

SUSTAINABILITY STRATEGY FOR THE BRICK INDUSTRY

An Update 2009

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.

Progress reported for the last 12 months has undoubtedly been moderated by adverse trading conditions, demonstrating the degree of interdependence between economic and environmental performance.

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 from 2001 to 2006 were surpassed by all sectors of the industry. The current targets comprise a further 30% improvement against the 2006 baseline by the end of 2010.

KPI 1.2 Working days lost through work-related injury.

	(1) <i>Numbers Employed</i>	(2) <i>Number of Accidents</i>	(3) <i>Days Lost</i>	(4) <i>Days Available</i>	3 as <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
2008	3362	1091	965	790070	0.12

The data used is derived from returns received from the majority of companies in the industry. The reduction in the number employed recorded is indicative of rationalization and the impact of the severe economic downturn in the industry's markets over the past 12 months. Nevertheless the indicator in the final column continues to reflect a significant improvement against earlier performance.

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
2008	1.2

The industry maintains a stable workforce requiring low levels of recruitment. 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 or consistent with ISO 14001 or BS 8555.

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

2008 100

The indicator reflects the fact that the major manufacturers covered by this survey, whose production constitutes approximately 85% of the industry's total production, operate accredited environmental management systems for all sites. In addition most industry sites are subject to PPC control under an environmental permit with appropriate procedures to ensure compliance including a management system accredited to or consistent with ISO 14001 or BS 8555. It is anticipated that the majority of the remaining sites not covered by the survey will achieve accreditation 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	0.000189
2002	0.000186
2003	0.000186
2004	0.000185
2005	0.000186
2006	0.000183
2007	0.000180
2008	0.000183

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 150 years. The CO₂ emissions comprise direct emissions from energy and process as reported under the EU Emissions Trading Scheme. The measure for 2008 reversing the trend in previous years results from lower output levels, due to the recession, which cannot be mitigated as kilns cannot be operated intermittently.

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
2008	0.13	0.02	0.15

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 attributable to specific site closures has been 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
2008	4575741	3396100176	742.2

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 reported increase in SEC in 2008 running counter to the established trend is indicative of the adverse effect of operating at reduced capacity due to economic circumstances.

Objective Reducing the volume of mains 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

2008	555040	191300	34.5
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The total amount of water used by the industry and water recovered 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 decline in the proportion of water used which was recycled was a consequence of site rationalization and masks an overall improvement in efficiency in the use of water.

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</i>	<i>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
2008	2,787,729	352,343	3,140,072	11.2

The reduction in the percentage of total materials comprised of MARSS in 2007 and 2008 reflects variations in product mix and also the stricter classification criteria used in respect of fireclays.

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 2008 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

2008

375,000,000 (source: BDA)

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	£119M
2003	£113M
2004	£128M
2005	£131M
2006	£133M
2007	£156M
2008	£167M

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.**

Manufacturers are involved with developing products that owe their genesis to considerations of Sustainability and the Health of a building's occupant.

It is now possible to purchase unfired clay blocks that can be used in load-bearing situations in most domestic buildings and as internal partitions in commercial buildings. There is a range of associated products such as clay-based plaster and mortar that complements the use of these blocks. Since the clay is unfired the product has even better sustainability credentials than brick.

The introduction of perforated clay blocks which can be used either as the internal skin of a cavity wall or, in a wider version, as a single skin external wall is an example of the UK market following continental Europe. In Belgium the cavity wall formed by clay block (internal skin), cavity and facing brick (external skin) is promoted on health grounds. The ability of clay to allow vapour to permeate means that the internal environment of a clay house is considered to be healthy. European legislation will concentrate on this aspect of construction and the industry will be able to answer the demands.

Finally manufacturers have begun to respond to the designer's desire to have a range of choice in the dimensions of bricks. Extruded clay blocks that can be cut to provide 'bricks' of any depth

from 45mm to 215mm in a variety of lengths has proved to be a popular innovation. There is no doubt that as manufacturers respond to these market pressures they will provide stiff competition to other building materials.