

improving environmental performance

Sector plan for the cement industry

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The Environment Agency. Out there, making your environment a better place.

Published by:

Environment Agency
Rio House
Waterside Drive, Aztec West
Almondsbury, Bristol BS32 4UD
Tel: 0870 8506506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

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Foreword

In *Delivering for the Environment – a 21st Century Approach to Regulation*, the Environment Agency has set out how it is seeking to improve the effectiveness and efficiency of its regulatory approach. We are aligning our regulatory priorities to address the environmental outcomes and targets that we have identified in our Environmental Vision and Corporate Strategy. We are also encouraging businesses to have the environment at the centre of their thinking. To progress these objectives, we are identifying and addressing the priority environmental issues resulting from the activities of individual sectors

We are developing and implementing environmental improvement plans for regulated business sectors. These are known as Sector Plans. The purpose of sector plans is to:

- focus on the most significant risks the sector poses to and the impacts it has on the environment;
- improve the sector's environmental management and performance;
- prioritise and target our effort within and across sectors;
- monitor progress in delivering the environmental improvements.

Cement is one of the most widely used products in the world, and most of us benefit from the houses, roads and public facilities that cement has helped to build.

The environmental consequences of cement industry operations include resource extraction (fuel and raw materials), dust emissions, gaseous air pollutants (including greenhouse gas emissions) waste generation and waste recovery. Over recent years, the industry's record in reducing emissions from normal operations has been good. The challenge ahead is for the industry to reduce these impacts further, including the use of improved cement kiln technology, pollution control equipment and sound environmental management.

This plan provides an overview of the cement industry and its impact on the environment. It identifies what the sector, the Environment Agency and others must do to improve its performance, in order to deliver environmental benefit. This is not the end of a process but a beginning, and we will revisit this analysis. With continued investment and sound management, the industry can make positive progress.

Barbara Young
Chief Executive
Environment Agency

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1. BACKGROUND

This document sets out the Environment Agency's Sector Plan for the Cement Industry in England and Wales. The aim of the Plan is to improve further the industry's performance in order to deliver environmental benefit. It has been produced jointly with the industry and forms a framework of agreed national environmental objectives and priorities for the sector over the next five to ten years. The Plan includes an overview of the salient environmental and economic issues for the sector and comprises a set of high level objectives and indicators of performance covering both statutory and non-statutory activity. The Plan is a working document and will be the subject of consultation among stakeholder organisations. It will be regularly reviewed, taking comments received into account.

A programme of key actions to deliver the objectives is being developed in parallel to this Plan and is summarised in section 5. Some of the actions are required by environmental regulations whilst others are voluntary. This Plan covers actions that both the Environment Agency and the industry need to undertake in order to achieve the desired outcomes.

The Cement Industry has agreed to use this framework as a basis in England and Wales to set environmental performance targets, monitor performance against the targets and report publicly on its performance annually through the British Cement Association (BCA).

Sector Plans should result in a more structured and systematic approach to environmental regulation within and between industry sectors. The Cement Sector Plan is intended, in particular, to:

- define the environmental objectives to be achieved across the sector;
- contribute to sustainable development;
- identify opportunities for the cement sector to work with other sectors on a co-ordinated basis, on issues such as the recovery/ reuse of wastes, to achieve wider benefits;
- help to identify best practicable environmental options.

All BCA member companies are signatories or supporters of the Cement Sustainability Initiative (CSI) 'Agenda for Action', which was developed by worldwide cement producers in conjunction with the World Business Council for Sustainable Development (WBCSD). A summary appears in **Annex 1**. The areas considered in the 'Agenda for Action' are very similar to those in this Sector Plan. The opportunity exists for companies to work together to help achieve the objectives, while also benefiting from the industry's experience worldwide.

The Environment Agency has significant regulatory responsibilities and will ensure that these are enforced appropriately. However, one of the main features of this Plan is to identify those parts of cement production, use and disposal that have greatest environmental impact and to identify areas where we may be able to work with the industry to achieve further benefit to the environment.

