A SUSTAINABILITY STRATEGY FOR THE U. K. BRICK INDUSTRY

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Summary

This strategy is a direct response to the challenge issued by the Government in its Sustainable Development Strategy in 1999 encouraging Trade Association to develop sector sustainability strategies which would: *provide a framework for sectors to assess their economic environmental and social performance, identify areas for improvement in the light of future opportunities and threats, set targets and implement action plans to bring about their improvement and then to report back on the process to stakeholders.* The Brick Industry has a long-established commitment to environmental sustainability encompassing all current and future activity. The industry welcomed the opportunity to develop this strategy through involvement with the Pioneers Group.

In 2000, the Brick Industry set up a working party tasked with assessing the Industry's stance on sustainability and the merits and feasibility of developing a strategy. It was decided that a strategy should be developed as a joint project between the British Ceramic Confederation and the Brick Development Association. In 2001, the sector was invited to join the Pioneers Group. Membership of this best practice forum has made a significant contribution to the development of the strategy. The working party reports directly to the Board of the BDA, and all member companies have been kept informed of progress to ensure industry wide commitment to the process.

1. Industry Background

1.1 Contribution

The Brick Industry makes a significant contribution to the UIK economy. The clay construction products market is around £670 million of which brick accounts for £550million.

1.1.1 Products

Products range from hand-made bricks manufactured by traditional techniques to innovative clay cladding systems. There are 1200 varieties of brick. These can be categorized either by manufacturing technique or according to use.

1.1.2 Structure of Industry

6,000 people are employed directly in the manufacture of bricks, with many more in the ancillary industries. There are 30 companies that produce bricks, of which five account for 84% of production.

1.1.3 Materials

The principal materials are clay, energy and water. The consumption of clay per annum is currently 8.0 million tones with energy consumption of 5.4 Terawatts.

1.1.4 Environmental Impacts

The impacts include clay extraction, energy consumption, atmospheric emissions and noise. These impacts are now heavily regulated but even prior to regulation the Industry had worked at reducing them by responsible operation and continuous improvement of the process.

1.2 Purpose of the Strategy

Sustainable development is about delivering a better quality of life for everyone, now and for generations to come. The Government has defined four key objectives, the integration of which will deliver sustainable development.

- Social progress with recognizes the needs of everyone
- Effective protection of the environment
- Prudent use of natural resources
- Maintenance of high and stable levels of economic growth and employment

Sustainability requires the responsible management of all aspects of business. To demonstrate sustainable management it is necessary to measure performance against stated objectives and to evaluate and review

the performance on a regular basis. This strategy identifies the Brick Industry's contribution to the objectives of sustainable development and the ways in which it will build on its achievements.

1.3 Further Development

As a first step in the further development of this strategy, the industry's stakeholders and other interested parties are invited to express their view on its content and how they can work with the industry to help it achieve the strategy's objectives. The strategy will be refined at the initial annual review to take account of lessons learnt in this consultation.

Member companies of the BDA/BCC will then be invited to adopt the strategy and commit to the measurement of their performance against its objectives.

The strategy will be reviewed annually. The report, which will be published on the BDA web-site, will assess achievements and evaluate progress made on an industry-wide basis.

2. The Brick Industry's Contribution to Sustainability

2.1 Social Progress which Recognises the Needs of Everyone

Brick plays a major role in the creation and renovation of the built environment. It is fundamental to the provisions of housing and shelter. As a significant employer, the industry shapes the personal development and welfare of those who work within it. It also provides support and benefits for the local communities, which are its neighbors.

2.1.1 A Positive Contribution to the Built Environment

The UK has an ongoing need for both new housing and the renovation of existing housing stock to meet the demands of demographic change. Accepted forecasts indicate that around three million homes will need to be built over the next 20 years. Consumer research shows that brick is the preferred material for house construction.

Buildings made of brick have proved to be particularly sustainable because:

- Brick fulfils a variety of roles in building technology, providing physical support, security, protection from sound and fire, weather resistance, as well as an attractive appearance
- The flexibility of brick makes it a particularly suitable material for building renovation and alteration
- Established standards, technical specifications and characteristics ensure its reliability in service
- It is extremely durable. A brick structure, subject to minimal maintenance, will last almost indefinitely. Its longevity is and even grater advantage since its appearance is enhanced with age
- Any in-service maintenance costs are infrequent and low

The acceptability of built development and its contribution to social progress depends to a large degree on aesthetics. Government advice and planning guidance recognizes the importance of design and appearnce in producing an environment in which to live and work. Brick makes a significant contribution because:

- Its texture and colour harmonies with our natural surrounding, making it an accepted part of both urban and rural landscapes
- There is a wide variety of product of differing appearance determined by the clays used and production techniques applied
- The extent of the product range permits its use in a wide variety of styles, both by itself and in conjunction with other materials
- Choice of colour, texture and form can preserve continuity within particular location
- The requirement of planners and architects for materials reflecting local distinctiveness and sense of place can often be met only by Brick
- There is evidence to suggest that the appearance and scale of brick structures in the more traditional style may be conducive to behavioral improvement in some areas

2.1.2 Looking After the Welfare of Employees

All member companies of the BDA are party to the Ceramic Industry Health and Safety Pledge. This ten-year programme is designed to achieve defined levels of improvement in the incidence of work related injury and ill health. Specific targets have been set:

- To reduce the number of working days lost per 100,000 workers from work-related injury and ill-health
- To reduce the incidence of fatal and major injury accidents
- To reduce the incidence of cased of work-related ill-health

Participation by a company involves main board commitment and responsibility, and a structured approach to achieving continuous improvement measured by annual reviews using key performance indicatiors.

2.1.3 Training and Personnel Development

The Industry's employees are encouraged to further their personal development through:

- Training programmes provided by companies to meet the particular needs of individuals
- Sector specific packages supplied through the Refractories and Building Products Training Council and other specialist providers
- A suite of industry NVQs
- Membership of the Institute of Clay Technology and participation in its professional development activities

There is particular focus on the development of information technology skills, health and safety best practice, supervisory management and technical certification. An industry modern apprenticeship scheme is currently being prepared.

2.1.4 Supporting the Neighbourhood

There are 120 brick factories in the United Kingdom providing permanent employment for 6,000 people. The Industry can make a significant contribution to local communities because:

- The employment it provides is long-term
- Brick factories are often located in rural areas, consequently they are a major employer in relatively small communities
- The permanence and continuity of a brick manufacturer's operations encourages the establishment of links with local schools, colleges and other institutions to the benefit of all parties
- It is important to brick manufacturer that the operations and impacts take into account the interests of the communities in which they are located, and are accepted by them. Local liaison committees are an established means of achieving this end.

2.1.5 Supporting the Community

The Industry can help its local communities by providing amenity facilities as well as employment:

- Clay extraction has a temporary disruptive and adverse environmental impact. However, subsequent restoration often adds value through the provision of leisure facilities and areas dedicated to wildlife and nature conservation
- Restoration of clay pits can also provide land for agricultural and other productive uses
- Waste disposal to landfill is the least desirable environmental option. Nevertheless, the UK will continue to require some landfill facilities for the foreseeable future. Clay is accepted geologically as the best receptor. Restoration of clay quarries through landfill meets one of society's basic needs.

2.2 Effective Protection of the Environment

The Brick Industry extracts and consumes clay. Its production process is energy intensive and gives rise to atmospheric emissions. It makes use of considerable volumes of water. This potential for environmental impact emphasizes the importance of effective regulation and responsible environmental management.

2.2.1 Reducing the Impact of Extraction

Research undertaken by London Economics for the DETR in preparation for the introduction of the aggregates levy assessed the environmental impact of clay extraction as small compared with other minerals. This is because:

- The volume and rate of extraction is low compared with other minerals. Operations are often restricted to a limited number of weeks in any year. The immediate impact and rate of change is therefore unpronounced. Extraction is generally only economic where the ratio of unusable to usable material is relatively low

- Companies have readily adopted practices ensuring compliance with the performance standards required to meet the stringent conditions demanded by planning permissions such as those recommended in the BCC Environment Code on Extraction and Restoration.
- Responsible management of working sites ensures that they are an environmental asset, while old working are restored to beneficial use, adding ecological value through projects designed to increase biodiversity.

2.2.2 Controlling Atmospheric Emission

The main emission resulting from the production process are carbon gases, hydrogen fluoride and particulates. Continuous improvement in performance has been achieved through:

- A constant drive towards increased energy efficiency. The cost of energy and the need to reach targets prescribed in the industry's climate change agreement are key influences in this respect
- Regulatory control including process guidance noted prescribing limits for hydrogen fluoride and particulates emissions
- Major capital investment in the technology required to ensure compliance
- Investment in research and development to achieve compliance through process modification rather than end-of-pipe solutions

2.2.3 An Integrated Approach to Environmental Management

Brick factories, all of which are already subject to UK Integrated Pollution Control or Local Air Pollution Control, will become installations under the new EU integrated pollution prevention and control regime. However, the Industry's recognition that a responsible approach to the environment extends well beyond simple compliance is demonstrated by:

- The major contribution to the development of the Industry's BREF note made by the UK industry
- The increasing numbers of Industry sites with accredited ISO 14001 or EMAS systems
- The input made by brick manufacturers in the BCC Guidance on Introducing and Environmental Management System which assists the spread of best practice throughout the industry
- The effective application within the Industry of techniques to reduce water use and effluent levels reflected in the Envirowise publication, 'Managing Water Use and Benchmarking in the Brick and Heavy Clay Sectors'
- The range of guidance and advisory notes on aspects of environmental management produced by other organizations in partnership with the Industry

2.3 Prudent Use of Natural Resources

The industry recognizes the importance of measuring and reducing the natural resources it consumes. Equally, it is appropriate that the significance of resources consumed is evaluated over the whole life of the product.

