

SUSTAINABILITY STRATEGY FOR THE BRICK INDUSTRY

An Update 2008

The brick industry established key performance indicators in 2002 to assess its progress in matching the targets and aspirations defined in its own sustainability strategy. Performance is monitored by returns submitted annually by members of the Brick Development Association.

The annual report reflects the results of the industry's performance since publication of the strategy, based on data submitted by companies over seven years. However where additional compatible data is available from other sources, it has been included to present a more comprehensive picture. In some cases results from previous years have been adjusted from earlier reports to reflect more accurate data now available and to ensure consistency in the basis of the data series used for each indicator. The indicators are subject to ongoing review and refinement to ensure they provide the best available measure of the industry's sustainability.

This year's report demonstrates the continuing progress made by the industry in improving its performance measured against the objectives of the strategy and other commonly accepted environmental and sustainability criteria.

1. Social Progress which recognises the needs of everyone

Objective Improving the occupational health and safety of the industry's employees.

KPI 1.1 Percentage of employees covered by the Ceramic Industry Health and Safety Pledge.

All member companies of the BDA are formally committed to participation in the Pledge, which consists of an expanding programme of initiatives designed to reduce the incidence of work-related injury and ill health.

The performance targets established under the first phase of the Pledge, which were surpassed by all sectors of the industry, are now subject to revision to ensure continuing improvement.

KPI 1.2 Working days lost through work-related injury.

	<i>(1)</i> <i>Numbers</i> <i>Employed</i>	<i>(2)</i> <i>Number of</i> <i>Accidents</i>	<i>(3)</i> <i>Days</i> <i>Lost</i>	<i>(4)</i> <i>Days</i> <i>Available</i>	<i>3 as</i> <i>% of 4</i>
2001	6573	2011	4805	1544655	0.31
2002	5469	1750	4585	1285215	0.36
2003	4424	1145	2917	1039640	0.28
2004	5018	1383	3283	1179230	0.28
2005	5041	1321	1839	1184635	0.16
2006	5350	1315	2180	1257250	0.17
2007	4644	1152	1659	1091340	0.15

The data used is derived from returns received from the majority of companies in the industry. The gradual reduction in the number employed recorded is indicative largely of rationalization, but also to some extent of some variation in the data base. Nevertheless the indicator in the final column reflects the maintenance over the past three years of the significant improvement in performance achieved earlier.

Objective Improving employee development through relevant and useful vocational training.

KPI 1.3 Training days provided per employee

2002	1.3
2003	1.3
2004	0.9
2005	0.8
2006	0.8
2007	0.9

The industry maintains a stable workforce requiring low levels or recruitment only. The number of training days recorded reflects formal direct training only. However most workplace based training is incorporated into operational activities and is not quantifiably recorded. As a consequence the indicator is valuable in so far as it reflects consistency in the level of provision of formal training. However it understates significantly the total level of training provided.

2. Effective Protection of the Environment

Objective **Extending the application of environmental management systems to the industry's operations.**

KPI **2.1** Percentage of production capacity covered by systems accredited to ISO 14001 or EMAS.

2002	60
2003	61
2004	57
2005	55
2006	60
2007	99

The indicator reflects the fact that the major manufacturers, whose production constitutes approximately 85% of the industry's total production, operate accredited environmental management systems for virtually every site. Most industry sites are subject to PPC control under an environmental permit with appropriate procedures to ensure compliance. It is anticipated that the majority of the remaining sites will achieve accreditation to ISO 14001 or BS 8555 in due course.

Objective **Reducing the impact of atmospheric emissions from the production process.**

KPI **2.2** Control of fluoride emissions.

All kilns with a capacity exceeding 2 megawatt, which represent over 90% of the industry's total output, are subject to statutory control of fluoride emissions. The industry achieves full compliance with this requirement.

KPI **2.3** CO₂ emission per square metre of brickwork

tonnes CO₂ / sq. metre / annum

2001	0.000236
2002	0.000233
2003	0.000232
2004	0.000231
2005	0.000232
2006	0.000229
2007	0.000225

The measure reflects the contribution of CO₂ emissions per square metre of brickwork per annum attributable to brick assuming an average expected service life of 120 years. The CO₂ emissions comprise direct emissions from energy and process as reported under the EU Emissions Trading Scheme.

There has been a continuing year-on-year reduction in emissions since 2001, with the exception of the marginal increase due to exceptional circumstances in 2005.