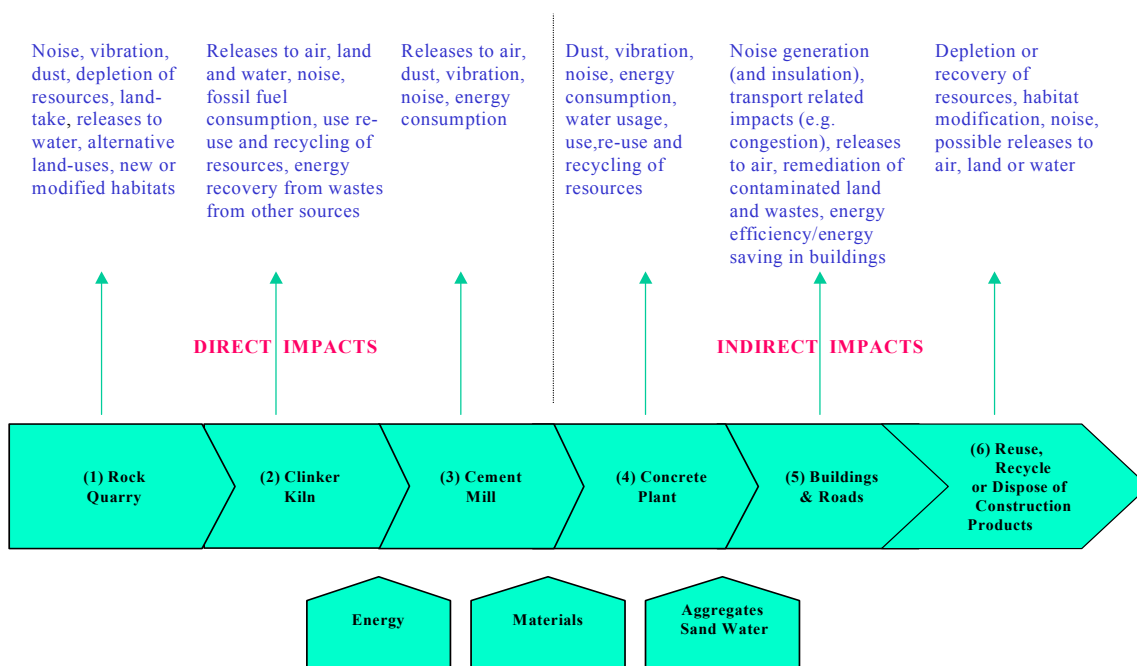
This first version of the Plan provides an initial view of the objectives considered to be the most important, but it does not reflect an exhaustive analysis of the issues. We and the Cement Industry will need to identify gaps in knowledge and ensure that research is commissioned to address these. In addition, in developing the Plan, we will need to ensure effective liaison with key stakeholders.

2. OVERVIEW

2.1 Cement Production

The principal stages in the production, use and disposal of cement and the key environmental impacts appear in **Figure 1** below. Limestone or chalk is quarried and transported to the manufacturing plant. There, it is burned at high temperatures with clay or shale, sand and iron oxide to form clinker. The clinker is then ground up with gypsum and other constituents to produce cement. The majority of the cement is distributed by road or rail in bulk form to the ready mix industry or precast concrete manufacturers, and some is bagged for sale to builder's merchants and DIY outlets. Concrete is the most widely used material in the construction industry.

Figure 1: Principal stages in production, use and disposal of cement and key potential environmental impacts



2.2 Key Environmental Issues

Environmental impacts from cement manufacturing are principally regulated by the Environment Agency, under the Pollution Prevention and Control (PPC) regime. The Industry's primary focus is on clinker manufacture (stages 1, 2 and 3 in Figure 1) but its Agenda for Action and the Environment Agency's Vision have implications for all stages of the production and use of cement and the disposal of construction and demolition wastes. Economic considerations, the use of raw materials, waste materials and energy are key influencing factors in the sector's environmental performance.

The environmental consequences of cement industry operations include resource extraction (fuel and raw materials), dust emissions, gaseous air pollutants including greenhouse gas emissions, and other effects (noise and vibrations, water use and pollution, and waste generation). Nationally, the main environmental impacts of the cement manufacturing industry are:

- releases to air of nitrogen oxides (NO_x)¹, sulphur dioxide (SO₂), particulates and carbon dioxide (CO₂);
- use of resources, especially primary raw materials and fossil fuel; and
- generation of waste.

¹ In this document, 'nitrogen oxides' and 'NO_x' refer to nitric oxide (NO) and nitrogen dioxide (NO₂) expressed as NO₂.

The Sector Report for the cement industry² provides further detail of the environmental pressures and impacts.

Over recent years the industry has a good record in reducing its environmental impacts, as illustrated in **Figures 2 and 3** below³. The industry's use of some alternative fuels and raw materials has helped to reduce the extraction of virgin raw materials and fossil fuels, reducing use of landfill and in some cases reducing gaseous emissions.