2.3.1 Within the Production Process

The Brick Industry ahs set out to make the exploitation of clay as efficient as possible by:

- Sourcing materials locally. The majority of brick works have their clay stocks on site or within close proximity
- Working in conjunction with other operators such as surface mining to use clays that are a by-product of their main activity
- Minimising the waste of clay in the production process by recycling unfired clay
- Researching the use of additives that will reduce the quantity of clay required, e.g. sawdust and sewage sludge

Drying and firing the clay consumes energy. During recent years the Industry has improved its energy efficiency through:

- Installing more efficient computer controlled kilns from which heat is recycled to be used in the drying process
- Undertaking energy monitoring programmes
- Advances in burner technology and the installation of variable speed motors to match energy consumption to the task in hand
- Using alternative fuels such as landfill gas from clay pits for firing product and generating energy

Distribution of the finished product is potentially an expensive operation with contributes to environmental pollution. The Industry has made efforts to reduce this pollution by:

- Preserving the availability of locally manufactured products despite the rationalisation of production plant
- Arranging transport on an industry-wide basis to reduce the number of empty return journeys
- Improving the efficiency of the lorry fleet by replacement of old vehicles and careful monitoring of fuel consumption and tyre wear

2.3.2 Beyond the Factory Gate

The Brick Industry is able to monitor and control the use of resources up to the factory-gate but the benefits derived from consuming the resources are only evident when the product is in use because:

- Brick which is correctly specified, well detailed and properly laid will give many years of maintenance-free service
- It is a material which mellows with age and at the end of the building's useful life can either be recycled as a construction material or as an aggregate

In order to ensure that brick is used correctly and that the life-cost benefits of the material are fully understood, the Industry is engaged in:

- Providing technical assistance through the BDA and its member companies
- Developing a life-cycle analysis for brick in conjunction with the Building Research Establishment
- Contributing to the production of the Green Guide to Specification

2.4 Maintenance of High and Stable Levels of Economic Growth and Employment

The Brick Industry manufactures a traditional product for which there is a consistent demand. Factories are sited near clay supplies often in a rural location. Hence the Industry is an important local employer. The Industry is also aware of the importance of innovation to create new products for a changing market.

2.4.1 Serving the Market

Demand for brick has stabilized over the past five years and is now expected to maintain its current level in the foreseeable future.

The markets served by the Industry include:

- Housing:162,500 dwelling units were completed in 2001. This is a low-point in the housing market and there is political pressure to increase this figure. Innovative cladding systems using brick will be well suited to the prefabricated housing systems which are likely to be used to satisfy the demand.
- Commercial: Brick remains a premier cladding material for commercial buildings. The introduction of innovative systems has the potential to increase demand
- Civil Engineering: The economic and in-service performance advantages of using brick in civil engineering structures are well established and increasingly acknowledged by specifiers.
- Repair, Maintenance and Improvement: The flexibility and durability of brick make it particularly suitable for the renovation of buildings. The need to maintain the country's housing stock is likely to increase demand in this area.

2.4.2 National and Local Economic Significance of the Industry

- Employment: Brick production is concentrated in areas associated with clay resources. The majority of brickworks are in rural areas. Often they are the only employer of any significance, providing a close connection to the local economy
- Ancillary Industries: There are many ancillary industries associated with the Brick Industry which in total employ many more people than the industry itself. The requirement for plant, machinery and energy is fundamental to the manufacturing process, as is transport for the distribution of the product. Bricklaying itself requires a number of associated products such as damp-proof courses, brick ties and lintels

There is a close relationship with other sectors of the Ceramic Industry through common technology and a shared commitment to testing, research and development.

The most direct link is with the construction industry. It is important for the Brick Industry to develop and maintain a keen understanding of its customers' requirements, especially now that the Egan Agenda and 'Rethinking Construction' are suggesting new patterns of work that affect the supply chain.

- Investment: The Brick Industry has many long-established manufacturing sites. Constant re-investment is necessary to update existing plants and processes and to ensure that the Industry can meet increasingly stringent legislative requirements. The long-term nature of investment programmes reinforces the permanence of the Industry's contribution to local economies

It is vital for the Industry to invest in innovation. This can take many forms, ranging from the development of different sizes and shapes of the basic unit, to the introduction of new products and techniques that respond to market demand. The Industry is committed to innovation in all its forms.

References

British Ceramic Confederation: Ceramic Industry

Health and Safety Pledge (2001)