required to make the Eco-Management and Audit Scheme (EMAS) available to private and public sector organisations. However, at present, it is voluntary for individual organisations to become registered through the scheme. The scheme requires not only the implementation of an EMS (it recognises ISO 14001 as meeting this element of the scheme requirements) but also requires the regular public reporting of the organisation's environmental performance over time.

In the UK, by 2006 over two thirds of FTSE250 companies had a formal EMS in place (BSI survey 2006). Smaller and Medium sized businesses have also been increasingly active in adopting EMS, with an increase in 10% between 2005 and 2007 (NetRegs Environment Agency survey).

Main steps in EMS

An EMS is a structured framework for managing an organisation's significant environmental impacts. It provides a process through which organisations can engage with employees, customers, clients and other stakeholders. Whatever scheme is adopted, the elements of the EMS will largely be the same, following the Deming Cycle of:
- Plan what you're going to do;
- Do what you planned to do;
- Check to ensure that you did what you planned; and
- Act to make improvements.

Through this cycle, all EMSs set a framework through which the organisation can build on-going 'continuous improvement' of environmental performance.
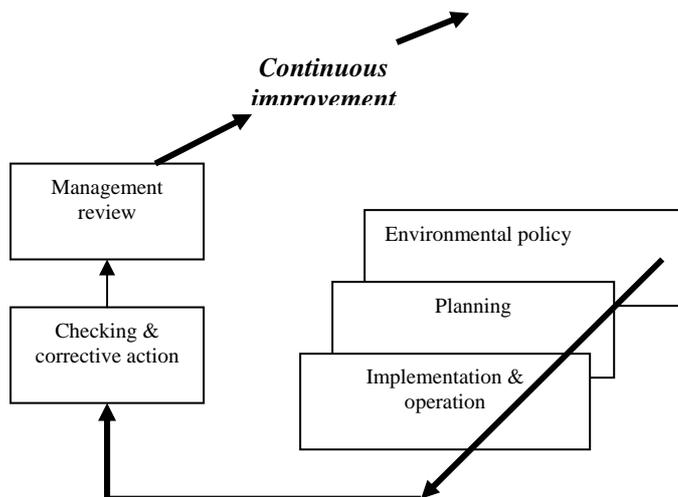
The following is an example (from the UK) of the typical steps that might be taken in setting up an EMS (source: http://www.iema.net/ems/planning):

1. Initial Review of existing EMS 'type' structures and commitments within the organisation (such as any existing environmental policy commitment for the organisation, documented procedures and responsibilities etc) and existing environmental controls and activities.

2. Investigate potential trends that effect the organisation (or support the case for an EMS), eg;
    a. Trends and developments in legislation (increasing pressure for environmental legislation at regional, national and local level);
    b. Fiscal trends on businesses such as the increasing financial implications of climate change and waste disposal costs;
    c. Trends in commerce and trade such as increasing requirements to demonstrate positive environmental management in commercial contracts with clients (supply chain pressures);
    d. Increasing public concern with the environment (customer level).

3. Consider the main interests and stakeholders in the process (e.g. shareholders, customers, clients, regulators, and the public).

4. Review the main options available for EMS certification and consider their suitability for the organisation. Factors may include;
    a. The benefits of branding and public profile offered by a scheme such as EMAS (e.g. through its logo and its public 'reporting requirement');
    b. Sector-specific or supply chain factors that may encourage consideration of ISO 14001;
    c. The benefits of a phased implementation approach from an existing national standard (eg BS 8555 / Acorn [1] in the UK – which is especially suitable for some smaller and medium sized businesses, and allows for progression on to either of the above schemes - or both).

5. Secure appropriate commitment at senior management level for EMS development (often this is an element within the first Phase of a scheme such as the UK's Acorn Scheme which is based on BS 8555 .

EMS phased implementation phases

Phasing the development of an EMS allows an organisation to take an incremental approach to the introduction of an EMS into its mainstream management processes. Stages 1-5 below are taken from BS 8555. The stages can also act as a guide to the implementation process that is undertaken to achieve ISO14001 and EMAS:

Stage 1: Commitment and establishing the baseline
Stage 2: Identifying and ensuring compliance with legal and other requirements
Stage 3: Developing objectives, targets and programmes
Stage 4: Implementation and operation of the EMS
Stage 5: Checking, audit and management review
Stage 6: Acknowledgement under a selected scheme

Certification/Registration

Organisations may decide to have an external body confirm that their EMS meets the requirements of standards such as ISO 14001. This process is known as certification or registration [2]. However, it is not mandatory and ISO 14001 does allow organisations to self-declare that they have met all of the requirements of the standard.

There are a number of benefits that can be gained by having the EMS externally certified - http://www.iema.net/ems/index.php/certificationbenefits Certification of a management system is

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[1] ISO 14005 on EMS phased implementation is currently being drafted and may replace BS 8555 within the next 12 months.
[2] In North America and beyond Europe, the term 'registration' is more common that 'certification'.

carried out by an environmental certification body and involves a visit to the organisation, examining documents/records, and interviewing personnel. It provides independent demonstration that the management system of the organisation: conforms to specified requirements, is capable of consistently achieving its stated policy and objectives, and is effectively implemented

Basic requirements

Cost

An effective EMS should prove to be at least cost neutral and will often lead through to sustained savings via environmental efficiencies in waste and energy management. The costs of developing and implementing an EMS could include:
- Investment of internal resources, including staff/employee time;
- Training of personnel;
- Hiring consulting assistance, if needed; and
- Technical resources to analyse environmental impacts and improvement options, if needed.