Figure 2: Sulphur dioxide and nitrogen oxides emissions to air from cement processes in England and Wales

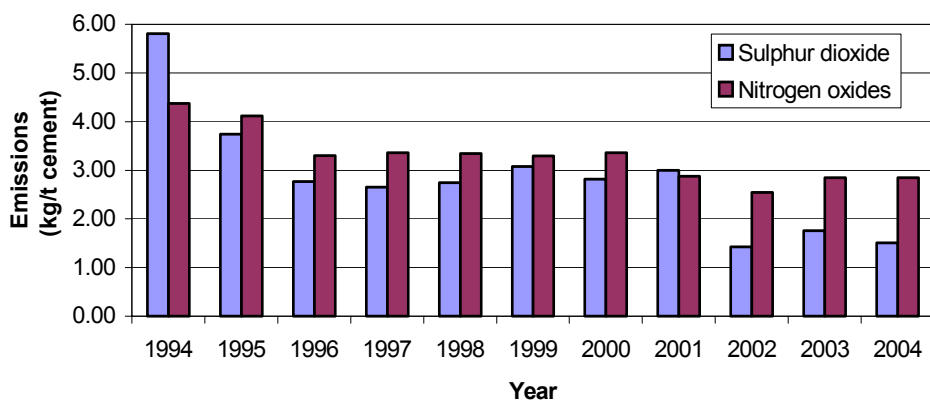
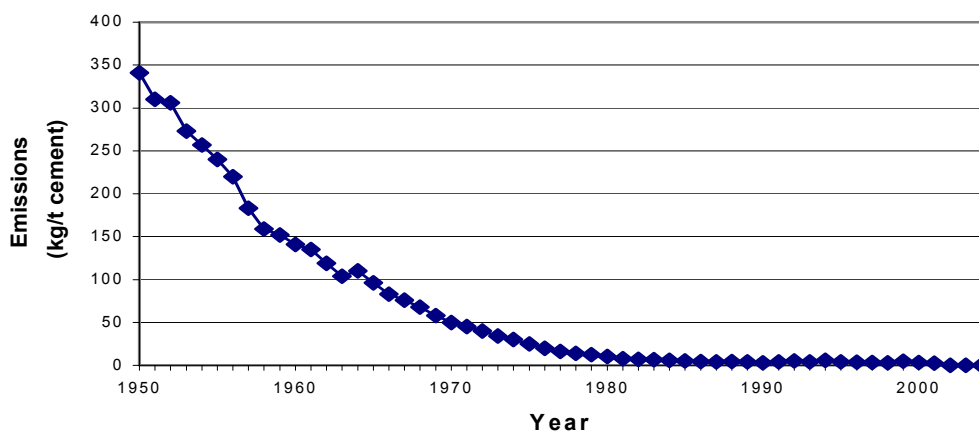


Figure 3: Dust emissions to air from cement processes in the UK



² The Sector Report is available from www.environment-agency.gov.uk/sectorplans

³ Data supplied by the British Cement Association

2.3 Raw materials

To produce one tonne of clinker the typical average consumption of raw materials in the EU is 1.54 tonnes with most of the residual material being lost as carbon dioxide emissions to air. These raw materials comprise natural calcareous deposits (limestone or chalk), silica, iron oxide and alumina, which are found in various ores and minerals. Other materials such as pulverised fuel ash and blast furnace slag may be used as partial replacements for some of these raw materials.

2.4 Energy use

The cement industry is an energy intensive industry with energy costs typically accounting for 30-40 per cent of production costs. Various fuels can be used to provide the heat for the calcination and clinker process⁴, the most common fuels being coal and petcoke. However, the cement industry is increasingly seeking to use waste-derived substitute fuels such as scrap tyres or substitute liquid fuels, where these cannot be technically and economically recovered or recycled further up the waste hierarchy. The Environment Agency considers each individual application to burn waste fuel on its own merits, to ensure that the environment and health are protected. It is recognised that the cement industry has already signed a voluntary agreement to manage its use of energy under the Climate Change Agreement (CCA)⁵.

2.5 Emissions to air

Clinker making is the main source of emissions to air from cement production's manufacturing stage, with oxides of nitrogen (NO_x), sulphur dioxide (SO₂) and dust the most significant emissions⁶. Fugitive dust emissions, that arise from activities such as quarrying, raw material and product handling are also a potentially significant source. Whilst dust abatement has widely applied for more than 50 years and SO₂ is a plant-specific issue, technologies for the abatement of NO_x are relatively new.

2.6 Use and disposal of manufactured cement products

Construction and demolition activities generate around a quarter of all the waste produced by the UK. Concrete is just one of the principal waste materials involved; others are soil, ballast, asphalt, bricks, tiles, plaster, masonry, wood, metal, paper, glass and plastic. A high proportion of this waste can be recycled and re-used. Tools such as the landfill tax and the aggregates levy have helped boost such initiatives. The Cement Industry can encourage its customers to use and dispose of products in an environmentally responsible way. The BCA's sustainability programme for the cement and concrete construction sector identifies a range of initiatives in this field.⁷ We are currently developing a Sustainable Construction Strategy in consultation with industry and other stakeholders.

