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Most of our sense of place derives from the use of locally sourced materials and as all of you will know we have a tremendous rich and varied architectural landscape. Much of this is due to the great variety of stones that were used in buildings and other structures. Stone buildings reflect local geology – and it is this that makes so many towns, villages and rural landscapes so distinctive.

This image shows Mow Cop Castle, a summerhouse built in 1754 for the Wilbraham family of Rode Hall. It illustrates the close relationship between stone buildings and their geology. The structure sits directly on the boundary of Cheshire and Staffordshire with the geological ridge of Chatsworth Grit and Rough Rock sandstones. The summerhouse is in fact built from the Chatsworth Grit that was historically quarried on the Staffordshire side.

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This picture of Corfe Castle in Dorset typifies vernacular building styles, not only is the castle built of a mixture of Purbeck Limestone and Portland Stone from Tilly Whim quarry on the Isle of Purbeck, but the surrounding roofing is of Purbeck limestone slate, and most importantly would have been quarried locally.

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Supplies of new stone and more crucially, sourcing the right stone to conserve our built heritage can be extremely challenging, but it is essential if we are to avoid long-term damage to this precious and finite resource. This is not just an issue facing England but the whole of the United Kingdom.

* Ideally replacement stone needs to be sourced from the original quarry or at least from one that produces a very similar stone. This is usually found in very close proximity to the original source. The problem is that most of the original quarries have closed and detailed information on the stones used is difficult to find. Even the description of listed buildings do not mention stone types.

The image showing roofing in Shropshire has local stone slate on right / Indian stone on left wrong colour & size, and there is no evidence of durability. The repair to the Doric column, I am embarrassed to say, belongs to the front of a house where my parents brought a flat.

Joking aside, there are also wider implications to importing stone, for example an increase in the carbon footprint by as much as 550% when importing from China and India.

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Google image of Exhibition Road, Kensington and Chelsea - A £29 million project to rebuild one of London's most famous streets is using granite imported from China. Why, because they couldn't get any granite from Yorkshire.... That would be problematical, as Yorkshire has never produced granite.

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These problems stem from:

Lack of knowledge of stones – the stone type used in a building is generally not known or incorrectly identified, therefore inappropriate stone is often specified.

Historic Sources are not known – we need to identify historic quarry sites potentially capable of supplying vernacular stone – and possibly establish a national stone supply register - matching stone sources to end uses.

Historic source known but the stone is no longer available – this looks to the supply and demand predicament that I will discuss later.

Sources of suitable alternatives are not known – it will be difficult to safeguard potential building stone resources effectively unless the distribution of historical workings is understood.

Slide '5' (lots of images) – 1.16 mins

Seven years ago the then Office of the Deputy Prime Minister (now DCLG) commissioned the Symonds Report I which examined the issues affecting the supply and demand of indigenous stone in the UK.

- * In particular, the report focussed on the problems of sourcing appropriate stone to repair historic buildings and recommended that the Mineral Planning Authorities should identify and protect 'heritage quarries'.
- * It also recommended the establishment of a national database of the many building and roofing stones used including their sources and availability throughout England.
- * In response to the recommendations of the Symonds Study, DCLG produced guidance for mineral planning authorities and others by publishing Minerals Policy Statement 1.
- * Mineral planners who are conversant with Annex 3 of MPS 1 will recognise the requirement to address the issue of Mineral Safeguarding Areas in their Local Development Documents.

ANNEX 3: Natural Building and Roofing Stone,

Recommends:

English Heritage and the industry are encouraged to make mineral planning authorities aware of important sources of building and roofing stone that they consider should be safeguarded from other forms of development...

- * MSAs can only be implemented if there is strong evidence about the origins and importance of the particular stone. Further investigations can then be made to determine which stone sources should be safeguarded. 3.3 of Annex 3 states that:
- * Important historic quarries should be safeguarded, as far as practicable, where it can be shown:
- * That the quarry was the original source of stone used in the construction of a historic building or monument; or

- * That the stone is technically compatible with material in the structure to be repaired; and
- * That stone from the quarry is, or will be, required for restoration or conservation purposes in the absence of viable alternatives

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Jon Humble – an EH policy advisor recently commented on a consultation paper for the Peak Park in Derbyshire; I thought he summed up the supply and demand issues quite well.

