

## Living with minerals

‘UK plc relies on minerals to underpin economic growth and sustainable communities – but we are at risk of undermining the ability of the industry to meet our needs. We cannot achieve the objectives we all share without an active UK minerals industry.’

Digby Jones, Director-General CBI

### The importance of minerals

Practically everything in modern life depends on essential minerals like granite, limestone, sand, gravel, clays, industrial minerals, metal ores and hydrocarbons, all obtained by quarrying or mining.

These raw materials are transformed into the buildings, infrastructure, industrial products and energy which we have come to rely on for our standard of living, our health and well-being, the way we travel, our built environment and how we spend our leisure time.

From aeroplanes and aspirins to zip-fasteners and zebra crossings, minerals are all around us. Even items such as food and clothing rely heavily on minerals for their production, packaging and distribution.

Although we may not always be aware of it, our lives would be impossible without minerals. This document is designed to outline the important role minerals play in sustaining our economy and way of life.

Of the 615 million tonnes of minerals used by the UK each year, the majority originate from the UK. But for some key minerals – such as coal – we are increasingly dependent on imports, even though indigenous resources remain plentiful.

### Minerals are vital for our economy and society

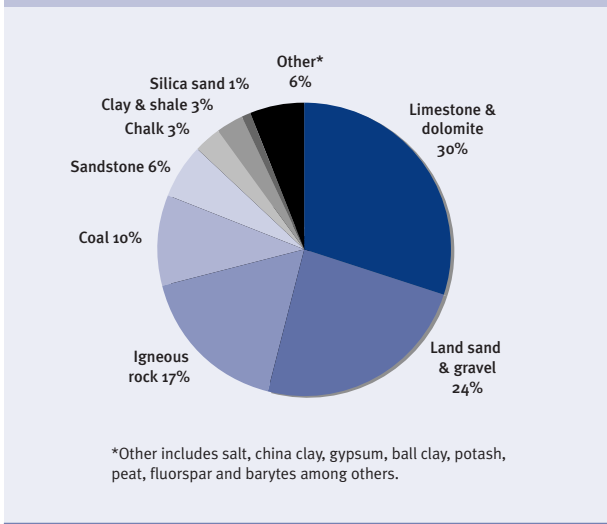
Minerals play a vital role in our economy and society. Indeed, many of the government’s own objectives will not be achievable without a continuing and affordable supply of minerals. The Sustainable Communities agenda and the 10 Year Transport Plan rely upon access to these raw materials. Minerals are also critical for the wider infrastructure needed for our society such as utilities, hospitals and schools.

*FACT: The annual UK demand for minerals is around 615 million tonnes – more than 10 tonnes per person per year.*

### Minerals and recycling

We demand more minerals but less environmental impact. A key aim is to maximise recycling wherever possible. This can often bring economic as well as environmental benefits. The minerals industry is continually working to find new ways to recycle waste and reuse ‘secondary’ materials in order to minimise environmental impact and conserve natural resources.

EXHIBIT 1: MINERAL RESOURCES EXTRACTED ON UK LANDMASS



The chart shows the percentage by weight of different minerals sourced in the UK. Percentages are based on onshore production figures for the UK (including Northern Ireland) for 2002.

EXHIBIT 2: KEY FACTS AND FIGURES

Amount of mineral used in UK	= 615 million tonnes/year*
Amount of mineral used per person	= 10 tonnes/year
Amount of mineral extracted on UK landmass	= 306 million tonnes/year
Amount of mineral extracted on UK continental shelf	= 236 million tonnes/year
People employed directly in UK minerals industries	= 55,000*
Total value of UK mineral production	= £26 billion*

\* INCLUDES OIL AND GAS

For example, more than 25% of today’s construction materials are made from recycled products. Common forms of recycling in construction include demolition materials reused in concrete and the reuse of ‘road planings’ and glass in some types of asphalt. Other recycled products include blast furnace and steel slag from industrial processes, ash from burning coal, residues from china clay and glass from bottles and windows.

The government recognises that in the UK, the vast majority of what can be recycled is recycled (eg about 90% of construction waste) and Britain heads the European recycling league for aggregates. Even materials which cannot be directly recycled as aggregates such as soils and clays are carefully used in the restoration of former mineral sites, enabling the land to be recycled.

But, while the use of recycled materials, industrial by-products and renewable energy sources is helping to meet the country’s demand for minerals, new primary indigenous sources of minerals will always be needed.

Secondary minerals exist in a range of different forms which are sometimes not of sufficient quantity for effective recycling or suitable quality for high specification products. They also require energy to collect, transport and process for reuse.

**FACT: There are no less than 10 different minerals in every room in your house – and that’s just in the walls and windows!**

Recycling and maximising efficiency will continue to be important but cannot be the whole answer – that is why the industry in the UK is working hard to make sure it is as sustainable as possible.

**FACT: Mobile phones contain more than 40 different minerals.**

## Minerals and their location

Unlike many other industries, companies involved in mineral extraction have little or no choice when it comes to the location of their business. This is due to the complex geology of the earth and the variety of ways in which minerals are used today.