2.7 Impacts on land and habitats

Individual quarries and manufacturing sites are often in rural areas and tend to impact on landscape and natural habitat. Restoration of quarry and industrial plant sites following closure is subject to control by local planning authorities and cement companies are also engaging in voluntary measures such as biodiversity action plans. Under the WBCSD's "Agenda for Action", cement companies are already committed to devising restoration plans for existing operating quarries by 2006 and similar plans for cement plant sites when appropriate.

⁴ The raw materials are heated in a kiln to temperatures in excess of 1,450 degrees Centigrade to produce a chemical reaction ('calcination') that changes them into cement clinker.

⁵ Voluntary agreements under the CCA operate alongside conditions concerning energy efficiency contained in Pollution Prevention and Control (PPC) Permits.

⁶ In relation to benchmarks for the protection of health and the environment. See Environment Agency IPPC guidance 'H1 Environmental Assessment and BAT Appraisal'

⁷ See BCA's 'Sustainable development and the cement and concrete construction sector – Interim Report 2003'

2.8 Environment & Health

The Environment Agency has regulatory responsibilities for the protection of the health of people including those living close to sites that it regulates.⁸ We consider the protection of human health alongside the protection of the environment and addressing the health concerns of local communities often requires a significant investment of time and resources by all parties. We are looking at good practice examples of engagement with local stakeholders to build trust and improve the permitting process. For example, evidence suggests that operators can better demonstrate their environmental competence and social responsibility to local communities by engaging with those communities prior to applying for environmental permits. This is especially the case where local stakeholders may consider an application to be contentious, such as for the introduction of a new alternative fuel.

2.9 Scope of activities covered by the Plan

As well as the environmental pressures from the basic manufacturing operation, cement production also impacts on the environment in many other ways, as Figure 1 illustrates. We have therefore defined the scope of the Plan to include the following areas:

- The winning of raw materials;
- The manufacturing process;
- Packing and transport;
- Product use;
- Disposal and reuse.

The main focus of this first edition of the Plan is, though, on the key impacts that are controlled directly by the Cement Industry (covering Figure 1's stages 1, 2 and 3 and aspects of stage 6). As the Plan develops it will seek to gauge in more depth the key issues that are not directly controlled by the industry.

2.10 Sector plan stakeholders

The key stakeholders for the Cement Industry are:

- Government, including DTI⁹, DEFRA¹⁰ and National Assembly for Wales;
- Regulatory bodies, including the Agency and local authorities;
- Members of the public;
- Non-governmental organisations representing various stakeholder groups;
- Customers for cement industry products;
- Industry employees;
- Industry shareholders.

2.11 Legal obligations

The legislation of most significance for the environmental impacts of the cement industry covers:

- Pollution Prevention and Control (PPC) and Integrated Pollution Control;
- Waste Incineration (including incineration of Hazardous Waste);
- Waste Management Licensing, Duty of Care and other waste matters;
- EU Emissions Trading Scheme
- Protection of Habitats and Wildlife;
- Water Resources;
- Town and Country Planning;
- Competition and Finance.

2.12 Regulatory Approach and Performance

The Environment Agency seeks to apply effort in proportion to the environmental and human health risks involved, working with those we regulate to ensure the most effective outcome for the local community and the environment. We are reviewing the potential to improve the efficiency and effectiveness of regulatory policies and procedures with major impact on the cement sector, including decision-making on use of Substitute Fuels and the legal definition of waste.

⁸ In assessing health impacts, the Agency relies largely on the advice of the Department of Health and Chief Medical Officer and his advisory committees, as well as the Primary Care Trusts in England and the Local Health Boards in Wales. The Food Standards Agency is also consulted.

⁹ Department of Trade and Industry

¹⁰ Department for the Environment, Food and Rural Affairs

3. SECTOR OBJECTIVES

Having reviewed the significant environmental impacts of the Cement Industry, we and the Industry have initially identified nine principal objectives to deliver “outcomes” in England and Wales through implementation of the Cement Sector Plan. These objectives reflect our and the Cement Industry’s commitments to delivering their contributions to sustainable development as defined in our “Vision for the Environment” and the Cement Industry’s “Sustainability Initiative”. The initial nine objectives have been selected to address priority environmental improvements. There are some aspects of cement’s production, use and disposal cycle that are not covered in the Plan’s initial objectives and we will consult industry and other stakeholders on the case for including further objectives as the Plan progresses, taking into account instances (such as water use) where objectives have already been set by some individual cement companies. The table below sets out the Environment Agency’s nine environmental themes, and identifies aspects of cement making that make a potential impact against these themes and the overall importance of the theme.

