

Best Practice Guide

ENVIRONMENTAL MANAGEMENT APPROACHES to IMPROVING THE ENVIRONMENTAL PERFORMANCE of YOUR BUSINESS



Introduction

This guide provides an introduction to the effective environmental management of industrial processes, products & services. The aim of the guide is to introduce Environmental Management, the business benefits it provides and how to implement it in your business.

What is Environmental Management?

Environmental Management encompasses a range of approaches aimed at improving the environmental performance of industrial processes, products and services. The aim of Environmental Management is to design, develop and operate industrial activities, products and services to **prevent or minimise environmental impacts** while still maintaining **economic competitiveness**. Previous approaches to environmental protection focused on managing environmental impacts e.g. wastes and emissions to air and water after they were created. The modern approach aims to prevent or minimise environmental impacts in the first place. This can bring business benefits in terms of **cost savings, competitiveness and market opportunities**.

Effective Environmental Management can be applied to any processes used in industry as well as to the products and services provided. Some examples of what is considered in applying this include the following:-

For production processes:

- Conserving raw materials, water and energy*
- Eliminating toxic and dangerous raw materials*
- Reducing the quantity and toxicity of all emissions and wastes at source during the production process.*

For products and services:

- Incorporating environmental concerns into the design and provision of products and services;*
- Reducing the environmental, health and safety impacts of products over their entire lifecycle, from raw materials extraction, through production and use, to the end of life recovery and/or ultimate disposal of the product.*



There are many concepts, methods and tools for implementing Environmental Management in industry. Some well-known approaches used in industry include:-

- Environmental Management Systems
- Eco-efficiency
- Waste Management & Waste Minimisation
- Energy Efficiency
- Resource Productivity
- Ecodesign / Design for Environment. Life-cycle analysis.

IS ENVIRONMENTAL MANAGEMENT ONLY FOR LARGE COMPANIES?

Environmental Management approaches apply to all businesses irrespective of size or industry sector. Small and Medium-sized Enterprises (SMEs) as well as large and multinational corporations can gain business benefits and improve their environmental performance using these approaches.

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The Business Case

Increasingly stringent legislation as well as market and financial drivers for demonstrating good environmental business practices are creating a strong business case for Environmental Management. Effectively managing environmental impacts can improve a company's profitability as well as environmental performance.

Direct business benefits include:-

- Cost savings from reduced raw material and utility consumption;
- Reduced waste collection, treatment and disposal costs, especially in the case of hazardous waste;
- Improved process control and product quality;
- Ongoing compliance with legal obligations and reduced liability associated with poor environmental performance;
- Improved relationships with key stakeholders e.g. customers, suppliers, shareholders, regulatory authorities and local communities;
- Improved opportunities for marketing features leading to increased sales;
- Expanding market opportunities;
- Improved competitiveness;
- Capability building;
- Improved business reputation.

Other, less obvious benefits can include reduced insurance premiums, increased employee motivation and an improved working environment. All of these measures will cut costs. Whatever stage a business is at, investigating what environmental management can bring to the business will both benefit the bottom line and improve relationships with key stakeholders such as financial institutions, customers and local communities.

Further information on the financial and market issues driving good environmental performance are outlined in the boxes below.

Financial issues

The lower the environmental performance of a business, the higher the financial costs it will pay. These include increased costs for utilities e.g. energy costs and the costs of waste collection, recovery, reuse, recycling or disposal. This provides a significant financial motivation to reduce costs through increased resource efficiencies and waste prevention or minimisation. Typically, the cost of wasted raw materials, water and energy etc. is 10 times the cost of waste disposal - so action to improve resource efficiency will usually lead to significant cost savings. In terms of products, 80% of the environmental impacts and associated costs are determined at the design stage. Therefore, there are real opportunities for building in environmental and cost efficiencies at source when designing your products and services.



Market Issues

Pressure from customers to demonstrate good environmental performance is an increasing market driver for industry. This is particularly the case for Business to Business operations that experience this pressure from customers through their supply chain. Large



organisations are increasingly requiring evidence of good environmental practices e.g. ISO14001 Environmental Management System certification from their suppliers, some specifying it as a prerequisite to doing business. Furthermore, depending on the business, demonstrating sound environmental performance is key to maintaining a company's corporate reputation and market position.

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How to Get Started

To help a business get started, this section outlines the [Key Steps](#) to be considered in seeking to improve environmental performance. More detail on key steps can be found in:

1. Enterprise Ireland's Environmental Best Practice Guidance Notes for a range of Industrial Sectors; Metal Plating, Finishing & Coating, Furniture Manufacture, Print & Packaging, Preparation of Waste Management Plans for Construction and Demolition Projects. <http://bit.ly/1IMvgiy>
2. Environmental Management Case Studies in a range of Industrial Sectors <http://bit.ly/1BHA0IY>

New or Existing Business?

