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The social and economic value of the UK's geodiversity

Report Authors: Michelle Webber, Mike Christie and Neil Glasser
University of Wales, Aberystwyth Date: September 2006
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Introduction

Given its relatively small size, the UK is one of the most geodiverse countries in the world. Our heritage of rocks, fossils, minerals, geomorphological features and processes includes a sequence of rock including every major period of geological history for the last 700 million years. This rich geodiversity is important in itself, for scientific and educational reasons, and international, national and local schemes to conserve, manage and promote this resource are in operation across the UK. Although it is widely accepted that geodiversity and the conservation of geodiversity is of social, economic and cultural benefit, these benefits have never previously been described. The aim of this report is to describe the social and economic value of geodiversity using a variety of methods.

What was done

The social and economic value of geodiversity is explored using a variety of methods. First, a review of existing research was undertaken to identify existing knowledge on the value of geodiversity, and also identify where gaps in this knowledge exist. This resulted in a qualitative review of the evidence about social benefits. New empirical research was then undertaken to provide information on where gaps in the knowledge occurred. This research included a series of interviews and focus groups with members of the public and specific user groups to collect descriptive and anecdotal evidence of the way in which people value geodiversity. A number of case studies were explored to illustrate in greater detail the social functions provided. Empirical research was also undertaken to specifically explore the economic values of geodiversity. In particular, the choice experiments method was used to assess how much people would be willing to pay to protect and enhance two geological sites: Wren's Nest National Nature Reserve (NNR) and the Jurassic Coast World Heritage Site (WHS). Economic impact analysis was also carried out on the Isle of Wight to determine the size of the local economic impacts that geodiversity brings to the Island.

Results and conclusions

The value of different elements of geodiversity was examined using two choice experiments valuation studies: one at Wren's Nest NNR near Dudley and the other at the Jurassic Coast World Heritage Site in Dorset. The value of 'knowledge' of geodiversity was explored by comparing the value of access to different geological sites both with and without the provision of interpretative material. Significant positive 'willingness to pay' values were found at both the Wren's Nest NNR and at the Jurassic Coast WHS. In both cases the provision of educational material on geodiversity (and hence 'knowledge') clearly enhances the value that people attain from visiting a geodiversity site. The value that people placed on the opportunity to collect fossils was also explored at both case study sites.

A multiplier analysis study was also undertaken to provide an estimate of the local economic impacts associated with geodiversity on the Isle of Wight. This research found that 39% of tourists in this survey

had visited the Isle of Wight specifically for the geodiversity. Average daily spend by these visitors was £73.86. The estimated expenditure related to geodiversity can be applied to the expenditure generated by all tourists to the Isle of Wight. Tourism on the Isle of Wight was estimated to be worth £352 million for the tourism year 2004/2005 (Isle of Wight Council 2006a). Geodiversity was therefore estimated to account for approximately £11 million of this value. Applying income and employment multiplier coefficients, it is argued that geodiversity generates between £2.6 million and £4.9 million in local income and supports between 324 and 441 full time equivalent local jobs.

Qualitative data, collected during focus groups and interviews, were also collected to provide descriptive evidence of the values that the general public hold for geodiversity. The evidence collected here was indicative of the high values that the public place on geodiversity resources and when considered alongside the findings from the choice experiments, provide strong evidence in support to the continued management and conservation of these resources.

This study demonstrates that the use of environmental valuation techniques, such as choice experiments, can be utilised to estimate the non-market benefits that geodiversity provides. These techniques, combined with qualitative and economic impact methods allow for the wider values associated with geodiversity to be identified. These values should now be used to develop policies and provide future management and conservation strategies for geodiversity.

English Nature's viewpoint

This is the first published attempt at placing a value on the social and economic value of geodiversity. As such it makes a major contribution to the thinking surrounding conservation of geodiversity, offering an additional approach to be used alongside more established means of conservation such as conservation and planning legislation. It provides valuable evidence on both a qualitative and quantitative basis. English Nature has always urged caution in interpretation of 'willingness to pay' and economic impact studies. We believe this research to be well constructed and to contain some innovative features in its methodology. Nevertheless, we suggest that the qualitative figures be used as broad indicators of positive economic value and impact rather than be quoted as exact figures.

Selected references

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See also

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