		Quarrying	Clinker Kiln	Cement Mill	Overall sectoral importance
Agency themes	A better quality of life	√	√	√	High
	An enhanced environment for wildlife	√	√		Medium
	Cleaner air for everyone	√	√	√	High
	Improved and protected inland and coastal waters	√			Low
	Restored, protected land with healthy soils	√	√		Medium
	A ‘greener’ business world	√	√		Medium
	Wiser, sustainable use of natural resources	√	√	√	High
	Limiting and adapting to climate change	√	√	√	High
	Reducing flood risk				Low

The Plan’s initial principal objectives are as follows:

- Objective 1** To reduce the consumption of natural resources per tonne of cement (PCe¹¹) manufactured.
- Objective 2** To reduce the amount of cement process waste residues disposed of per tonne of cement (PCe) manufactured.
- Objective 3** To reduce pollution from cement manufacturing.
- Objective 4** To reduce emissions of greenhouse gases per tonne cement of (PCe) manufactured.
- Objective 5** To optimise the sustainable use of wastes from other industries or sources

¹¹ PCe = Portland Cement equivalent. Where practicable, a normalizing factor of tonnes of PCe is to be used in establishing the Sector Plan’s performance indicators. The unit of tonnes of Portland Cement is already widely used by the cement industry to express production output. The use of a normalizing factor enables environmental impacts to be directly related to cement production output, for example tonnes of sulphur per tonne PCe. This also allows direct comparisons to be made with pollution data between kilns and companies.

- Objective 6** To develop site restoration plans and biodiversity action plans.
- Objective 7** To improve transparency, understanding and engagement between the Agency, industry and other stakeholders.
- Objective 8** To work to risk-based regulatory and environmental management systems.
- Objective 9** To promote product stewardship & wider supply chain benefits

4. INDICATORS OF PERFORMANCE

This section of the Plan identifies the Indicators of Performance that will be used to assess progress in achieving the objectives. They are set out against each objective in turn. All Indicators should, where possible, be published in a form that compares current performance with that of previous years. Agreed methods for measuring progress are being devised.

Objective 1:

To reduce the consumption of natural resources per tonne of cement (PCe) manufactured

Background

The cement industry uses large quantities of naturally occurring materials such as limestone and clay. It also consumes a large amount of fossil fuels. The extraction of these materials can have major impacts on the environment and a reduction in the amount of these materials is to be encouraged. Further benefits are to be had by replacing these materials with waste that would otherwise need to be disposed of through e.g. landfill or incinerator, where such replacement is environmentally sustainable. Cement kilns will only be allowed to burn waste-derived substitute fuels where they cannot be technically and economically recovered or recycled further up the waste hierarchy.

Performance Indicators:

1.1 Use of natural raw materials per tonne PCe manufactured

1.2 Use of fossil fuels for primary energy per tonne PCe manufactured

Targets

	<u>Units</u>	1998 (reference year)	2006	2010
1.1	kg/te PCe	1468	1428	1413
1.2	kWh/te PCe	1103	973	764

Objective 2:**To reduce the amount of cement process waste residues disposed of per tonne of cement (PCe) manufactured****Background**

At the top of the waste hierarchy is the need to reduce the amount of waste that is produced. As with most industrial processes, the cement industry produces waste that it must dispose of. There is a need to look at how the amount of waste can be minimised as well as securing opportunities to recycle waste back into the process. In these regards Cement Kiln Dust (CKD) is of particular concern to the cement sector because it constitutes a high proportion of the total amount of waste generated.

Performance Indicators:**2.1 CKD (i) recovered off-site; (ii) disposed of per tonne PCe manufactured****2.2 Other waste (i) recovered off-site; (ii) disposed of per tonne PCe manufactured****Targets**

	<u>Units</u>	<u>1998 (reference year)</u>	<u>2006</u>	<u>2010</u>
2.1(i)	kg/te PCe	0	1.29	1.07
2.1(ii)	kg/te PCe	22.9	10	7.5
2.2(i)	kg/te PCe	0.79	1.5	1.5
2.2(ii)	kg/te PCe	4.17	3.5	3

**Objective 3:
To reduce pollution from cement manufacturing**

Background

A key requirement of the PPC permitting regime is to identify and reduce significant local environmental and human health impacts. The proportion of cement plants requiring improvement to achieve such reductions is therefore a key measure of the general extent of the sector's local impacts.

