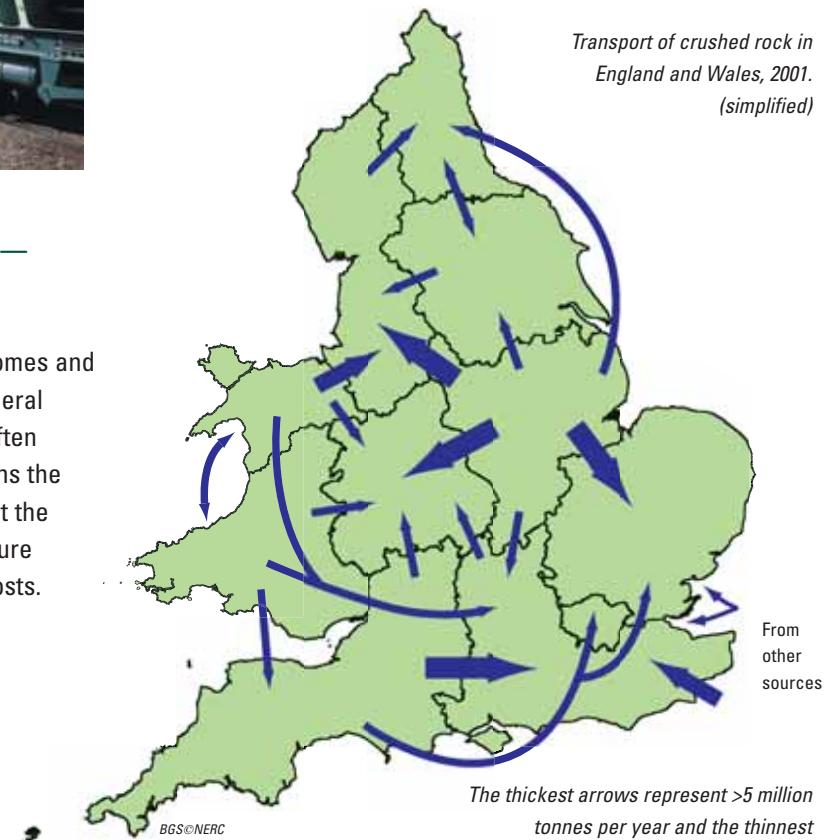




Courtesy of Lafarge Aggregates Ltd

**National need versus environmental protection — getting the balance right**

Meeting the need for the construction of new homes and infrastructure means that large quantities of mineral resources must be extracted and transported, often over long distances. The planning process weighs the national, regional and local requirements against the need to protect the environment, in order to secure essential materials at the least environmental costs.



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## RAW MATERIALS FOR CONSTRUCTION — SOURCES AND IMPACTS

**The need for materials and the consequences for the environment**

Construction projects require a wide range of raw materials, such as sand and gravel for concrete, crushed rock for road surfaces, clay for bricks, and metals for plumbing and wiring. Many of these materials are produced in the UK. But where do these resources come from, and what impact does their extraction have on the local and national environment?

**Building homes in the right place**

In the last thirty years there has been considerable economic growth in the UK. At the same time, there have been changes in the way we live: we now prefer to have smaller households and we are living longer. This has led to a scarcity of affordable housing in key areas. Recent government announcements have outlined plans to address this problem. The Sustainable Communities Plan concentrates on four main areas: Milton Keynes, Stansted in Essex, Ashford in Kent and the Thames Gateway. In addition, it identifies key areas for regeneration in the Midlands and North of England.



#### □ What raw materials are needed to build a house?

Many different materials are needed to build a house: clay for bricks and tiles, limestone and chalk for cement, sand and gravel and crushed rock for concrete foundations and gypsum for plasterboard, are just some of the main resources used. These materials are dug from the earth beneath our feet. For example, about 60 tonnes of aggregates (crushed rock, sand and gravel) are used in building the average house.



Photograph supplied by Hanson plc

#### □ Where do the aggregate materials come from?

Minerals are not always found close to where they are required, so some have to be transported from locations across the UK and, in the case of metals, even from overseas. For example, there are many sand and gravel quarries in the South East but materials from these, while suitable for many purposes, cannot meet all specifications. Construction of access roads for housing developments requires a supply of tough resistant rocks like hard limestone and granite. These do not occur naturally in the South East and have to be quarried in areas such as the Mendip Hills in Somerset or Charnwood in Leicestershire, and then transported by rail or road.



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#### □ Are there any alternative sources of aggregate for the South East?

In addition to locally quarried sand and gravel, supplies are also dredged from the sea-bed, chiefly in the English Channel and North Sea. Marine dredged aggregates account for about 20 per cent of the sand and gravel used in England and Wales. Recycled materials from various sources including glass, concrete rubble from demolition sites, blast furnace slag and old road surfaces now account for 17 per cent of all aggregates used in Britain. The use of recycled materials has doubled in the past 15 years but there are only limited prospects for increasing this further.



Photograph supplied by Hanson plc

#### □ What is the environmental impact of quarrying?

Each year about 250 to 270 million tonnes of aggregates are used; about 50 million tonnes of this is supplied through recycling. The supply of these materials inevitably has environmental impacts, either at the quarry or recycling site, or in transporting the products.

Land permitted for mineral extraction accounts for about 0.3 per cent of the total land area of the UK. Despite this, the local impacts of quarrying create significant public concern. Impacts include traffic along access roads, noise, vibration and dust caused by quarry machinery, the visual impact of the quarrying operations and the potential effects on groundwater and river systems. These can lead to opposition to new developments or extensions of operating quarries. However, new quarry developments must comply with locally agreed planning policies before permission can be granted to allow extraction.



Photograph supplied by Hanson plc

Once a quarry is working, the operations are closely monitored and regulated to minimise environmental impacts. Before operations are permitted to start quarry owners are required to present detailed plans for the restoration of sites. These measures will preserve or even improve the overall quality of the natural environment after the quarry is worked out. Quarries are restored to a range of uses including agriculture, forestry, nature conservation and recreation.



Courtesy of Lafarge Aggregates Ltd



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