Skills and capacity

ISO14001 requirements state that a organisation's management should ensure the availability of resources essential to establish, implement, maintain and improve the EMS. "Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources. A specific management representative(should be appointed) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for: (a) ensuring that an EMS is established, implemented and maintained accordance with the requirements of this International Standard, and (b) reporting to senior management on the performance of the EMS for review, including recommendations for improvement".

In order to implement an EMS to control significant risks, ensure compliance with relevant legislation and to meet the requirements of ISO 14001, knowledge and expertise is needed covering:
- Environmental legislation
- Assessment of environmental aspects
- Pollution prevention
- Emission control
- Statutory nuisance
- Waste management
- Emergency procedures
- Environmental management systems and ISO 14001
- Internal environmental auditing

A wide range of training course are available (see internet)

Organisations can approach the development of their EMS in many different ways. For example, in larger companies staff may be directly employed whilst in smaller businesses existing staff may be trained and duties extended to include the EMS. In some instances consultants are appointed to assist with EMS development and some businesses have benefited from grant aided / funded programmes promoting EMS development.

Pros and Cons of EMS

Standards such as ISO 14001 take a comprehensive view of all of the processes of an organization - hence they are system dependent, and not person-dependent. An EMS creates a structured management system, from which a cycle of continual improvement can be established. It brings the many environmental issues of concern expressed by stakeholders into day-to-day operations and development of long term work plans and programmes. It also improves the understanding amongst an organisation's personnel of where operations interact with the natural environment and the role that various groups play. An EMS can result in both business and environmental benefits, eg helping to:

- Improve environmental performance;
- Enhance compliance;
- Prevent pollution and conserve resources;
- Reduce/mitigate risks;
- Attract new customers and markets (or at least retain access to customers and markets with EMS requirements);
- Increase efficiency/reduce costs;
- Enhance employee morale (including the possibility of enhanced recruitment of new employees);
- Enhance image with public, regulators, lenders, investors;
- Achieve/improve employee awareness of environmental issues and responsibilities.

However, developing and implementing an EMS may have some costs (see above). Some organisations (eg notably national and local governments) can face political and/or administrative barriers in effectively implementing the requirements and commitment of an EMS (particularly if a standard is being followed, such as ISO 14001). There may be a reluctance to make the necessary financial commitments. They may also lack adequate and appropriate knowledge and technologies.

One disadvantage of an EMS is that, by definition, systems suit larger organisations; the larger the organisation, the more likely it has already developed a similar systematic approach to management processes. A common approach used by small and medium sized enterprises (SMEs) to facilitate the implementation of an EMS is joint EMS implementation and group certification (eg in Sweden).

Box 2: Case Study: EMS of the Tennessee Valley Authority

The TVA is the USA's largest public energy power provider, Its EMS provides a set of processes based on best practices to help TVA meet the commitments expressed in its Environmental Policy and Principles. It has also provided a way to standardize environmental practices, a means for continual improvement , and a tool for reducing environmental risk.

Benefits: TVA's implementation of the EMS has provided some important benefits:
- Improved environmental performance
- Enhanced regulatory compliance
- Better environmental cost management
- Conservation of materials and energy
- More innovative solutions to environmental issues
- A competitive advantage.

Achievements: with the adoption of its EMS, TVA has:
- Become the first federal agency to implement an EMS at all of its facilities.
- Saved more than US$20 million through solid waste reductions and environmental training efficiencies.
- Reduced internal audit regulatory findings, including repeat findings, by 43%, the lowest in nine years. These audits verify that TVA operations are in compliance with regulatory requirements and that effective environmental measures are in place.
- Reduced the average of annual reportable environmental events by 17%. Reportable environmental events are occurrences that trigger a notification to or enforcement action by a regulatory agency.
- Saved US$4.6 million in 2005 by reducing the number of environmental training courses from 457 to 79, a result of standardization.
- Reduced sulphur dioxide and nitrogen oxide emissions to the lowest levels since all 59 coal-fired units have been in operation.
- Reduced environmental impacts by 45%.

Source: http://www.tva.gov/environment/ems/index.htm

Key sources of further information and useful web-links

Sheldon C. and Yoxon M. (2006) *Environmental Management Systems A Step-by-Step Guide to Implementation and Maintenance*. Earthscan Publications, UK
(http://www.earthscan.co.uk/?TabId=1103&v=450772)

USA EPA - information on MES resources and publications
(http://www.epa.gov/EMS/resources/index.htm)

UNEP EMS training resource kit
This kit is a practical guide to EMS designed as a 'train the trainer' tool to give trainers and company managers the elements necessary to conduct EMS courses for a variety of organizations

IEMA guidance on EMS (www.iema.net/ems)