Our guidance, as well as the environmental impact assessments done for the cement works, highlights SO₂, NO_x and dust as the substances for priority control with regard to both local impacts and contribution to longer range impacts. These substances are included in the Government's Air Quality Strategy, the principal objective of which is to protect human health. SO₂ and NO_x emissions also contribute to acidification and eutrophication of soils and water. These substances will be targeted for reduction over the short to medium term. The relative importance of other substances will be assessed under the PPC regime. Air emissions from transport need to be assessed to discover their contribution to the sector's total releases.

Performance Indicators:

- 3.1 Number of sites requiring action to reduce local environmental impacts¹²**
- 3.2 Dust¹³ emissions to air per tonne PCe manufactured**
- 3.3 NO_x emissions to air per tonne PCe manufactured**
- 3.4 SO₂ emissions to air per tonne PCe manufactured**
- 3.5 Total environmental burden to air¹⁴**

Targets

	<u>units</u>	<u>1998 (reference year)</u>	<u>2006</u>	<u>2010</u>
3.1	number	2	2	0
3.2	kg/te PCe	0.33	0.2	0.15
3.3	kg/te PCe	3.34	2.8	2.5
3.4	kg/te PCe	2.56	1.5	1.1
3.5	burden value	1807	1237	1054

¹² Number and proportion of sites where pollution reduction is required via a PPC Improvement Programme to satisfy an existing statutory local environment action plan. This assessment includes the impact of fugitive dust emissions.

¹³ Measured as Total Particulate. This comprises all particle fractions including PM₁₀

¹⁴ Mass divided by Environmental Assessment Level for NO_x, SO₂ and Particulate

Objective 4:**To reduce emissions of greenhouse gases per tonne of cement (PCe) manufactured****Background**

Greenhouse gas emissions have become one of the most important international issues. The cement industry's manufacturing plants emit CO₂ from burning fossil fuels and the calcination of limestone or chalk. They also indirectly generate such greenhouse gases by using electricity. The industry also produces CO₂ through transport activity. Measures to reduce these emissions need to be investigated and include the reduction of the use of fossil fuels. Reducing CO₂ emissions will be a key, on-going programme. Air emissions from transport need to be assessed to discover their contribution to the sector's total releases.

Performance Indicators:

- 4.1 Emissions of CO₂ directly from cement plants per tonne PCe**
- 4.2 Emissions of CO₂ from combustion of fossil fuel at cement plants per tonne PCe**
- 4.3 Emissions of CO₂ from calcination of raw materials per tonne PCe**

Targets

	<u>Units</u>	<u>1998 (reference year)</u>	<u>2006</u>	<u>2010</u>
4.1	kg/te PCe	924	847	833
4.2	kg/te PCe	387	324	273
4.3	kg/te PCe	520	512	512

Objective 5:

To optimise the sustainable use of wastes from other industries or sources

Background

The disposal of waste is a major issue in the UK. One of our priorities is for waste to be regarded as a potential resource, with efficient re-use and recycling becoming the social norm. The cement industry has long been pursuing the use of waste materials as a substitute for conventional raw materials and fuels in the manufacturing process. This has the environmental consequence of reducing the use of natural resources, finding a beneficial use of waste and minimising national emissions of CO₂. The use of these materials can also produce reductions in emissions to air of other pollutants, principally oxides of nitrogen.

However, cement kilns will only be allowed to burn waste-derived substitute fuels where they cannot be technically and economically recovered or recycled further up the waste hierarchy. This means that over the longer term there may be an optimum level of fuel substitution, determined by the availability of suitable waste streams and development of alternative options higher up the waste hierarchy. The targets set for the use of wastes over the 5 year period of this plan are based on currently projected availability. Development of guidance on the best practicable environmental options for specific waste streams, informed by Life Cycle Assessment, may assist in setting practical targets in the longer term.

Performance Indicators:

- 5.1 Mass of waste recovered as fuel per tonne PCe manufactured
- 5.2 Mass of waste recovered as raw materials per tonne PCe manufactured
- 5.3 Proportion of fuel comprising waste material
- 5.4 Proportion of raw materials comprising waste material
- 5.5 Proportion of Environment Agency permit decisions to allow use of substitute fuels that are determined within target time¹⁵

Targets

	units	1998 (reference year)	2006	2010
5.1	kg/te PCe	9.64	14	21
5.2	kg/te PCe	25.7	50	100
5.3	mass %	5.7	10	15
5.4	mass %	1.7	4	8
5.5	%	NA	75% within 6 months	75% within 4 months

¹⁵ Statutory determination period is 3 months. The targets are set by taking into account elapsed time for information notices and extended consultation.