Objective **Minimising industrial waste disposal to landfill.**

KPI **2.4** Waste disposal to landfill expressed as percentage of production by weight.

	<i>Non-hazardous</i>	<i>Hazardous</i>	<i>Total</i>
2002	0.18	0.01	0.19
2003	0.22	0.05	0.26
2004	0.23	0.02	0.25
2005	0.27	0.02	0.29
2006	0.30	0.02	0.34
2007	0.16	0.02	0.18

The total waste produced by the industry has fallen to something less than 10,000 tonnes per annum. The volumes disposed of to landfill are very small. The reduction in non-hazardous waste produced in 2007 is attributable to specific site closures and is likely to be maintained.

3. Prudent Use of Natural Resources

Objective **Reducing energy consumed through improved energy efficiency.**

KPI **3.1** Specific energy consumption per tonne of output.

	<i>Output (tonnes)</i>	<i>Energy consumed (KWh)</i>	<i>SEC</i>
2001	6539688	5100130531	779.9
2002	6456265	4872262517	754.7
2003	6444972	4858304907	753.8
2004	6652605	4963269329	746.1
2005	6357704	4810757299	756.7
2006	5877820	4357362086	741.3
2007	5788880	4193104438	724.3

Energy comprises a major cost for the industry. Consequently there is ongoing full commitment to improving efficiency. In addition the industry has participated in Climate Change Agreements since 2001, and is subject to the EU Emissions Trading Scheme.

The measure above reflects delivered energy used in production. The significant reduction in SEC reflects the continuing progress made by the industry in improving its overall energy efficiency.

Objective Reducing the volume of treated water used in the production process.

KPI 3.2 The percentage of water recycled from the production process.

	<i>Water used (M³)</i>	<i>Water recovered (M³)</i>	<i>(2) as % of (1)</i>
2002	467285	197570	42.3
2003	529800	218800	41.3
2004	599080	239180	40.0
2005	741244	265000	35.8
2006	633313	262100	41.4
2007	667100	346100	51.8

The total amount of water used by the industry in any year depends not just on production volumes but also on rainfall levels, which affect the moisture content of clays, and on any changes between the proportions of soft mud and extrusion production.

The indicator reflects the increasing proportion of water used that is recycled from sources other than mains supply.

Objective Minimising virgin raw material (clay) consumption.

KPI 3.3 Proportion of raw materials derived from sources other than clay extraction.

The annual survey of the usage of materials from alternative, recycled and secondary sources at the majority of the industry's production sites undertaken by Ceram Building Technology established the following:

	<i>Primary clay usage (tonnes)</i>	<i>MARSS Total raw material</i>		<i>%MARSS</i>
2005	4,096,100	630,010	4,726,110	13.3
2006	4,298,171	724,408	5,002,579	14.4
2007	3,898,410	526,466	4,424,876	11.9

4. Maintenance of High and Stable Levels of Economic Growth and Employment

Objective Maintaining and improving profitability in order to provide for continuing investment and employment.

KPI 4.1 Turnover.

The value of brick sales for the years 2001 to 2007 according to National Statistics was:

	£
2001	506,104,000
2002	543,261,000
2003	516,914,000
2004	545,473,000
2005	524,639,000
2006	537,618,000
2007	490,769,000

Objective Maintaining and increasing investment in plant and machinery in order to improve manufacturing efficiency and environmental performance.

KPI 4.2 Investment in plant and machinery over the previous 5 years.

Five year investment programme finishing in :

2002	£118M
2003	£106M
2004	£123M
2005	£137M
2006	£141M
2007	£166M

The indicator reflects the continuing trend of capital investment that has increased significantly year-on-year in real terms. Whilst a sizeable proportion of investment is targeted directly at improving environmental performance, any replacement or renewal of plant is likely to bring incidental environmental benefit.

Objective Maintaining and increasing value added through the development of new products.

Brick is a versatile material that can be used in combination with other materials or construction systems. The industry has continued the work on cladding timber and concrete frames that was

carried out by BRE at Cardington. Research into the movement between a brick skin and timber frame is in progress at Leeds Metropolitan University.

The creation of “off-site” masonry panels has been investigated by members. A demonstration house was erected at BRE’s offsite with external walls formed from prefabricated panel comprising facing brick/cavity/internal block. The panels were manufactured in a factory and erected on site by crane.