Identifying the scale of demand for local building and roofing stone can be difficult in advance of opening up a supply. There may be evidence that a demand ought to exist, such as traditional buildings patched with inappropriate materials from elsewhere, theft of stone products, and a stock of buildings which will require maintenance and repair over the years if it is to survive. However, the absence of an existing source of a stone discourages architects from specifying it for new buildings and even for repair work. The scale of the second-hand market may also be only a weak indicator: demand for recycled stone may be driven by availability rather than by independent measures of 'need'. Specifying the use of quarried rather than recycled stone can help to create a demand, and to deter interest in demolishing structures that ought to be maintained. *Chipping Norton Lst.*

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This is Ladycross quarry/Northumberland....included 4 two reasons. Firstly, still producing Build stone after 300 years. Historically...used mostly 4 roofing...w/ 50% now going to new build. Secondly....provides wildlife sanctuary...showing wildlife conservation & winning stone can go hand in hand.

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The question facing English Heritage was how do we address this mammoth task?

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The Strategic Stone Study, part funded by DCLG aims to address these issues by providing baseline information on the history and evolution of stone in England

- * EH, BGS, local geologists and historic buildings experts across the country are working together to collate a catalogue of the rich variety of local building stones
- * their patterns of use, including culturally significant buildings and villages
- * tie in their historic sources. And then
- * To make this information freely available on a dedicated Web Portal using GIS.

NEW SLIDE

This mapping was kindly provided by Grahame French at Shropshire County Council. He was one step ahead of the SSS and had already mapped the historic quarries in Shropshire, he also provided us with mapped building stone quarry data (over 1000 sites). I wish all counties were so enthusiastic!

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The SSS data will provide a clearer indication of the distribution and relationship between stone built structures and their former or currently worked building stone quarries in England within each local area, county and/or nationally that demonstrate patterns of stone use. This image shows all the identified stone built structures and villages to date.

NEW SLIDE

It will provide a strong, well-informed evidence base to enable Mineral Planners to identify and investigate potential safeguarding areas by supplying a facility to extract and map data for individual quarry sites and determine patterns and extent of building stone usage from the specified site(s). as can be seen in this image of all known building stone quarries identified to date.

To conclude.

The need to repair stone structures using authentic materials and techniques is a cherished principle and where replacement is needed this should be done on a like for like basis in both porosity and arguably the most important factor - technical compatibility. MPAs require detailed guidance about historic stone quarries, which are frequently perceived as brownfield sites or protected for their wildlife interest and designations, the resulting factor can be compatible sources of stone for conserving buildings and new developments are then lost in perpetuity.

This stone study is complying with the requirements set out in MPS1, Annex 3. We are identifying and in the longer-term aim to support and protect the sustainable, indigenous stone supplies for building and conservation work in England. We simply need to guard our building stone resources from development, which could inhibit their extraction, it is simply good, sustainable resource management to safeguard our indigenous stones.

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Now going to take you through the data. As I mentioned, there are two parts to the project. The GIS which can be seen on the screen and excel spreadsheets containing the identified building stones, buildings and villages built of the stones and their historic sources. These will be available to download from the UKMinerals website, together with county reports. It is not possible to keep this vast amount of data in the GIS as it would slow it down.

EBSPits – English Building Stone Pits

1. Introductory Page

Map of UK

LHS-Map Legend, showing which layers you want turned on, these include :

- a. Village, Building and Other stone structures;
- b. Quarries;
- c. Mineral Planning Authority boundaries; and
- d. Geology.

2. Tab, top left brings up the search tools

- a. Zoom Location: search by building/ quarry/location name;
- b. Stone Search: for (i) building/quarry – (ii) MPA – (iii) stone type

- c. Stone Query: search by clicking on an icon on the map i.e. Building/village/ quarry; and
- d. Geology Query: click on map to find out what the geology is for that area;
- e. Reports: drop down menu of written pdf Atlas reports to download; and
- f. Print: printing of findings.

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3. I am searching for Stone Buildings in Derbyshire County Council (can search for either stone buildings or building stone quarries)
4. Select a building stone that has been identified in the county from a drop down list (right). I have picked Stone Flags, as this will show how prolific stone roofing is.

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5. 20.2% of buildings and villages identified in Derbyshire have stone flag roofing. The known list of buildings and villages is also provided.
6. I have picked the village of Wirksworth and asked the GIS to zoom to this location

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7. The GIS has zoomed to the village of Wirksworth. The tab window is also showing contextual information about this village. It also mentions the other stones that have been used in construction i.e. Ashover Grit, Monsal Dale Limestones. It also provides two possible sources of building stone quarries.

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8. By clicking on the 'Stone Query' tab then clicking on the village a new window appears. You can search for building stone quarries within any radius of the village that have produced Ashover grit. In this instance I have entered within 2 kilometres.

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9. This brings up a new window showing 2 Ashover grit building stone quarries within a 2 km radius of the village.

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10. I have clicked on Barreledge quarry. This will provide information on the quarry, whether it is active, ceased or historic and includes the stone Lithology, name of the stone the quarry grid reference and address.