Objective 6:**To develop site restoration plans and biodiversity action plans****Background**

Individual quarries and manufacturing sites are often in rural areas and tend to impact on landscape and natural habitat. The selection of location and siting of new quarries and plant will include Environmental Impact Assessment as part of planning requirements. The cement sector, as part of the WBCSD agenda, has also developed Environmental and Social Impact Assessment guidelines for integration into the decision making process.

Following their closure, quarry and plant sites need to be considered on a case-by-case basis to assess their potential environmental, social and economic value to the local community. Restoration plans are agreed with local planning authorities and are most effective when drawn up in conjunction with relevant local stakeholders.

Cement industry sites may be in areas that have ecologically sensitive wildlife species or biodiversity-rich habitats. The development of biodiversity action plans is a mechanism for identifying and protecting the biodiversity of species on these sites, which will contribute to the promotion of biodiversity in the UK.

Performance Indicators:

6.1 Proportion (and number) of existing operating quarries that have restoration plans

6.2 Proportion (and number) of appropriate sites that have, or are linked to, biodiversity action plans

Targets

units		1998 (reference year)	2006	2010
6.1	% (number)	94 (35)	100	100
6.2	% (number)	0 (0)	80 (12)	100 (15)

Objective 7:**To improve transparency, understanding and engagement between the Agency, industry and other stakeholders****Background**

It is important that all stakeholders know how environmental goals and objectives for the industry can be achieved and what barriers exist. In particular, we and industry should look to build upon initiatives to engage with the public to achieve the environmental benefits of the use of waste resources.

Performance indicators

- 7.1 Proportion (and number) of plants using community communication tools
- 7.2 Proportion (and number) of substitute fuel proposals during the year that were pro-actively communicated by companies to local communities
- 7.3 Proportion (and number) of local liaison meetings attended by Environment Agency officers¹⁶
- 7.4 Proportion (and number) of substitute fuel decisions during the year for which an Environment Agency Decision Document was issued

Targets

	<u>Units</u>	<u>1998 (reference year)</u>	<u>2006</u>	<u>2010</u>
7.1	% (number)	68 (15)	100	100
7.2	% (number)	100 (2)	100	100
7.3	% (number)	N/A	100	100
7.4	% (number)	N/A	100	100

¹⁶ Liaison meetings arranged by companies to which the Environment Agency has been invited.

Objective 8:

To work to risk-based regulatory and environmental management systems

Background

The Environment Agency is placing greater emphasis on risk-based regulation. This means applying effort in proportion to the environmental risks involved and ensuring that industry has suitable management systems in place to manage actively and to reduce the environmental impact of its operations. We have introduced mechanisms such as Environmental Protection Operator Performance and Risk Assessment (EP OPRA) and Operator Monitoring Assessment (OMA). Such tools assess a company's performance and will inform the prioritisation of resources. Other measures are being introduced to assess how our resources are being used most effectively.

Performance indicators

- 8.1 Proportion (and number) of sites with ISO 14001 and/or EMAS certification or equivalent
- 8.2 EP OPRA - Overall management rating
- 8.3 EP OPRA - Regulatory compliance rating ¹⁷
- 8.4 Pollution incidents: Annual number of Category 1 and 2 incidents ¹⁸
- 8.5 Breaches of permits: Annual number of Category 1 and 2 breaches of permits ¹⁹
- 8.6 Number of sites with enforcement actions and prosecutions ²⁰
- 8.7 OMA scores ²¹
- 8.8 Proportion (and number) of PPC permit applications and variations determined within target time ²²
- 8.9 Proportion (and number) of sites receiving check monitoring reports from the Environment Agency within target time ²³

Targets

	Units	1998 (reference year)	2006	2010
8.1	%(Number)	91 (20)	100 (15)	100 (15)
8.2	% Band A	N/A	80	100
8.3	% by score	N/A	Reported scores	Target to be determined
8.4	Number	N/A	Number recorded	Target to be determined
8.5	Number	N/A	Number recorded	Target to be determined
8.6	Number	N/A	Number recorded	Target to be determined
8.7	Score	N/A	Recorded score	Target to be determined
8.8	%(number)	N/A	75% within 6 months	75% within 4 months
8.9	% in target time	N/A	75% within 6 weeks	100% within 6 weeks

¹⁷ EP OPRA Compliance Rating scheme baseline data will be available from 2006.

¹⁸ See our Common Incident Classifications Scheme ('CICS'). CICS Categories 1,2 and 3 are major, significant and minor incidents respectively. Current performance reported in 2006, pending development of appropriate target.

¹⁹ See our Compliance Classification Scheme ('CCS'). A breach is classed as CCS category 1,2 or 3 in accordance with the CICS classification for the incident associated with that breach. Current performance reported in 2006, pending development of appropriate target.

