Monitoring hazards

A landslide defined is a hazard diminished

The need for a national database

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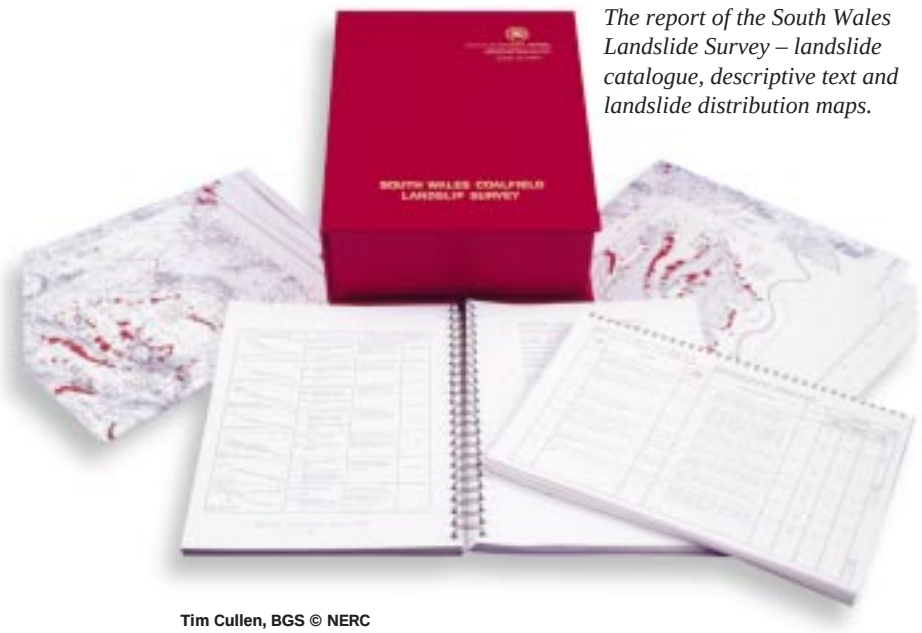
The occurrence of landslides on coasts and in the more hilly parts of the British Isles has been a phenomenon of widespread experience for as long as people have lived in Britain. However, although some are large and spectacular they are usually small, infrequent and soon forgotten. Thus, in the past they were not thought to be a significant hazard by most people and, because the threat to life and property was not seen to be great, little research or survey was done. However, in some areas such as the South Wales Valleys they are more frequent and were recognised as a local issue of importance. George Knox, a local mining engineer, wrote a classic paper on *Landslides in the South Wales Valleys* which he presented to the South Wales Institute of Engineers in 1927. The BGS mapping of the Valleys in the middle of the 20th century recorded many landslides on the maps but no detailed work was done on them. The situation changed dramatically after 1966 when, on the 21st of October, a landslide of coal spoil flowed down the valley side into the village of Aberfan in the Taff valley killing 116 children and 28 adults. The result of this tragedy was to focus attention on the stability of spoil heaps and natural slopes in South Wales and elsewhere. A major research initiative on natural slopes, funded by the Department of the Environment (DoE, now part of the Department of Transport, Environment and the Regions, or DETR) and the Welsh Office, was started by the BGS in 1976. This culminated in the completion of the South Wales Coalfield Landslide Survey in 1980. This was the first regional study of landslides in Britain that described the location, type and activity of landslides.

The results were contained in a major technical report, EG 80/4, that included a catalogue of landslides, a report describing the causes and a set of 20 maps at a scale of 1: 50 000 showing their distribution related to geology, slope angle and topography. After its publication, research continued in South Wales, by the BGS and others, looking in more detail at the causes of landslides, their assessment and prediction.

The DoE's interest widened in 1984 and it commissioned Geomorphological Services Ltd. to carry out a review of research into landsliding in Great Britain. This review included a database of landslides that were referred to in published sources, including the geological maps of the BGS. At the time of its completion in 1987, no provision was made to maintain or update the database within the research programme of the DoE.

The BGS has continued to record and describe landslides within its research and survey activities in the areas in which it has been working throughout Britain. For example the Calderdale Project landslide database included slides from earlier BGS maps, the DoE national review but also from the resurvey, using aerial photographs and walk-over inspection. Modern survey methods enabled 223 landslides to be entered into the database in addition to the 13 slides that were previously known.

Since 1995, a BGS landslide database has been developed and maintained which, to date, incorporates details of some 400 landslides acquired as part of its ongoing research and survey activities. Following the recent transfer to the BGS of copies of national hazard review databases by the DETR, it is intended to merge the two landslide data sets into an upgraded National Landslide Database that can be maintained and updated as new information becomes available. The long-term aim is to create a searchable database that will serve as both a valuable research tool and an aid to the desk-study phases of construction and development projects. By providing access to current information regarding the slope stability of the site under consideration and its environs both hazard and construction costs can be reduced.



The report of the South Wales Landslide Survey – landslide catalogue, descriptive text and landslide distribution maps.

Tim Cullen, BGS © NERC