For new business, the prevention and minimisation of environmental impacts should be included as key criteria when designing its activities, products & services as well as site infrastructure and buildings. Incorporating environmental considerations at this stage can prevent environmental problems and the high costs associated with “end of pipe” clean up solutions. For existing businesses, Environmental Management can be retrofitted into your activities, products and services as well as incorporated when developing new activities or expanding facilities.

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4.1 KEY STEPS

LAYING THE FOUNDATIONS

Gain commitment to managing environmental issues from the most senior personnel in the company.

Nominate an environmental champion in the company to focus on environment.

If there is no environmental expertise in the company consider incorporating this through the use of external expertise e.g. environmental consultants on a temporary basis to transfer expertise into the company. This is particularly useful for initially identifying and understanding the environmental impacts and legal compliance obligations.

Incorporate environmental objectives to be achieved in the company policy and develop an environmental action plan for implementing them.

Involve company personnel from each department (e.g. finance, production, purchasing etc...) from the beginning to ensure buy in and commitment.

Conduct training sessions on your environmental issues to ensure awareness and understanding.

IDENTIFYING SIGNIFICANT ENVIRONMENTAL IMPACTS

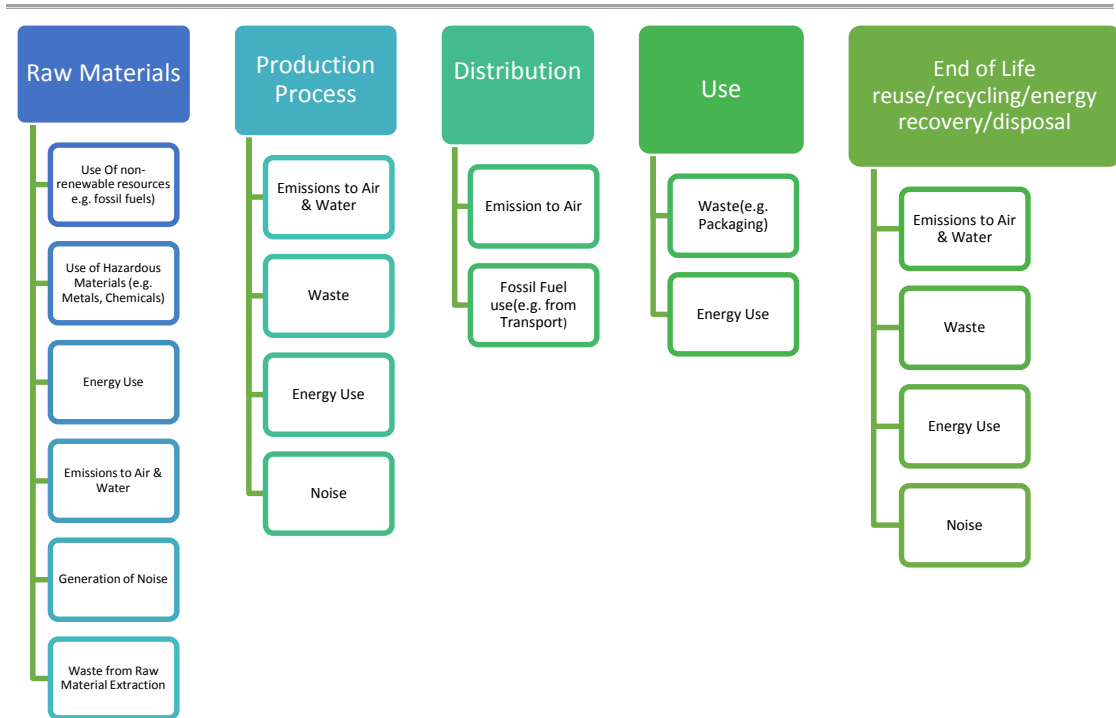
In order to manage the environmental impacts of a business appropriately, it is necessary to identify and quantify them. This can be achieved through an environmental audit. An environmental audit should identify the following:-

- Key significant environmental impacts associated with activities, products and services.
- Specific environmental legal obligations as well as market and financial drivers for improving environmental performance relevant to the business.

Consider the environmental impacts associated with all of the business activities as well as the products and services provided for each lifecycle stage (e.g. raw materials, production process, distribution, use and end of life reuse, recycling, energy recovery or disposal). Identify and quantify the inputs and outputs. Some examples of the issues to consider for each life cycle stage of a typical product manufacturing process are illustrated in **Figure 1** below.

Use the Resource Loss Mapping and Process Loss Reduction Guidance Notes <http://bit.ly/1Dlp8Gf> as a guide to identifying inputs and outputs.