Some examples include:

- Durable hard rock – essential for roads, railways and airport runways – is absent in the softer sedimentary rocks of South East England. Consequently, large quantities of rock must be brought from elsewhere in the UK.
- Ball clay and china clay, which are vital for a whole host of ceramics, are mainly found in Devon and Cornwall and enjoy healthy exports around the world.
- There is little or no natural UK source of metals such as copper, nickel and aluminium and these have to be extracted elsewhere in the world and imported.

**EXHIBIT 3: COMMON USES OF MINERALS**

<b>Mineral</b>	<b>Main uses</b>
Ball clay	Bathrooms; ceramic tiles; tableware
Barytes	Oil and gas drilling; manufacture of paint; rubber; plastics
Chalk	Cement to make concrete for building and construction
China clay	Paper; ceramics; bathroom suites; paint; plastics; medicines
Coal	Generating power and heat
Common clay	Bricks; drainage pipes; roof tiles; cement
Dolomite	Manufacturing, especially steel and glass production
Fluorspar	Refrigerants; air conditioning; aluminium and steel
Fire clay	Light coloured bricks; heat resistant bricks
Fuller's earth	Foundry sand, to cast metal machinery and components; paper
Granite	Rail ballast and road surfaces; wide construction uses
Gritstone	In asphalt for road surfaces
Gypsum	Plasterboard; plaster products and cement manufacture
Iron ore	Raw material for making steel, the most widely used of all metals
Limestone	Aggregates; cement; industry; fertiliser; toothpaste
Potash	Source of plant nutrient potassium used in fertiliser
Salt	Food; chemical feedstock; road gritting in icy conditions
Sand & gravel	Aggregates to make concrete for building and construction
Sandstone	Aggregates; concrete for building and construction
Silica sand	All types of glass; foundry castings; sports surfaces and water filtration
Slate	Roofing; floor tiles; exterior cladding; interior decoration

Minerals can only be worked where they naturally occur and must be transported to where they are needed – whether that is around the country or around the world. This can present many challenges for the industry when it comes to identifying and developing new sources in order to continue to meet demand.

**FACT: One mile of motorway uses over 100,000 tonnes of aggregates.**

## Looking after the environment

The minerals industry is an important manager of land and a great deal of effort is focused on the careful and responsible use of land for mineral operations. While the total area of land permitted for all types of surface mineral workings is about 1% of the country's total land surface (compared to 9% for urban settlements and 80% for agriculture) only a fraction of this is actually being worked at any one time.

From the earliest planning stages, throughout mineral working itself, and in restoration and aftercare, companies recognise the importance of working to the highest environmental standards. Besides the statutory requirements of planning consents, operators frequently enter voluntary agreements with local conservation and environmental organisations to ensure respect for the land and the wildlife that depends on it, and to enhance biodiversity wherever possible.

A huge amount of effort goes into ensuring that extractive sites which have been worked are carefully and progressively restored. Restoration of land from which minerals have been extracted is one of the great strengths of the modern minerals industry. The land is, in effect, only borrowed – and is usually returned with interest. Common after-uses of former mineral sites are a return to agriculture, development of leisure facilities or the creation of new woodland, heathland and wetland habitats which enable rare species of plants, birds and insects to thrive.

To ensure environmental concerns are addressed, proposals for new mineral extraction include detailed plans regarding long-term site aftercare, often developed with local authorities, local communities and environmental organisations.

**FACT: In 2002, the construction industry in Great Britain was worth £83.6 billion, and 248 million tonnes of construction minerals were supplied to it.**

One of the difficulties the minerals industry faces is that restoration is rarely recognised because, by the time restoration of a site is complete, it is often difficult to tell that extraction ever took place there.

*Around 700 Sites of Special Scientific Interest have been created as a result of mineral extraction activity.*

*Former mineral sites include the national water-sports centre near Nottingham, the Cotswold Water Park, the Eden Project in Cornwall and numerous wildlife reserves and sports facilities.*

**‘Living without minerals is just not an option.’**

Nigel Jackson, Chair, CBI Minerals Group

## Sustainable mineral operations

Few industries have taken as many steps as the minerals sector to minimise their environmental impact. Because of the exposed and sensitive nature of mineral operations, companies fully understand the need to be at the forefront of responsible environmental practice – indeed, it is essential for sustainable development.

Processing new minerals and recycling existing materials consumes a lot of energy which is both expensive and has an environmental impact. The industry is constantly looking for new ways to operate in a sustainable manner, and it has a strong record in developing environmental systems and standards, including:

- Energy efficiency such as the use of alternative fuels (some even derived from secondary minerals) and the installation of combined heat and power (CHP) plants
- Better ways to transport materials such as conveyor, rail and canal
- Improving resource efficiency ie producing more from less
- Restoration of mineral sites

As ever, there will always be new challenges and the industry must continue to promote best practice and seek to ensure that all those within it are responsible.