²⁰ See our Enforcement and Prosecution Policy. This indicator excludes prosecutions under appeal. Current performance reported in 2006, pending development of appropriate target.

²¹ OMA currently covers emissions to air. Current performance reported in 2006, pending development of appropriate target.

²² Target is based on elapsed time and allows for applications that may need extended consultation.

²³ Target is from date of testing by monitoring contractors and excludes those subject to QA or non-compliance investigation.

**Objective 9:
To Promote Product Stewardship & Wider Supply Chain Benefits**

Background

Product stewardship is the responsible and ethical management of the health, safety and environmental impacts of a product throughout its life cycle. Cement is a relatively homogenous product, and there are well-defined safety guidelines for its handling and use available for consumers. Once in its final hydrated form, it is a stable, inert material.

Every company, up and down the supply chain, plays a part in determining impacts on human health and the environment. Controlling the environmental impacts of operations should therefore extend beyond the operating site. It includes influencing both the environmental performance of suppliers and the environmental impacts of products and services. There is scope for exploring supply chain benefits and demonstrating how the product can be used sustainably throughout its lifecycle.

Performance indicators

No indicators or targets are set in this initial plan, but the following indicators are proposed for further investigation.

- 9.1 To develop guidelines demonstrating how the product can be used sustainably throughout its lifecycle.
- 9.2 To integrate sustainable development into all cement industry strategies, activities and communications

Targets

None included initially

5. THE WAY FORWARD

The plan identifies areas where further information is required in order to meet the overall objectives. These actions, which we will take forward with the industry as an ongoing programme of work, are summarised in the table below.

Action	Responsibility	Target Date
Publish first annual report of performance against all of the targets	BCA (Environment Agency will also report on selected areas)	2007
Pursue programme of related action to support implementation of the Sector Plan including the identification and addressing of knowledge gaps: <ul style="list-style-type: none"> ● Scoping of indirect impacts and downstream activities ● Stakeholder consultation on inclusion of further objectives ● Further guidance on sustainable use of wastes ● Development of appropriate indicator and targets for supply chain/product stewardship ● Development of appropriate targets for risk-based regulation indicators 	BCA and Environment Agency	Ongoing

ANNEX 1
THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT'S 'CEMENT SUSTAINABILITY INITIATIVE – AGENDA FOR ACTION'
SUMMARY:

JOINT PROJECTS	INDIVIDUAL COMPANY ACTIONS
<i>The Cement Sustainability Initiative intends to create joint projects to:</i>	<i>As part of our ongoing commitment to good practice and innovation in sustainable development, companies agree to:</i>
Climate protection	
Develop a Carbon Dioxide (CO ₂) Protocol for the cement industry. (Project already delivered.) Work with WBCSD/World Resources Institute (WSI) and other organisations to investigate public policy and market mechanisms for reducing CO ₂ emissions.	Use the tools set out in the CO ₂ Protocol to define and make public their baseline emissions. Develop a climate change mitigation strategy and publish targets and progress by 2006. Report annually on CO ₂ emissions in line with the Protocol.
Fuels and raw materials	
Develop a set of guidelines for the responsible use of conventional and alternative fuels and raw materials in cement kilns	Apply the guidelines developed for fuel and raw materials use
Employee health and safety	
Set up a Health and Safety Task Force. (Project already delivered.) Establish a Health and Safety information exchange.	Respond to the recommendations of the Health and Safety Task Force on systems, measurement and public reporting.
Emissions reduction	
Develop an industry protocol for measurement, monitoring and reporting of emissions, and find solutions to more readily access emissions of substances such as dioxins and volatile organic compounds.	Apply the protocol for measurement, monitoring and reporting of emissions. Make emissions data publicly available and accessible to stakeholders by 2006. Set emissions targets on relevant materials and report publicly on progress.
Local impacts	
Develop guidelines for an Environmental and Social Impact Assessment (ESIA) process which can be used at all cement plant sites and associated quarries.	Apply the ESIA guidelines, and develop tools to integrate them into decision-making processes. Draw up rehabilitation plans for their operating quarries and plant sites, and communicate them to local stakeholders by 2006.
Internal business processes	
Investigate methods to track the performance of the cement industry, including development and use of key performance indicators. Produce a full progress report after 5 years, and an interim report after 3 years.	Integrate sustainable development programmes into existing management, monitoring and reporting systems. Publish a statement of business ethics by 2006. Establish a systematic dialogue process with stakeholders to understand and address their expectations. Report progress on developing stakeholder engagement programmes. Develop documented and auditable environmental management systems at all plants.

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