Figure 1 Environmental impacts to consider for each lifestage stage



CLEAN PROCESSES, PRODUCTS AND SERVICES

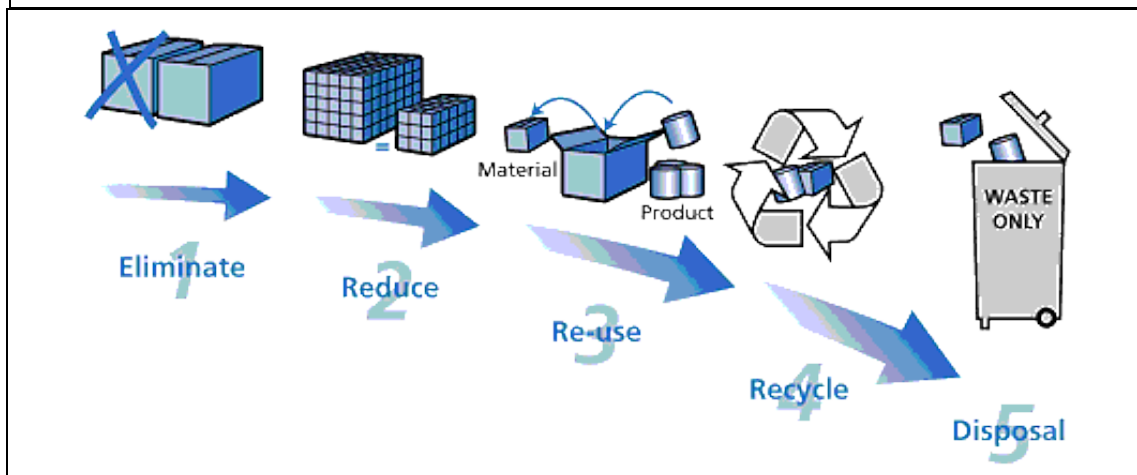
Once you understand the environmental impacts and the legal, market and financial drivers the next step is to identify the opportunities for preventing and minimising these environmental impacts.

Set realistic objectives and targets for improving environmental performance and an action plan with designated responsibility for achieving them.

The hierarchy of options for managing environmental impacts are described in **Figure 2** in order of priority of best environmental options. This is illustrated using waste as an example.

Figure 2: Hierarchy of options for managing environmental impacts

1. **Eliminate**, where possible at source, significant environmental impacts associated with activities, products and services e.g. waste, emissions to air/ water and noise;
2. Where this is not possible, **reduce** environmental impacts through more efficient resource usage, waste minimisation or appropriate controls;
3. Aim to **re-use** production and end of life waste materials as raw materials where feasible;
4. Where waste cannot be reused, **recycle** it as a raw material for another product or as fuel for energy generation;
5. As a last option, appropriately **dispose** of waste using contractors with suitable licences or permits and maintain records of this disposal



Click for a [CHECKLIST](#) of issues to consider within this hierarchy for the overall design of products & services and for each lifecycle stage.

CONTINUOUSLY MANAGING ENVIRONMENT IMPACTS

Environmental Management Systems (EMS) provides a formal specification or route map for continuously managing environmental impacts and improving environmental performance. All of the key steps above are incorporated in an EMS. The ISO14001 standard and Eco-Management and Audit Scheme (EMAS) are EMS specifications to which companies can become certified. This certification provides a third party validation that environmental impacts of a business are being appropriately managed. Click here for further information on EMS <http://bit.ly/1PCCLFV>

COMMUNICATION & REPORTING

Demonstrating and communicating good environmental performance is increasingly important for companies, especially in certain industry sectors with recognisable environmental impacts. Environmental reporting is increasingly used to communicate information on environmental performance to stakeholders. Specific industrial activities e.g. those subject to Integrated Pollution and Prevention Control (IPPC) licences have legal reporting obligations e.g. Annual Environmental Reports. Outside of these more and more companies are including environmental performance in their annual reports or producing separate reports. The Global Reporting Initiative defines useful guidance on the content of environmental reports.

See <https://www.globalreporting.org/Pages/default.aspx> for further information.

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Practical Supports and Information Sources

Information and some financial supports are available for improving the environmental performance of a business are available from the following sources:-

- **Enterprise Ireland** <http://www.enterprise-ireland.com/en/Productivity/Build-a-green-sustainable-Business/>
- **Environmental Protection Agency** through their Green Enterprise Programme originally known as the Cleaner Greener Production Programme (CGPP) <http://greenbusiness.ie/case-study-cat/cgpp/>
- **Bord Iascaigh Mhara** through their Seafood Environmental Management & Certification Grant Aid Scheme <http://bit.ly/1FNMdRr>
- **Sustainable Together through Environmental Management (STEM) project** (Eligible to SME's in Cavan, Monaghan, Louth and Monaghan) <http://www.stemproject.com/>

Click on the links below for further information sources on Environmental Management approaches to improving the environmental performance of your business.