*FACT: More wildlife habitats have been created through mineral extraction than any other activity.*

## Being good neighbours and working with the community

We all enjoy the benefits which minerals provide – be it a new bathroom, improved community facilities or repairs to local roads – but we rarely welcome new mineral developments nearby.

That is why the minerals industry is working hard to reduce the impact of its operations on communities close to its sites. The minimisation of noise, dust, traffic and visual impact is a fundamental part of running a successful quarrying or mining operation.

Public consultation forms a key part of the planning process and ensures that all stakeholders, and particularly local communities, are kept informed about proposed developments.

In addition, the industry recognises the need to raise awareness of the often conflicting issues it faces in meeting the public's demand for its products. Mineral companies are among the most active in supporting education activities and community initiatives to improve understanding of the vital role they play.

*FACT: The minerals industry plants more trees than all other sectors except the Highways Agency.*

## Licence to operate

But it is becoming increasingly difficult for the industry to operate existing and new sites due to the growing burden of regulation, much of it only indirectly related to mineral operations.

In the past the UK has been almost entirely self-sufficient in meeting its demand for minerals. While we now import a large volume of coal and metallic minerals, the country is still able to provide most of the non-metallic minerals it needs. And geological investigations show that there are sufficient UK mineral resources for many decades to come.

But before these resources can become available, mineral companies have to embark on a complex legal process to obtain the necessary permissions and licences.

The planning process is designed to ensure that appropriate developments are suitably located and to address the concerns of interested parties. It is, of course, important that different interests are balanced, but in the case of mineral operations it is vital that their strategic importance is recognised.

Besides new mineral extraction, planning permissions are also required to open recycling facilities or improve transport efficiency with a new port or rail depot. Planning involves government departments, local authorities, statutory bodies, non-governmental organisations and local communities. It takes many years, involves complex negotiation, and can be very costly, with no certainty of success at the end of the process.

This is compounded by increased regulation, often not directly connected to minerals, which has begun to undermine the industry's ability to operate efficiently.

The minerals industry is increasingly concerned about the cumulative impact of the regulation affecting the sector. Companies are facing a growing volume of legislation and regulation that is often uncoordinated – and sometimes even conflicting. This is beginning to jeopardise the ability of the industry to maintain supplies over the long-term, as existing resources become depleted over time. Further legislation could result in increasing imports, environmental problems, job losses, and more expensive everyday products.

*FACT: According to the Quarry Products Association, the aggregates industry in the UK is now subject to nearly 200 regulations or pieces of legislation.*

## Meeting future demand

Minerals are a finite resource and must be used prudently. Recycling will continue to play an important role in meeting demand, and imports of some minerals will increase, but a continuing supply of UK-sourced minerals will always be required.

Unless we address the issues now, the growing constraints imposed on the industry in the UK may make some mineral resources increasingly difficult and costly to extract in the future.

Mineral companies are keen to invest in the UK but can only do so with the certainty of long-term sustainability of their businesses. The industry recognises that it has a key role to play in communicating more effectively and gaining wider understanding for the issues which affect the way it works.

But the context in which it operates is critical, and politicians, statutory agencies and local communities also have a key role to play in terms of ensuring a more balanced approach.

It is likely that the way in which the world uses minerals will change. Those currently in use may be replaced by others for technical, economic or environmental reasons and the industry is heavily involved in research looking at all viable alternatives.

In the meantime, as current permitted reserves are consumed, the minerals industry is tasked with the challenge of continuing to meet public demand in a way which is economically and environmentally sustainable.

The government and others must enable the industry to meet these challenges effectively to ensure that the UK has the supply of minerals it needs to underpin our economic growth and sustainable development.

THE CBI MINERALS GROUP	
The CBI Minerals Group consists of companies and organisations from across the industry as a whole:	
<ul style="list-style-type: none"> <li>Alliance Environment &amp; Planning</li> <li>British Aggregates Association</li> <li>British Cement Association</li> <li>British Ceramic Confederation</li> <li>British Geological Survey</li> <li>Bucbricks Co</li> <li>Confederation of UK Coal Producers</li> <li>Entec UK</li> <li>Gerald Eve</li> <li>GVA Grimley</li> <li>Hanson</li> </ul>	<ul style="list-style-type: none"> <li>Kaolin and Ball Clay Association</li> <li>Lafarge Aggregates</li> <li>Mills and Reeve</li> <li>MJCA</li> <li>Quarry Products Association</li> <li>RMC Group</li> <li>Silica and Moulding Sands Association</li> <li>Tarmac</li> <li>UK Coal</li> <li>Voaden Sandbrook</li> <li>WBB Minerals</li> </ul>

*The CBI Minerals Group aims to:*

- 1 Promote the role and importance of the UK Minerals Industry for UK plc*
- 2 Champion issues likely to significantly affect the UK Minerals Industry's ability to meet the development needs of the economy in a sustainable manner*
- 3 Influence the development and deal with the issues raised by proposed UK and EU legislation and regulation that significantly affect the UK Minerals Industry and its 'licence to operate'.*

#### FURTHER INFORMATION

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