EPA BeGreen Programme: Preventing Waste & Saving Money http://www.epa.ie/begreen/#.VL_PwUqvncs

EPA Towards a Resource Efficient Ireland: A National Strategy to 2020 <http://bit.ly/1aWCmyr>

EPA Cleaner Greener Production Programme: Case studies 2008-2012 <http://bit.ly/1FNNqrN>

Clean Technology Centre, Cork <http://www.ctc-cork.ie/>

Green Business <http://greenbusiness.ie/>



SMILE Resource Exchange

<http://www.smileexchange.ie/>

Origin Green

<http://www.origingreen.ie/>

Sustainable Energy Authority of Ireland

http://www.seai.ie/Your_Business/

International Organization for Standardization (ISO)

<http://bit.ly/IOiA9x>

National Standards Authority of Ireland

<http://www.nsai.ie/NSAI/files/6b/6b1d7f65-35c5-4b1e-a8e6-5431982da140.pdf>

Certification Europe

<http://certificationeurope.com/iso-14001-environmental-management-certification/>

DQS Certification Ireland Ltd

<http://www.dqsireland.ie/iso-14001-environmental/iso-14001.201.html>

European Management and Audit Scheme

http://ec.europa.eu/environment/emas/index_en.htm

European Integrated Pollution Prevention & Control Bureau

<http://eippcb.jrc.ec.europa.eu/>

International Network for Environmental Management

<http://www.inem.org/>

United Nations Environmental Programme Resource Efficiency

<http://www.unep.org/resourceefficiency/Home/tabid/55480/Default.aspx>

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APPENDED CHECKLIST

LIFECYCLE	ISSUES TO CONSIDER
Design of products and services to be provided	<ul style="list-style-type: none"> Integrate environmental considerations into the design of products and services in order to prevent or minimise their environmental impact while still meeting the required functionality. For product manufacturers, consider options e.g. leasing or renting products instead of direct sales and/or provision of product repair, upgrade or end of life recovery services. These options can have environmental and commercial benefits.
Raw Materials	<ul style="list-style-type: none"> Substitute hazardous materials with non-hazardous alternatives e.g. water based vs. solvent-based chemicals. Design products to have an extended working life instead of built-in obsolescence. This reduces waste. Use modular designs, upgradeable for new technology which can be repaired and maintained. Chose raw materials & designs to facilitate eventual end of life disassembly, recovery, reuse or recycling. Choose renewable resources over non-renewable resources (e.g. fossil fuels, metals, certain types of timber) where possible. Choose timber from sustainably managed sources e.g. those with Forestry Stewardship Council (FSC certification) Minimise the volume of raw materials used. Minimise use of utilities e.g. water and energy. Consider the impacts of raw material extraction when choosing raw materials e.g. metals, minerals, timber. Aim to choose those with a reduced impact.
Raw materials (Packaging)	<ul style="list-style-type: none"> Eliminate packaging where possible. For business customers eliminating packaging can be a cost saving to your customer. Use a packaging design and raw material type in order to minimise the layers of packaging required, while still meeting the functionality required. Use one type of packaging material as distinct from mixed materials as this facilitates collection of waste packaging for reuse, recycling or disposal Use reusable, returnable containers vs. single-use disposable. Use bulk containers vs. portable Consider biodegradable packaging materials where long life packaging is not required e.g. food.
Production Process	<ul style="list-style-type: none"> Design production process to minimise waste generation, noise, emissions to air and water. Use utilities, e.g. energy and water, as efficiently as possible. For high water users, recover water for reuse. Use specific Cleaner Production technologies, relevant to your industry sector, (See BAT Refs or BATNEEC Guidance Notes for specific technologies per sector). Recover production waste for reuse as raw materials where feasible, e.g. reuse of solvents. Where wastes cannot be reused on site, segregate & collect for recycling or disposal.



	<ul style="list-style-type: none"> • Only use waste contractors for collection, recovery or disposal with appropriate licenses or permits • Maintain records of waste generated, collection and proof of final recovery or disposal. • Monitor your emissions to air and water and the generation of noise at regular intervals based on legal obligations.
Distribution	<ul style="list-style-type: none"> • Design storage, distribution and transport to prevent and minimise environmental impacts. • Minimise fuel usage and emissions to air by optimising transport.
Use	Prevent or minimise adverse environmental impacts when a product is in use e.g. minimise energy usage of electronics goods.
End of Life	Minimise environmental impacts of products at their end of life by designing products with an extended product life and facilitate their disassembly, reuse and recycling at eventual end of life.

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